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**DETERMINANTS OF ACADEMIC SUCCESS OF  
FOREIGN STUDENTS IN TÜRKİYE  
(CASE STUDY)**

**Muthanna ALSARAH**

Master's Thesis

Supervisor

Assoc. Prof. Bengi YANIK İLHAN

Istanbul, 2023

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The thesis titled DETERMINANTS OF ACADEMIC SUCCESS OF FOREIGN STUDENTS IN TÜRKİYE (Case Study) prepared by MUTHANNA ALSARAH and submitted on 08/08/2023 has been **accepted unanimously** for the degree of Master of Arts in Business Administration.

Assoc. Prof. Bengi YANIK İLHAN

Supervisor

Thesis Defense Committee Members:

Assoc. Prof. Bengi YANIK İLHAN	Department of Economics, Altınbaş University	_____
Asst. Prof. NEVZAT BARIŞ VARDAR	Department of Economics Altınbaş University	_____
Asst. Prof. GÖZDE BOZKURT	Department of Economics, Beykent University	_____

I hereby declare that this thesis meets all format and submission requirements of a Master's thesis.

Submission date of the thesis to Institute of Graduate Studies \_\_/\_\_/\_\_

I hereby declare that all information/data presented in this graduation project has been obtained in full accordance with academic rules and ethical conduct. I also declare all unoriginal materials and conclusions have been cited in the text and all references mentioned in the Reference List have been cited in the text, and vice versa as required by the abovementioned rules and conduct.

Muthanna ALSARAH

Signature

## **DEDICATION**

Thank God who gave me the ability to complete this work, I would like to extend my sincere thanks and appreciation to Assoc. Prof. BENĐİ İLHAN for the scientific guidance she gave me to complete this research, I thank the members of the jury for accepting the discussion of this thesis. I dedicate this work to my late father and my mother may God preserve her, I offer this work to my brothers and sisters and to all friends and colleagues.



## ABSTRACT

### DETERMINANTS OF ACADEMIC SUCCESS OF FOREIGN STUDENTS IN TÜRKİYE (CASE STUDY)

ALSARAH, Muthanna

M.Sc. Business Administration, Altınbaş University.

Supervisor: Assoc. Prof. Bengi YANIK İLHAN

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In the Education literature, most of the researchers found out that Extra-Curricular Activities (ECA) such as sports dancing, playing an instrument etc, affect a student's Academic performance. In this research, we study the possible influence of Extra-curricular Activities (math-related and/or sports) on Academic performance. First, we conducted a survey with parents and teachers in one of the private schools in İstanbul. In the surveys, we ask for information related to their children, as well. Therefore, we can gather information on whether pupils participate in Extra-curricular Activities or not. As a dependent variable, we use pupils' grades in math. The math course was used as a common subject in all grade. As independent variables, we use dummies for Extra-curricular Activities (football, basketball, swimming etc..), years of experience for teachers, and households characteristics such as parents' education, income level.

We find out there is a relationship between Extra-curricular Activities and Academic performance of the student that affects the mental health of the student, helps in the development of the student's personality, and the academic level of parents plays an important role in the performance of the student as well as the level of income and gender does not affect Academic performance.

**Keywords:** Education, Extra-curricular Activities, Academic performance, Foreign Students, Success.

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## **ABBREVIATIONS**

ECA : Extra-Curricular Activities

OLS : Ordinary Least Square

GPA : Grade Point Average



## LIST OF SYMBOLS

$y_i$  : Variable Value

$\beta_0$  : Intercept

$\beta_1$  : Slope

$x_i$  : Independent Variables

$\varepsilon$  : Random Error Component.



## 1. INTRODUCTION

The level of society depends on the level of its members, and the level of the individuals depends on their level of education and the quality of this education, and this is reflected in the academic achievement of the student. Success is making effort, to achieve the goal and reach it, regardless of the difficulties and obstacles it faces, but success is not only limited to obtaining materials or things in kind or fame, as the feeling of happiness and satisfaction through determination to achieve it by doing work or activity is one of the most important things required to rise to the pinnacle of happiness (Davis, 2022). The most important pillars of success are willingness and determination, Pupils cannot achieve their goals without them, when a pupil sets a goal and fails with it, the pupil will not complete the work to achieve what he aspires. Organizing and caring for time is one of the most important means of success, so pupils must set a time for everything, study, sport, sleep and other things (Dyke, 2006).

Academic excellence requires double effort on the part of the student. Every success has a method and steps that should be taken care of. The primary goal of education is for students to complete a high-quality education. Which leads to raising the level of academic achievement for the student and has a role in graduating graduates who will contribute to the economic and social development of society (Ali et al., 2009). The factors associated with a student's academic success are many: including the student's cognitive level, the student's psychological level, the student's motor level, the student's emotional level, parents' educational level, family income level and teacher's educational methodology, classroom environment, student's extra-curricular activities (Mushtaq, 2012). These factors are interrelated and complex to discover and identify. Therefore, studies are necessary to simplify it with a focus on studying some of these factors only and not all at once (Mushtaq, 2012). Success is not achieved by spending long hours studying. There must be other extra-curricular activities accompanying the study, such as sports, music and dancing.

Education has witnessed a great development over the past century. This has entailed making major changes starting with the school, the teacher, the curricula, tools, methods, and various educational and pedagogical means. Education in general and classroom education in particular need to be reconsidered to improve its quality and increase its effectiveness.

Therefore, the role of the teacher who works to help students through his experience in extra-curricular activities is a pivotal role in his field (Shehab and Al-Danawi, 2019).

The main objective of the researcher in this research study is to learn about the potential effects of extra-curricular activities on the students' academic performance and achievement (math grade). In order to do this, I conduct a survey in a foreign school in İstanbul. In the survey, there information related to students' household characteristics and their teachers' characteristics including the students grade in math, the fact that whether they join non-academic activities etc. There are 131 Female students where as there are 124 male students. Total number of student is 255, We run a regression analysis (Ordinary least squares regression model). Dependent variable is grade where independent variables are dummies for extra-curricular activities (football, basketball, swimming etc..), years of experience for teachers, and households 'characteristics such as parents' education, income level.

In this thesis, there are seven Sections. In section 1, there is introduction. Section two Literature Review, Section three I will talk about foreign students in Türkiye, Section four I will talk about the Turkish Education System, Section five I will talk about Libya's education system, Section six there is Data and Methodology, Section seven empirical analysis, Section eight Discussion and conclusion.

## **2. LITERATURE REVIEW**

There is an urgent need to understand the determinants of academic success, specifically the impact of student participation in extracurricular activities on student academic achievement. We will therefore review in the literature of previous studies on the impact of participation in extracurricular activities on the student's academic achievement to create a stimulating learning environment in school educational systems and set incentive standards for students to achieve higher rates.

### **2.1 ACADEMIC ACHIEVEMENT**

Academic achievement is the extent to which goals are achieved for the student, teacher or educational institution short or long-term. Navarro (2003) defined academic achievement as "constructive in providing qualitative and quantitative values, helping to assess the evidence and dimensions of the skills, knowledge, attitudes and values developed by the student in the teaching and learning process" (Navarro, p (15-16), 2003).

Educational research has focused on academic achievement as evidence of success, and several modern concepts such as educational innovation and active learning methods have emerged into a clear change in research activities (Delors, 2019). Academic achievement can be measured in a variety of ways, including grades, test scores, classroom, completing educational requirements such as high school or college graduation, and various other success indicators. Academic achievement is important for a student's future success, as it is often used as an indicator of future success in college, career and other areas of life. It is also important for a teacher or institution to measure and monitor academic achievement, as it can provide insight into the effectiveness of teaching methods and curricula. Education is better when students realize what they can do, receive recognition for their work, learn quickly from their mistakes and receive supervision and guidance to improve their performance (Fullan, 1991).

Since positive motivation, rewards and communication between teachers and students affect the student's progress, these aspects are crucial for academic achievement. Research has been conducted indicating students' response when they realize where they are, how they do, and what they need to do to increase academic achievement (Harris et al., p154, 1997). In

addition to that attention to students' individual capabilities enhances the evaluation process, it emphasizes the importance of rewarding students' positive behavior. Using rewards instead of penalties to change students' behavior is important in motivating students (Harris et al., 1997).

Academic achievement is measured in several ways: test performance (exams) or composite performance measures (GPA). Accordingly, students' competence in terms of academic achievement is assessed and is also used as a criterion for different educational selection processes (universities) (Schneider and Preckel, 2017).

In recent years, the scientific focus has been on increasing academic achievement (Hattie, 2008), researchers found that academic achievement has a positive correlation with personal (student), social (teacher) and environmental (school) factors that play a role in building knowledge, social support, intelligence, motivation and homework in the student (Poropat, 2009; Richardson, Abraham, and Bond, 2012; Vedel, 2014). On the contrary, factors appear that negatively affect academic achievement, such as procrastination, lack of attention, lack of attendance, anxiety, tension, neglect of duties and wasting time on social media (Schneider and Preckel, 2017; see also Winne and Nesbit, 2010).

Academic requirements have been developed based on attendance, grades and behavior to participate in extra-curricular activities. Impose a certain level of academic achievement for students to allow them to participate in various academic and sports clubs for competition (Cash, 2009).

Conditions have been set to ensure that students in schools maintain a certain level of academic achievement. Most requirements require students to pass classes, or they will not be able to participate in extra-curricular activities (sports). Students realize that this criterion is important for academic and sporting success and is an incentive for students to perform academically. This criterion promotes higher attendance rates (McMillan, 1991).

The overall rate at the school year is very important in student's school life, and his future, which represents the performance of the academic student in the school to increase his

academic achievement. Researchers have found through students' participation in extra-curricular activity lead to have higher grades (Eccles et al., 2003).

Fredericks and Eccles (2006) also found that students who participated in clubs (theatre, dance, science competitions) received better rates than students who did not.

## **2.2 EXTRA-CURRICULAR ACTIVITIES**

There has been a change in the overall education landscape over the past years, educational systems have worked to find ways to increase academic achievement. Studying extra-curricular activities for a better life for young people as well as the possibility of integrating this knowledge with education.

This study attempt to explore the relationship between student achievement and participation in extra-curricular activities through its impact on the student's grades, the absenteeism rate, and academic achievement at the end of the school year. Extra-curricular activities have become a necessity in students' lives. The end of classes does not mean the end of the day for school students.

They will go to their group and teams for a good time in their chosen activities (Cadwallader et al., 2002). But the effect of extra-curricular activities varies from student to student. Studies show that students who participate in activities have positive features, academic and social, that help them improve academic performance in the future. The aim of students' participation in extra-curricular activities is to provide opportunities commensurate with their personal interests and skills. The reasons why most young people participate in the activities are to be with their peers, enjoy and improve their activity, including sports activities of all kinds, theatre, music, arts and academic clubs (Mahoney and Vest, 2012).

Participation in extra-curricular activities can lead to many positive results (higher grades, lower school dropout rate, higher educational attainment) (Martinez, et.al, 2016). Extra-curricular activities fill some gaps in education such as teamwork and social initiative (Larson et al., 2006). Student participation connects supporting adults with peers who help mentor and support (Fredricks, 2012). In addition to academic skills, adults offer non-academic skills and relationship building (Stearns and Glennie, 2010). Researchers agree

that students' social and emotional skills are as important as academic skills (Ready Nation, 2017). Extra-curricular activities affect students to become successful and productive, increase self-esteem and build relationships and work towards their goals (Massoni, 2011).

One of the researchers said that "Early opportunities and experiences are often life chances and subsequent successes" (Leras, p899, 2008). Research indicates that organized extra-curricular activities promote health development and provide support and opportunities for school students (Gardner et.al, 2008). Participation allows students to demonstrate more skills and interests than class (Fredricks and Eccles, 2006).

The difference between activities in the school curriculum within the classroom and extra-curricular activities after the school's daily end must be noted. (Frame, 2007).

There is a significant correlation between students' participation in extra-curricular activities, behaviors and academic performance. Students participating in extra-curricular activities perform better than non-participating students (Reeves, 2008). Students' participation in extra-curricular activities is a good way to teach new skills such as restraint, organization, interest and behaviors (Morris, 2016). These skills that students learn in extra-curricular activities can lead to better academic performance that helps them raise their level and develop their skills (Covay and Carbonaro, 2010).

## **2.3 TYPES OF EXTRACURRICULAR ACTIVITIES**

There are many extra-curricular activities (sports of all kinds, music, academic clubs, theatre) and we will talk about the following activities:

### **2.3.1 Physical Activities**

Various physical activities provide physical, personal and social benefits (Metzl and Shookhoff, 2002). These benefits include better fitness, helping to grow, relieving stress, acquiring new skills and healthy habits that keep them active and vibrant and protect them from childhood obesity. (KidsHealth, 2010).

Extra-curricular activities help students alleviate stress and anxiety, work to keep their minds clean and keep students away from social stress situations. Participation in sports can help

teenagers prepare for challenges and foster a spirit of competition that helps academic achievement (Hass, 2004).

### **2.3.2 Musical Activities**

Several studies have been conducted to determine whether there is a correlation between music activities and student achievement. Music activities have been found to have a positive impact on academic achievement (Southgate and Roscigno, 2009).

Another study found that participation in bands has a positive impact on students' grades (Catterall et.al, 1999). The study showed that students who participated in the bands performed better than students who did not participate in the same program regardless of the students' social and economic situation (Catterall et al., 1999).

A study by Ponter (1999) showed a positive relationship between participation in music activities and academic performance. Ponter (1999) suggested that the music curriculum should be an important part of the educational system such as mathematics, physics and other sciences. Studies have shown that students trained in musical instruments perform better in mathematics, other sciences and musical training that helps students develop their intellectual skills. This development allows for better academic achievement (Kelstrom, 1998).

### **2.3.3 Academic Club Activities**

Schools support their students to engage in service clubs. Studies show that participation in community services has a positive impact on students' academic performance (Hinck and Brandell, 1999). Where service activities can be connected to academic education, studies show that academic growth increases when service activities are connected to the academic curriculum (Hinck and Brandell, 1999).

According to Hinck and Brandell (1999) "participation in service learning affects students' higher thinking skills, motivation for learning, application of learning, insight, and basic academic skills". The study showed that students involved in learning services demonstrated an improvement in behavior, attendance, and academic achievement. These studies found that the student's economic and ethnic situation does not play any role in academic

achievement. There is a positive relationship between participation in service activities and academic performance.

#### **2.4 THE IMPACT OF EXTRA-CURRICULAR ACTIVITIES ON STUDENTS' MENTAL AND PHYSICAL HEALTH**

Over the past years, the mental health of schoolchildren has been a major concern, with research focusing on factors associated with students' mental and physical health to increase academic achievement (Ridner et.al, 2016). students' gain benefits from extra-curricular curricula in all sporting and group activities, perform better in school, have distinct personal skills and natural abilities, and are healthier and more active in a safe environment (Metzl and Shookhoff, 2002).

When a student achieves success, he/she is satisfied, which prompts the student to continue to develop himself/herself continuously during his/her academic life, and extra-curricular activities lead to good healthy habits of avoiding the student's alcohol and drug use. This helps the student to be mentally and physically prepared.

As students learn from extra-curricular activities the importance of time management, they must balance school time and extra-curricular activity. Time is used well, a skill that each student needs to achieve continuous success more efficiently (Metzl and Shookhoff, 2002). Participation in extra-curricular activities helps to develop students' leadership abilities that they need throughout their lives and that allows them to develop leadership capacity in their careers (Metzl and Shookhoff, 2002).

#### **2.5 THE IMPACT OF EXTRA-CURRICULAR ACTIVITIES ON STUDENTS' SOCIAL RELATIONS**

There are many advantages that students gain from participating in extra-curricular activities. Students joining various sports groups and school clubs is a good way to deepen each other's friendships and make new friends (IES, 2012).

Extra-curricular activities have social benefits by developing students' relationships with other students and their relationships with mentors and teamwork (Hass, 2004). Leading to health and academic benefits so that each student develops his or her relationship within the

team and these relationships become a positive social network that benefits him or her in his or her future life (Metzl and Shookhoff, 2002).

The team's work as a group gives greater value to sport (Woloch, 2010). The development of teamwork takes several years of hard work, and we can know teamwork as a group of similar individuals working with each other to achieve a common goal (Gib, 2010). One of the social benefits of sports activities, diversity. Participation in sports will allow students to meet other students from different cultural and ethnic backgrounds who gain knowledge at an early age (Metzl and Shookhoff, 2002). Studies have revealed that students who engage in extra-curricular activities are less socially isolated and less susceptible to depression, stress and good mental health than students who do not participate in such activities (Jewett et al., 2014).

At the end of 2019 and the beginning of 2020, the coronavirus disease emerged and was classified as a pandemic by the World Health Organization (Ducharme, 2020). This pandemic has led to the closure of schools around the world and the transition to tele-education system and therefore all extra-curricular activities have been cancelled, according to reports that this has led to a significant reduction in physical activity as well as the mental health of school students affected by social isolation (Viner et al, 2020).

The economic situation affects students greatly, affecting students' academic performance, low-income students attend schools lacking curriculum and extra-curricular activity (Mizell, 2000; Cooney, 1998; Schmidt et al, 1996).

## **2.6 COMMUNICATION SKILLS WITH PEERS AND ADULTS**

One of the main objectives of extra-curricular activities is participation when students engage with their peers and interact with adults, Researchers have found that any activity shared by the student results in new friendships (Simpkins et al., 2008) The more time students spend in extra-curricular activities, the more students communicate with each other (Martinez et al., 2016) Student engagement with peers offering them new experiences that

enhance the friendships created and contribute to the formation of students' personality (Eccles et al., 2003).

There is a link between students and their peers and academic performance, extracurricular activities can be used to promote relationships with distinguished academic students, and peers play an important positive role in creating an environment suitable for academic achievement (Gibbs et al., 2015). Students' participation in any organized activity and their association with academic and social-minded peers leads to adherence to school laws and improved behaviors (Fredricks, 2012).

One study revealed that students who participated in extra-curricular sports activities, clubs, and competitions received support and guidance from adult peers and thus increased their academic achievement (Martinez et al., 2016).

Parents play an important role in supporting their children, encouraging them, and showing friendship and motivation. This support constitutes a positive attitude in stabilizing the student's psychological state and creates an impact on the academic performance. In addition to communicating with teachers when there is any behavioral or academic problem with their children, students who are supported by their parents have higher grades than those who are not encouraged. This attention is linked to the cultural, social, and economic level of parents (Morrison and McLutryre, 1971).

Parental participation is linked to improved achievement and reduced student behaviors by absenteeism (McNeal, 1999). It has been noted that parents' approach and aspirations for support and supervision are positively linked to academic achievement (Baker and Soden, 1998). Some studies have confirmed that emotional support for parents is a strong indicator of the student's academic achievement (Deslandes et al, 1998).

Building relationships with adults is a benefit of exercising in sports activities. Sports will provide an opportunity for students and their parents to spend time with each other. Students will learn to build positive relationships with adults through extra-curricular activities which may enable social relations to achieve higher rates in the classroom. Studies show that

students who participate with their parents in sports activities achieve better outcomes than students whose parents do not share with them (Klesse, 1994).

## **2.7 IMPACT OF PARENTS' ACADEMIC LEVEL AND INCOME ON STUDENTS' ACADEMIC PERFORMANCE**

Literary studies showed the importance of parents' educational level in forming the personality of children and pushing children to raise their academic performance (Klebanov, Brooks-Gunn, and Duncan, 1994; Haveman and Wolfe, 1995; Smith, Brooks-Gunn, and Klebanov, 1997). Other studies have focused on parents' behaviour in raising a child, showing love and participating in activities (Conger et al., 2002; Mistry, et.al, 2002). Studies showed the direct positive impact of parents' educational and cultural level on student results (Jimerson, et.al, 1999; Kohn, 1963; Luster, et.al, 1989). On the other hand, researchers found that parents with higher incomes and higher education levels had a better prediction of their children's achievement in school than low-education and low-income families (Alexander et al., 1994).

The ability of parents to develop expectations about their children's school performance must be very accurate in the educational environment so that children can get good achievement (Alexander et al., 1994). Mothers with a higher level of education had a better prediction of their children's academic performance (Halle et al., 1997). In addition to that, mother's education has a direct impact on the cognitive behaviour of children (Corwyn and Bradley, 2002). Parents' education is related to a better social climate within the family (Klebanov et al., 1994). The stimulating home environment is related to the family income level and the educational level of children, which affects the child's academic performance in school (Smith et al., 1997).

### 3. FOREIGN STUDENTS IN TÜRKİYE

Türkiye has hosted millions of foreign refugees over the past years due to war, persecution, poverty and insecurity in their countries, The most prominent of these are Syrian, Iraqi, Libyan, Palestinian, Yemeni, Sudanese, Ukrainian, Afghan, Azerbaijani and other nationalities. These wars and conflicts have affected society in general and children in particular It has affected their psychological, emotional and cultural needs (Barbara, 2006). Most children had to move with their parents to neighbouring and safe countries such as Türkiye and there was difficulty for children to adapt to the new place and school because of the language barrier and culture of the new country (Özel, 2018; Sarmini, 2020).

Most foreigners residing in Türkiye benefit from free education in Turkish government schools which receive all students without restrictions or costs depending on the principle of basic education. Turkish government schools are efficient, quality education and good reputation However, special education attracts a segment of foreigners residing in Turkey in order to complement students with the same curricula they have taught in their countries in order to preserve their mother language, There are several reasons why foreign students do not attend Turkish schools (Sarmini et al., 2020) :

- a. Difficulty of communication between foreign students and Turkish students.
- b. Difficulty in communicating between Turkish teachers and foreign students.
- c. Difficulty in understanding the subjects and not being able to write or pronounce in Turkish.
- d. Some parents are afraid of their children being harassed by their peers.
- e. Difficulty communicating between foreign parents, school management and Turkish teachers.
- f. Parents are afraid that their children will lose their native language.

## **4. TURKISH EDUCATION SYSTEM**

### **4.1 INTRODUCTION**

The progress and renaissance of people depend on the level of education of their children. Türkiye has endeavored through plans in the field of education to advance and progress and keep pace with the requirements of the times. Over the past years, it has endeavored to achieve this at a confident and successful pace. Türkiye's education system is progressing and constantly evolving in terms of quality.

Over the past years, the number of Arab and foreign communities in Türkiye has risen. This has led to an increase in the number of Arab and foreign students who want to pursue their education in Turkish schools. The parents of students want to enroll their children in Turkish schools, due to their quality and semi-free fees, and their desire to integrate their children into Turkish society.

Studying in a new environment is not easy. It is a challenge for foreign students to difficulties in language, adapting to the new environment, values, habits, and educational systems, and finding new friends (Rawjee, 2012). Foreign students may experience mental health problems due to different cultures (Maclachlan and Justice, 2009). Cultural differences can cause a student to feel frustrated when they return because of their country's cultural reality (Robinson, 2009).

### **4.2 DEVELOPMENT OF TÜRKİYE'S COMPULSORY EDUCATION SYSTEM**

Education is the most important factor in economic and social development (Öztürk, 2005) Türkiye has reformed the educational system to maintain economic growth (Yüksel, 2014). Education has been used to build a meaningful future (De Wet and Wolhuter, 2009) Türkiye's education system has been influenced by Western countries in terms of curriculum (Akyüz, 1996). During the period of the Republic of Türkiye, most imported curricula failed to succeed because they did not fit the social and economic history and culture of the Turkish

people (Akpınarand et al., 2012). Türkiye has undergone three reforms in the education system over the past decades:

- a. Five years' of compulsory primary education has become optional at the rest (3 years elementary – 3 years high school) (Akyüz, 1996).
- b. The period of compulsory education increased from five years to eight years (primary) and three years of preparation (ERG, 2012).
- c. Türkiye's compulsory education system has become 12 years of age and is known as (4 + 4 + 4). It has been divided into four years of primary, four years of elementary, and four years of high school education (Çelik and Kasapoğlu, 2014) It made a qualitative shift at the time (Gençdal, 2012).

#### **4.3 EXTRACURRICULAR ACTIVITIES IN TURKISH SCHOOLS**

The rapid change in technology has led to change in the fields of education, and technology has become an integral part of the education system, so it is necessary to increase research and studies in the field of education, as a new style of activity has emerged in the 21st century (STEM), the initials of (science, technology, engineering, and mathematics). where STEM helps teach students (Sanders, 2009; Yıldırım and Altun, 2015).

The STEM system is defined as the integrative teaching of science, technology, engineering, and mathematics through linkages between them (Sanders, 2009; Smith and Karr-Kidwell, 2000). The importance of STEM education was emphasized by Türkiye (Akgündüz et al., 2015, Çorlu, 2014). Türkiye has developed a renewed curriculum aimed at teaching students science, mathematics, engineering and technology to all levels under the name of science and engineering applications (Hiğde, 2018). The importance of teaching science increases the competitiveness of States and supports States' economic and social development (Çakmakçi, 2016). Another goal of STEM education is to raise individuals to contribute to the growth of the country and make the country economically and industrially advanced (Çevik and Özgünay, 2018). It also aims to develop students' creative skills and communication (Bybee, 2010; Morrison, 2006). The skills students acquire from learning (STEM) are innovation, problem solving, self-confidence and motivation (Morrison, 2006). It also acquires the skill of using technology well (Bybee, 2010). Learning (STEM) should

include activities that attract students' interest and make them interested in learning (Baran et al., 2015). Studies found that students who participated in STEM activities were more successful than students who did not participate (Cotabish et al., 2013). As a result of research, students were found to have been able to understand scientific lessons better and more pleasantly, as this contributed to the upgrading of teamwork skills.

#### **4.4 TYPES OF HIGH SCHOOL IN TÜRKİYE**

Schools in Türkiye are divided into government and private schools and are supervised by the Turkish Ministry of Education :

i. Government Schools

- a. High School of Science.
- b. High School of Social Sciences.
- c. Anadolu high school.
- d. high school for technical and vocational education.
- e. Anadolu high school for imams and preachers.

ii. Private schools

Türkiye's first private school is (Galatasaray Sultanisi) 1868 (Küçükçayır and Cemaloglu, 2017). Rich families preferred private schools to teach their children to provide quality education (Şimşek, 2014). Following the establishment of the Turkish Republic, private schools were opened in the 1980s and special education laws were drafted (Bakioğlu and Sarıkaya, 2015). Private schools increased after 2004 following the rapid growth of Türkiye's economy (Zaifer, 2015). The number of private schools in Türkiye doubled after 2010 (Baryam, 2018). The Directorate of Private Educational institutions (Özel Öğretim

Kurumları Genel Müdürlüğü) is responsible for supervising and monitoring private schools (Tunç, 2006). Private schools are classified into four groups as follows : (Dağ, 2015)

- a. Turkish private schools.
- b. Minorities' Private Schools
- c. Private foreign schools.
- d. Private international schools.



## **5. LIBYA'S EDUCATION SYSTEM**

### **5.1 INTRODUCTION**

Education is one of the most important strategic means for countries to achieve their goals, build their future and raise their profile among developed countries, especially in this century, Distinguish by an accelerated scientific revolution that encompasses various aspects of economic and social life. Therefore, States are interested in developing educational systems inspired by the society to which they belong to be able to achieve their goals. All countries, including Libya, have worked to focus on education, follow it up, and consider it the basis for building the Libyan society, and setting policies, plans, and goals to achieve this ( Al-Muhanker, 2016).

### **5.2 DEVELOPING LIBYA'S COMPULSORY EDUCATION SYSTEM**

Libya's education sector has undergone a significant shift in terms of transition to compulsory education, increasing the number of students and schools, developing infrastructure and contracting with a large number of foreign teachers. Education in Libya is under the supervision of the Libyan Ministry of Education and is responsible for Libya's educational curriculum, accredited in public and private schools. Education in Libya is free for all levels of education (primary, elementary and high school) (Awad, 2019).

### **5.3 THE LEVELS OF EDUCATION ARE DIVIDED INTO**

- a. Primary: The period of education shall be 6 years from the age of 6 to 12 years.
- b. Elementary: The period of education shall be 3 years from 13 to 15 years of age.
- c. High school: The period of education shall be 3 years from 16 to 18 years of age.

#### **5.3.1 High Schools are Divided Into**

- a. Basic Sciences branch.
- b. Life Sciences Branch.
- c. Engineering Sciences Branch.

- d. Economic Sciences Branch.
- e. Social Sciences Branch.
- f. Languages Branch.

#### **5.4 EXTRA-CURRICULAR ACTIVITIES IN LIBYAN SCHOOLS**

The School Activity Department of the Ministry of Education of Libya (concept of school activity) is defined as "The beneficial organized work of the pupil of his or her liberty, which is a natural extension of the curriculum and leads to his or her upbringing and preparation for life" (School Activity Department, 2010).

School activity (extra-curricular) is part of the school curriculum. A student chooses what suits his or her different tendencies and abilities and includes a variety of areas to satisfy his or her physical, mental, psychological and social needs in order to gain many experiences according to his or her stage of development (Hassi, 2022).

##### **5.4.1 Extra-curricular Activities in Libyan Schools**

- a. School cultural activity.
- b. Sports activity.
- c. Activities of technical education and works.
- d. Music and theatre activities.
- e. School library activities.
- f. Media education activities.
- g. Programmes in support of school activities.

## 6. DATA AND METHODOLOGY

### 6.1 DATA

A survey was conducted in a foreign school (Amjad al-Uruba School) in Istanbul in 2022. Approval was taken from the director of a school for foreign students in Istanbul to collect the pupils' data. A paper survey was conducted and sent to the parents of the pupils. Through this survey, a series of questions were asked to students such as student sex, age, class, student hobbies, student grades, parental education level, parental nationality, income and reason for being in Türkiye.

### 6.2 METHODOLOGY

We are going to use Ordinary Least Square (OLS) Regression analysis to examine the impact of household characteristics and teacher's characteristics on academic performance (math grades). In addition to that, we will try to investigate the effect of extra-curricular activities (pro-social activities such as team sports, dancing etc...) on academic performance.

The formula of OLS regression :

$$y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + \varepsilon$$

**Math grade:**  $\beta_0 + \beta_1$  basketball +  $\beta_2$  swimming +  $\beta_3$  volleyball +  $\beta_4$  football +  $\beta_5$  piano +  $\beta_6$  art +  $\beta_7$  violin +  $\beta_8$  drawing +  $\beta_9$  Mother' edu +  $\beta_{10}$  father' edu +  $\beta_{11}$  father experience +  $\beta_{12}$  mother experience +  $\beta_{13}$  mother income +  $\beta_{14}$  father income +  $\beta_{15}$  male +  $\beta_{16}$  female +  $\varepsilon$

$y_i$  : Variable value (math grade) dependent variable at (i) point

$i$  : number of variables ( $i = 1, 2, 3, \dots, n$ )

$\beta_0$ : intercept

$\beta_1$ : slope (unknown constant)

$x_i$  : are independent variables such as: female dummy, (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

$\varepsilon$ : random error component.

**Year end rate** :  $\beta_0 + \beta_1 \text{ basketball} + \beta_2 \text{ swimming} + \beta_3 \text{ volleyball} + \beta_4 \text{ football} + \beta_5 \text{ piano} + \beta_6 \text{ art} + \beta_7 \text{ violin} + \beta_8 \text{ drawing} + \beta_9 \text{ Mother's edu} + \beta_{10} \text{ father's edu} + \beta_{11} \text{ father experience} + \beta_{12} \text{ mother experience} + \beta_{13} \text{ mother income} + \beta_{14} \text{ father income} + \beta_{15} \text{ male} + \beta_{16} \text{ female} + \varepsilon$

$y_i$  : Variable value (Year end Rate) dependent variable at (i) point

$i$  : number of variables ( $i = 1, 2, 3, \dots, n$ )

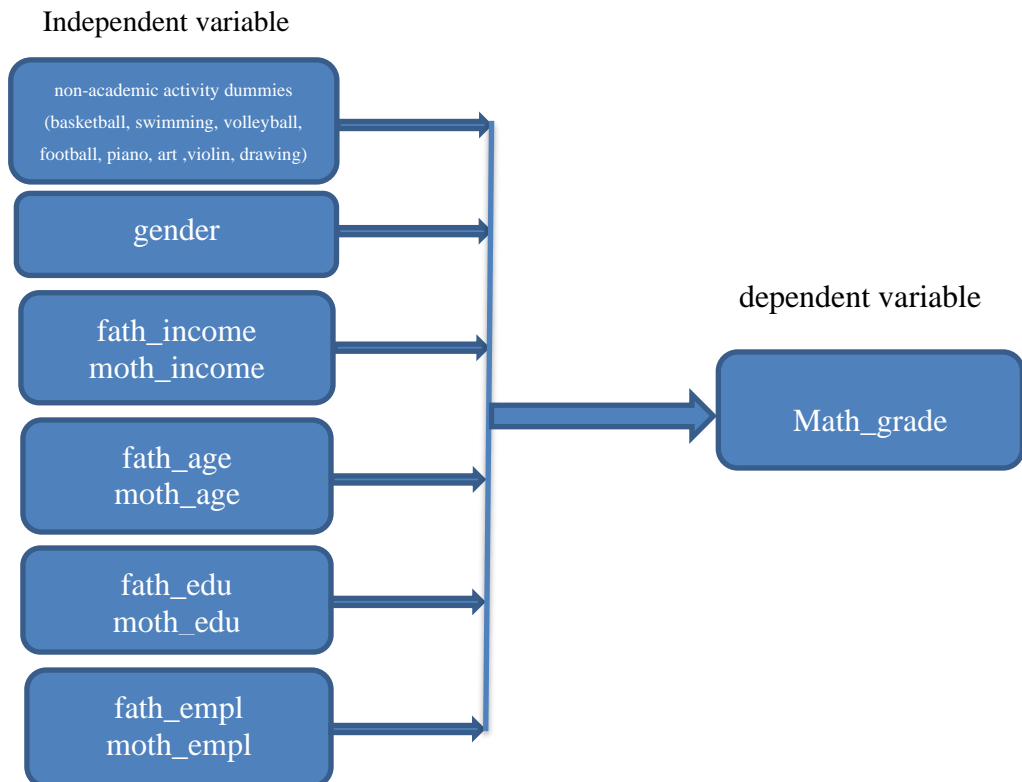
$\beta_0$ : intercept

$\beta_1$ : slope (unknown constant)

$x_i$  : are independent variables such as: female dummy, (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

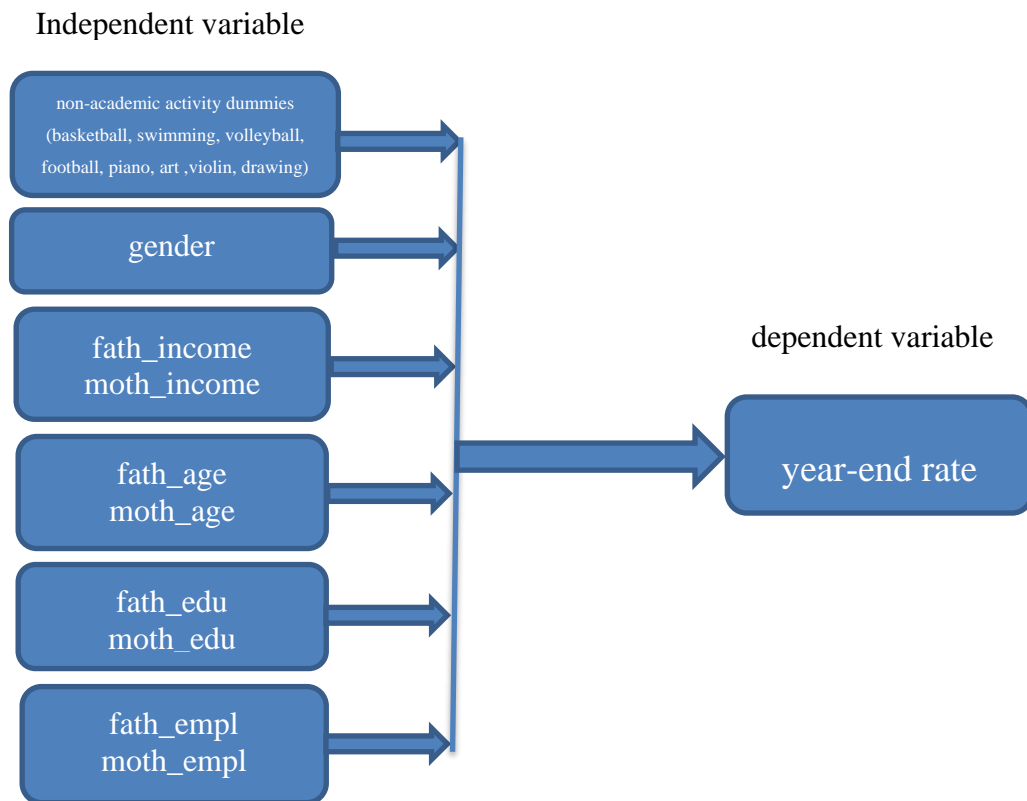
$\varepsilon$ : random error component.

Figure 6.1 shows the dependant variable: math grade and independent variable: extra-curricular activities, gender, father education, mother education, father age, mother age, parental work and father income, mother income.



**Figure 6. 1 :** Dependent ( Math Grade ) and Independent Variable.

Figure 6.2 shows the dependant variable: year-end rate and independent variable: extra-curricular activities, gender, father education, mother education, father age, mother age, parental work and father income, mother income.



**Figure 6. 2 :** Dependent (Year-end Rate) and Independent Variable.

### **6.3 HYPOTHESIS**

H1 : There are no differences between students who participate in extracurricular activity and those who do not participate in extracurricular activity and math grade.

H2 : There are no differences between the year-end rate of students participating in extracurricular activities and those not participating in them.

H3 : There is no relationship between parents' educational level and students' math grades.

H4 : There is no relationship between family income and students' grades in math.

H5 : There is no relationship between students' grades in mathematics and gender.

#### **6.3.1 Descriptive Statistics**

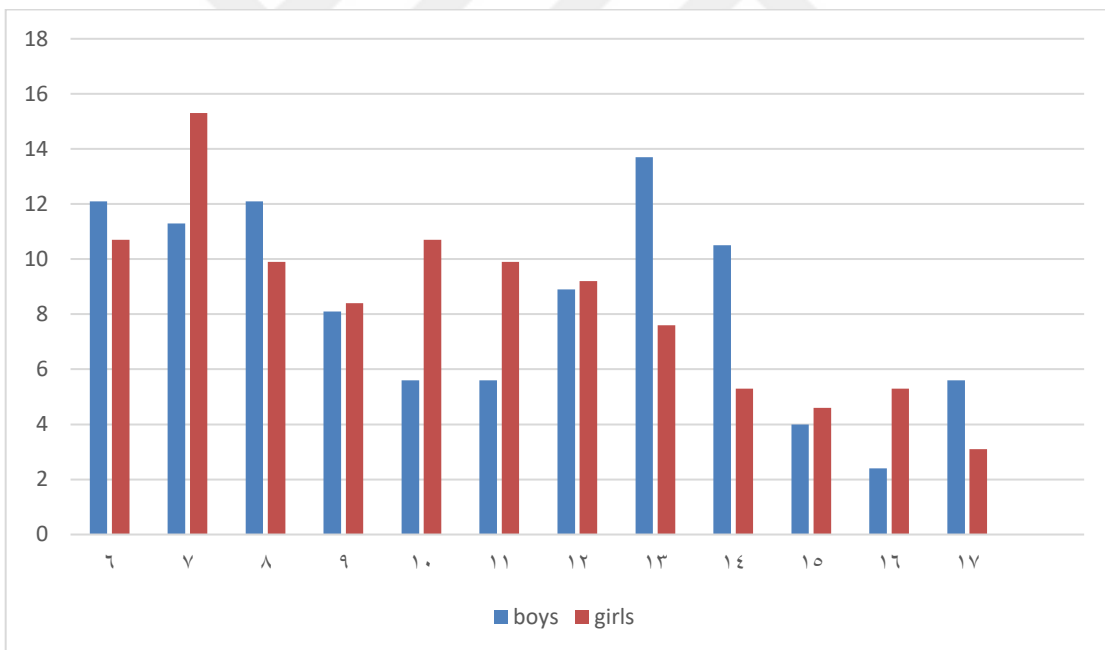
In this section, the data collected will be presented through the survey of students at the foreign school in Istanbul, where 255 students and 116 parents of pupils provided data to determine the impact of participation in extra-curricular activity on students' academic performance.

Table 6.1 shows the number of males and females in total students. The percentage of each male and female sex included in the sample size of this research. Moreover, the survey suggested that the age of the students is not just a number it has a great impact on the behavior of the students. For example, the table below explains that a total of 29 students belong to the age of 6 of which 12.1% are boys and 10.7% are girls. The same as 34 students belonging to the age of 7 and divide with the ratio of 11.3 to 15.3 between girls and boys. Moreover, the rest of the table shows the same and explaining the percentage of each gender in each age group.

**Table 6.1: Age by Gender.**

	Frequency	Percent	Boys Percent	Girls Percent
6	29	11.4	12.1	10.7
7	34	13.3	11.3	15.3
8	28	11.0	12.1	9.9
9	21	8.2	8.1	8.4
10	21	8.2	5.6	10.7
11	20	7.8	5.6	9.9
12	23	9.0	8.9	9.2
13	27	10.6	13.7	7.6
14	20	7.8	10.5	5.3
15	11	4.3	4.0	4.6
16	10	3.9	2.4	5.3
17	11	4.3	5.6	3.1
Total	255	100.0	100.0	100.0

Source: Authors calculations.



**Figure 6.3 : Age of Students.**

Table 6.2 shows the number of male and female students involved in various activities. The table shows the percentage of each male and female sex included in the sample size of this research. It shows the percentage of each sport from each group. As the table suggested that basketball was played by 69 boys and 85 girls. Moreover, 53 boys and 24 girls are involved in swimming. Furthermore, volleyball was played by 73 boys and 90 girls. Same as the above explanation the rest of the table explains the number of each sport.

**Table 6.2:** Activities.

Activities	N (%)		Boys		Girls		Total
	No	Yes	yes	no	yes	no	
Basketball	101 (39.6%)	154 (60.4%)	69	51	85	50	255 (100%)
Swimming	178 (69.8%)	77 (30.2%)	53	67	24	111	
Volleyball	92 (36.1%)	163 (63.9%)	73	47	90	45	
Football	131 (51.3 %)	124 (48.7%)	124	0	0	131	
Dancing	179 (70.2%)	76 (29.8%)	4	120	72	63	
Piano	244 (95.7%)	11 (4.3%)	6	118	5	126	
Art	0 (0%)	255 (100%)	124	0	131	0	
Violin	255 (100%)	0 (0%)	0	124	0	131	
Drawing	0 (0%)	255 (100%)	124	0	131	0	

Source: Authors calculations.

The table 6.3 shows the number of fathers and school years and in this table the percentages and figures are given to show that proportion. Column NA explains the number of individuals that how many years they spent in education. 2 fathers have 9 years of education, 1 has 11 years, 23 has 12 years, 2 have 14 years, and 73 have 16 years. The rest of the table explains the same.

**Table 6.3: Father's Year of Education.**

	NA	Percent
9 years	2	1.7
11 years	1	0.9
12 years	23	19.8
14 years	2	1.7
16 years	73	62.9
17 years	3	2.6
18 years	4	3.4
19 years	5	4.3
22 years	2	1.7
24 years	1	0.9
Total	116	100.0%

Source: Authors calculations.

Table 6.4 shows the number of mothers and school years, and this table shows the percentages and figures to show this percentage. Column NA explains the number of individuals that how many years they spent in education. 2 mothers have 8 years of education, 3 have 9 years, 4 have 10 years, 42 have 12 years, and 1 has 15 years. The rest of the table explains the same.

**Table 6.4: Mother's Year of Education.**

	NA	Percent
0	6	5.2
8 years	2	1.7
9 years	3	2.6
10 years	4	3.4
12 years	42	36.2
14 years	1	0.9
15 years	1	0.9
16 years	52	44.8
16years	1	0.9
17 years	4	3.4
Total	116	100.0

Source: Authors calculations.

Table 6.5 - Table 6.6 - Table 6.7 shows the ages of parents participating in science education and those participating in social education. In this table, percentages and figures were given to show that percentage. In the first table, a comparison was made between mothers' and fathers' ages. Later a separate analysis of the mother's and father's age was provided. The very first table explains the mean, median, mode, and std. Deviation, variance, skewness, Std. the error of skewness, kurtosis, Std. the error of kurtosis, range, and maximum. The percentage of all these explain respectively 36.6, 37.0, 37, 3.8, 14.1, -.109, .225, .473, .446, .21.0, .27, 48, 34, 37, 39. The second table explains the age of fathers, in which it indicated that 44 years is the average age of fathers as 14 people fall in this number. The last table indicated the age of mothers and 37 is the average age from which 37 people belong.

**Table 6.5:** Descriptive Statistic of Parents' Age (Father / Mother).

	Age of Father	Age of Mother
N	116	116
Mean	43.7	36.6
Median	44.0	37.0
Mode	44.00	37.00
Std. Deviation	4.1	3.8
Variance	16.6	14.1
Skewness	.221	-.109
Std. Error of Skewness	.225	.225
Kurtosis	-.035	.473
Std. Error of Kurtosis	.446	.446
Range	20.0	21.0
Minimum	35.0	27.0
Maximum	55.00	48.0
Percentiles 25 50 75	41.0	34.0
	44.0	37.0
	46.0	39.0

Source: Authors calculations.

**Table 6.6:** Descriptive Statistic of Father's Age.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	35.00	2	.8	1.7	1.7
	36.00	2	.8	1.7	3.4
	37.00	3	1.2	2.6	6.0
	38.00	5	2.0	4.3	10.3
	39.00	6	2.4	5.2	15.5
	40.00	9	3.5	7.8	23.3
	41.00	6	2.4	5.2	28.4
	42.00	11	4.3	9.5	37.9
	43.00	12	4.7	10.3	48.3
	44.00	14	5.5	12.1	60.3
	45.00	11	4.3	9.5	69.8
	46.00	8	3.1	6.9	76.7
	47.00	6	2.4	5.2	81.9
	48.00	8	3.1	6.9	88.8
	49.00	2	.8	1.7	90.5
	50.00	7	2.7	6.0	96.6
	52.00	1	.4	.9	97.4
	53.00	1	.4	.9	98.3
	54.00	1	.4	.9	99.1
55.00	1	.4	.9	100.0	
Total		116	45.5	100.0	

Source: Authors calculations.

**Table 6.7:** Descriptive Statistic of Mother's Age.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	27.00	2	.8	1.7	1.7
	28.00	1	.4	.9	2.6
	29.00	2	.8	1.7	4.3
	30.00	3	1.2	2.6	6.9
	31.00	3	1.2	2.6	9.5
	32.00	3	1.2	2.6	12.1
	33.00	7	2.7	6.0	18.1
	34.00	12	4.7	10.3	28.4
	35.00	7	2.7	6.0	34.5
	36.00	12	4.7	10.3	44.8
	37.00	19	7.5	16.4	61.2
	38.00	12	4.7	10.3	71.6
	39.00	12	4.7	10.3	81.9
	40.00	5	2.0	4.3	86.2
	41.00	5	2.0	4.3	90.5
	42.00	5	2.0	4.3	94.8
	43.00	4	1.6	3.4	98.3
	45.00	1	.4	.9	99.1
48.00	1	.4	.9	100.0	
Total		116	45.5	100.0	

Source: Authors calculations.

Table 6.8 – Table 6.9 – Table 6.10 shows the parents who have studied science and social and in this table the percentages and figures are given to show that percentage. The tables separately discuss the education of fathers and the last table provides the summary in which it explains that 32 fathers are from social education and the remaining are from science education.

**Table 6.8:** Descriptive Statistic of Father’s Education.

	Father Education in Social	Father Education in Science
N	116	116
Mean	.2759	.7241
Median	.00	1.00
Mode	.00	1.00
Std. Deviation	.44889	.44889
Variance	.201	.201
Skewness	1.016	-1.016
Std. Error of Skewness	.225	.225
Kurtosis	-.985	-.985
Std. Error of Kurtosis	.446	.446
Range	1.00	1.00
Minimum	.00	.00
Maximum	1.00	1.00
Percentiles 25	.00	.00
50	.00	1.00
75	1.00	1.00

Source: Authors calculations.

**Table 6.9:** Descriptive Statistic of Father's Education in Social.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Science Education	84	32.9	72.4	72.4
	Social Education	32	12.5	27.6	100.0
	Total	116	45.5	100.0	

Source: Authors calculations.

**Table 6.10:** Descriptive Statistic of Father's Education in Science.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Social Education	32	12.5	27.6	27.6
	Science Education	84	32.9	72.4	100.0
	Total	116	45.5	100.0	

Source: Authors calculations.

Table 6.11 - Table 6.12 - Table 6.13 shows the number of education of mothers that who are involved in science education and who are involved in social education. The tables separately discuss the education of mothers and the last table provides the summary in which it explains that 97 mothers are from social education and the remaining are from science education.

**Table 6.11:** Descriptive Statistic of Mother's Education.

	Mother Education in Social	Mother Education in Science
N	116	116
Mean	.8362	.1638
Median	1.00	.00
Mode	1.00	.00
Std. Deviation	.37169	.37169
Variance	.138	.138
Skewness	-1.841	1.841
Std. Error of Skewness	.225	.225
Kurtosis	1.413	1.413
Std. Error of Kurtosis	.446	.446
Range	1.00	1.00
Minimum	.00	.00
Maximum	1.00	1.00
Percentiles 25	1.00	.00
50	1.00	.00
75	1.00	.00

Source: Authors calculations.

**Table 6.12:** Descriptive Statistic of Mother's Education in Social.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Science	19	7.5	16.4	16.4
	Social Education	97	38.0	83.6	100.0
	Total	116	45.5	100.0	

Source: Authors calculations.

**Table 6.13:** Descriptive Statistic of Mother’s Education in Science.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Social	97	38.0	83.6	83.6
	Science	19	7.5	16.4	100.0
	Total	116	45.5	100.0	

Source: Authors calculations.

Table 6.14 explains the income level of father that indicated that the majority of the fathers are earning well as the table shows that 75 fathers earn 5000 dollars.

**Table 6.14:** Descriptive Statistic of Father’s Income.

( \$ )	Frequency	Percent	Valid Percent	Cumulative Percent
5000	75	29.4	29.4	99.6
2500	1	0.4	0.4	59.6
2000	1	0.4	0.4	58
1500	3	1.2	1.2	57.3
1500	1	0.4	0.4	57.6
1200	1	0.4	0.4	56.1
1000	3	1.2	1.2	55.7
800	1	0.4	0.4	100
500	2	0.8	0.8	70.2
450	1	0.4	0.4	69.4
400	4	1.6	1.6	69
350	13	5.1	5.1	67.5
340	1	0.4	0.4	62.4
300	6	2.4	2.4	62
250	3	1.2	1.2	59.2
Total		100	100	

Source: Authors calculations.

Table 6.15 shows the income of mother. The table shows the income level of mothers receiving from the job. To analyse the income level of the family that belongs to the child. The table explains the income level of mothers that indicated that the majority of the mothers are housewives and few of them are earning as 103 have no income.

**Table 6.15:** Descriptive Statistic of Mother's Income.

\$	Frequency	Percent	Valid Percent	Cumulative Percent
500	1	0.4	0.4	100
300	3	1.2	1.2	99.6
250	9	3.5	3.5	98.4
0	103	40.4	40.4	94.9
Total		100	100	

Source: Authors calculations.

Table 6.16 - Table 6.17 shows the number of children the family. The table shows the number of children each family has who child has participated in the case study.

**Table 6.16:** Descriptive Statistic How Many Children's in Family.

		Frequency	Percent	Cumulative Percent
Valid	1.00	29	25	25.0
	2.00	38	32.8	57.8
	3.00	28	24.1	81.9
	4.00	17	14.7	96.6
	5.00	3	2.6	99.1
	6.00	1	0.9	100.0
	Total		116	100.0

Source: Authors calculations.

**Table 6.17:** Statistics : How Many Children's in Family.

	How many children's in family	
Mean	2.4	
Median	2.0	
Mode	2.00	
Std. Deviation	1.2	
Variance	1.3	
Skewness	.563	
Std. Error of Skewness	.225	
Kurtosis	-.196	
Std. Error of Kurtosis	.446	
Range	5.00	
Minimum	1.00	
Maximum	6.00	
Percentiles	25	1.25
	50	2.00
	75	3.00

Source: Authors calculations.

## 7. EMPIRICAL ANALYSIS

Two regression model has been run below first explains the regression analysis in which 1 dependent variable is an academic achievement (math grades) and four independent variables (extracurricular activities, gender, parents' education, and parents income). As per the sig values that is equal to and less than 0.05. extracurricular activity has the sig value 0,07 which means the associated hypothesis is rejected. Same as with the parent's education the sig value is more significant than 0.05 which means the associated hypothesis is rejected. Moreover, the other variable has a value that is less than 0.05 which means the related hypotheses have been accepted. The second analysis has 1 dependent variable that is year end rate and the independent variables are (extracurricular activities, gender, parents' education, and parents income).

**Table 7.1:** Variables Entered / Removed.

Model	Variable Entered	Variable Removed	Method
1	extracurricular activity	-	entered

a dependent variable: math grades

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

**Table 7.2:** Variables Entered / Removed.

Model	Variable Entered	Variable Removed	Method
1	extracurricular activity	-	entered

a dependent variable: year end rate

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

**Table 7.3:** Summary of Regression Model (for Math Grade).

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	.29	.34	.38	120.48

a dependent variable: math grades

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

**Table 7.4:** Summary of Regression Model (Year-end Rate).

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	.27	.39	.41	126.87

a dependent variable: year end rate

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

The table 7.5 shows the Annova for maths grade. It has the mean square that tells the difference between regression and residual and also shows the total mean square. Moreover, The degrees of freedom is equal to the sum of the individual degrees of freedom for each sample. Since each sample has degrees of freedom equal to one less than their sample sizes, and there are k samples, the total degrees of freedom is k less than the total sample size.

**Table 7.5:** Annova (Math Grade Regression).

Model	Sum of Squares	df	Means Square	F	sig
1 Regression	25678.354	1	327649.4321	11.65	0.001
Residual	7785498.298	365	187653.986		
Total	8903756.132	327			

a dependent variable: math grades.

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

The table 7.6 shows the Annova for Year-end rate. It has the mean square that tells the difference between regression and residual and also shows the total mean square. Moreover, The degrees of freedom is equal to the sum of the individual degrees of freedom for each sample. Since each sample has degrees of freedom equal to one less than their sample sizes, and there are k samples, the total degrees of freedom is k less than the total sample size.

**Table 7.6:** Annova (Year-end Rate Regression).

Model	Sum of Squares	df	Means Square	F	Sig
1 Regression	29853.761	1	356912.4621	12.67	0.003
Residual	6739816.871	387	276541.861		
Total	9862091.267	421			

a dependent variable: year end rate.

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

Table 7.7 and table 7.8 explains the regression analysis in which 1 dependent variable that is an academic achievement (math grades) and year-end rate and four independent variables (extracurricular activities, gender, parents education, parents income). As per the sig values that is equal to and less than 0.05. extracurricular activity has the sig value 0.07 in table 7.6 and 0.08 in table 7.7 which means the associated hypotheses are rejected. Same as with the parent's education the sig value is greater than 0.05 in both tables which means the associated hypotheses are rejected. Moreover, the other variables have a value that is less than 0.05 which means the associated hypotheses have been accepted in both table.

The table 7.7 explains that if extra-curricular activities increased by 1 year than 0.345 change would be brought in the dependent variables. Same as with the 0.287 change can cause in the dependent variable by increasing 1 year of father education. The variable mother education has show no association with the dependent variable. Moreover, the increase in parents income can cause the change in dependent variable by 0.256.

**Table 7.7:** Estimation of Regression Model (Math Grade Regression).

Model	Unstandardized Coefficient		Standardized Coefficient	t	sig
	Beta	Std Error	Beta		
1 constant	.264	.093	.998	6.887	0.01
basketball activity	.345	.086		33.7	0.07
Football activity	.237	.098		7.87	0.03
Swimming activity	.437	.034		8.54	0.04
Volleyball activity	.212	.061		8.66	0.03
Piano activity	.314	.023		23.9	0.015
Art activity	.286	.021		23.6	0.023
Violin activity	.398	.035		6.54	0.021
Drawing activity	.245	.062		8.32	0.02
Male	.376	.095		6.43	0.014
Father's education	.287	.025		22.56	0.015
Mother's education	.248	.034		34.9	0.083
Years of Father's Experience	.325	.025		9.65	0.002
Years of Mother's Experience	.238	.032		44.3	0.01
Father's income	.287	.092		5.88	0.021
parents income	.256	.064		22.7	0.019

a dependent variable: math grades.

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

The table 7.8 explains that if extra-curricular activities increased by 1 year than 0.387 change would be brought in the dependent variables. Same as with the 0.234 change can cause in the dependent variable by increasing 1 year of father education. The variable mother education has show no association with the dependent variable. Moreover, the increase in parents income can cause the change in dependent variable by 0.298.

**Table 7.8:** Estimation of Regression Model (Year-end Rate).

Model	Unstandardized Coefficient		Standardized Coefficient	t	sig
	Beta	Std Error	Beta		
1 constant	.221	.096	.987	6.991	0.02
basketball activity	.387	.082		43.2	0.08
Football activity	.398	.092		8.66	0.021
Swimming activity	.245	.032		23.9	0.03
Volleyball activity	.376	.064		23.6	0.03
Piano activity	.321	.098		7.87	0.04
Art activity	.314	.034		8.54	0.03
Violin activity	.286	.061		6.54	0.015
Drawing activity	.398	.023		8.32	0.023
Male	.245	.021		6.43	0.021
Father's education	.321	.027		22.3	0.017
Mother's education	.272	.038		38.9	0.098
Years of Father's Experience	.345	.062		5.88	0.016
Years of Mother's Experience	.231	.095		7.43	0.018
Father's income	.348	.087		22.7	0.021
parents income	.298	.068		23.9	0.016

a dependent variable: year end rate.

b all requested variables (basketball, swimming, volleyball, football, piano, art, violin, drawing, father's edu, mother's edu, father income, mother income, father experience, mother experience, male, female).

## 8. DISCUSSION AND CONCLUSION

The main aim of this part is to provide a detailed discussion of the results that have been arrived at with the primary data. In this section, a detailed comparison has been provided in which the results have been discussed with the past studies. Moreover, with the help of this discussion, a conclusion has also been made.

The majority of researchers in the field of education discovered that extracurricular activities (ECA), such as sports, dancing, musical performance, etc., had an impact on student's academic achievement. In this study, the researcher has investigated the potential impact of extracurricular activities (math- or sports-related) on academic achievement. In one of Istanbul's private schools, researchers first polled the parents and teachers. The researcher also included questions in the surveys about their children. As a result, the researcher has found out if students take part in extracurricular activities or not. the researcher uses student grades in math as a dependent variable. All grades used the math course as a shared subject. We employ dummies for extracurricular activities (football, basketball, swimming, etc.) as independent variables. After the collection of the data, different tests have been performed with the help of SPSS to know the results. The regression analysis is the main tool that explains the acceptance and the rejection of the hypotheses. The regression analysis suggested that extracurricular activities have a significant impact on the academic achievement of the students. For these the following hypotheses such as *“There are no differences between students who participate in extracurricular activity and those who do not participate in extracurricular activity and math grade”*. and the findings showed that hypothesis 1 is rejected and suggested that there is a difference between students who participate in extracurricular activity and those who do not participate in extracurricular activity and math grades. Along with that the previous literature also suggested the same Certain educational gaps are filled by extracurricular activities, like those in teamwork and social initiative (Larson, Hansen, Moneta, 2006) Student involvement links mentoring and supportive peers with caring adults (Fredricks, 2012) Adults provide non-academic skills and connection building in addition to academic skills (Stearns Glennie, 2010). According to researchers, kids' social and emotional skills are as crucial to their academic performance (Ready Nation, 2017). Extracurricular activities help kids achieve their goals, become successful and productive, and boost their self-esteem (Massoni, 2011).

"Life chances and future triumphs are frequently derived from early opportunities and experiences" (Leras, p.899, 2008) According to research, organized extracurricular activities help students develop their health and give them opportunity and support (Gardner Roth Brooks-Gunn, 2008). Students might display more abilities and interests through participation than in class (Fredricks Eccles, 2006).

It is important to distinguish between extracurricular activities that take place beyond school hours and classroom activities that are part of the school curriculum. (Frame, 2007).

Students' involvement in extracurricular activities, behaviour, and academic performance are all significantly correlated. Pupils who participate in extracurricular activities outperform those who don't (Reeves, 2008).

The involvement of students in extracurricular activities is a fantastic approach to impart new abilities to them, including self-control, organization, interest, and behaviours. (2016) Morris the abilities that students acquire from extracurricular activities can result in improved academic achievement, which will help them advance their level and broaden their horizons (Covay Carbonaro, 2010).

The second hypothesis is "*There are no differences between the year-end rate of students participating in extra-curricular activities and those not participating in them*". the above hypothesis is also rejected and the results suggested that there is differences between the year-end rate of students participating in extra-curricular activities and those not participating in them. Moreover, the previous study also support this result as well. To ascertain whether there is a connection between musical activities and academic ability, numerous investigations have been carried out. Academic achievement has been found to be positively impacted by music-related activities (Southgate Roscigno, 2009).

According to a different study, playing in a band improves pupils' grades (Catterall, Chapeleau, Iwanganga, 1999). Regardless of the kids' social and economic circumstances, the study revealed that students who participated in the bands performed better than students who did not participate in the same programme (Catterall, Chapeleau, Iwanganga, 1999)

A Ponter 1999 study found a link between musical activity engagement and academic achievement. Ponter (1999) proposed including music education in the school system on par

with math, physics, and other sciences. Research have demonstrated that musicians perform better in math and other disciplines as well as in musical training that enhances pupils' intellectual skills. Better academic success is possible as a result of this development (Kelstrom, 1998).

Furthermore, the next hypothesis is that *“There is no relationship between parents' educational level and students' math grades”*. the results indicated that there is a relationship between math grades and the parent education level. Hence, the following hypothesis is also rejected. Moreover, the study also supported this findings. When it comes to assisting, motivating, and supporting their kids, parents play a crucial role. The psychological state of the student is stabilized as a result of this support, which also affects the student's academic achievement. Parents who support their children's education also let teachers know when there are any behavioural or academic issues with their children. Students who receive parental encouragement perform better academically than those who do not. The level of parents' cultural, social, and economic development is related to this focus (Morrison Mclutye, 1971).

Parental involvement is associated with increased academic performance and decreased student absence habits (McNeal, 1999). Academic accomplishment has been shown to be positively correlated with parents' strategies and expectations for guidance and support (Baker Soden, 1998). Many research have confirmed that parental emotional support is a significant predictor of the student's academic success (Deslandes et al., 1998).

A benefit of participating in sporting activities is developing relationships with grownups. Students and their parents will have the chance to interact more through sports. Through extracurricular activities, students will learn how to develop good relationships with adults, which could improve social interactions in the classroom. According to studies, children who participate in athletic activities with their parents fare better than children whose parents do not do the same (Klesse, 1994).

The fourth hypothesis is that *“There is no relationship between family income and students' grades in math”*. the following hypothesis has been Rejected as per the results and shows that there is a relationship between family income and students' grades in math. Literature research demonstrated the significance of parents' intellectual attainment in shaping

children's personalities and encouraging them to improve their academic achievement (Klebanov, Brooks-Gunn, Duncan, 1994; Haveman Wolfe, 1995; Smith, Brooks-Gunn, Klebanov, 1997) Additional research has concentrated on how parents raise their children, demonstrating their love and engaging in activities (Conger et al., 2002; Mistry, Vanderwater, Houston, McLoyd, 2002) Research demonstrated a direct correlation between parental education and cultural background and student achievement (Jimerson, Egeland, Teo, 1999; Kohn, 1963; Luster, Rhoades, Haas, 1989) Yet, researchers discovered that parents from higher income and educational backgrounds were better able to anticipate their children's academic success than those from lower income and educational backgrounds (Alexander et al., 1994).

In order for children to succeed academically, parents' capacity to generate expectations about their kids' performance in school needs to be extremely precise (Alexander et al., 1994)

More educated mothers were better at predicting how well their kids will achieve academically (Halle et al., 1997).

A better social environment within the family is linked to the education of the parents (Klebanov et al., 1994). The child's academic success at school is influenced by their family's degree of income and their education, which is tied to their home environment (Smith et al., 1997).

At last the fifth hypothesis that is “*There is no relationship between students' grades in mathematics and gender*”. this hypothesis is also Rejected and results showed that there is a relationship between students grade in mathematics and gender. Technology has become an integral part of the education system, so it is necessary to increase research and studies in the field of education, as a new style of activity has emerged in the 21st century (STEM), the initials of (science, technology, engineering, and mathematics), which helps teach students (Sanders, 2009; Yıldırım Altun, 2015).

Science, technology, engineering, and mathematics are integrated in the STEM system (Sanders, 2009; Smith Karr-Kidwell, 2000). Türkiye promoted STEM education (Akgündüz et al., 2015, Çorlu, 2014). Science and engineering applications is Türkiye's new curriculum for teaching science, math, engineering, and technology to all pupils. (Hiğde, 2018) Teaching science improves states' competitiveness and economic and social growth

(Çakmakçi, 2016). STEM education also aims to develop the nation's economy and industry (Çevik Özgünay, 2018).

Creative and communication skills are also developed (Bybee, 2010 Morrison, 2006) Students learn ingenuity, problem-solving, self-confidence, and motivation through STEM (Morrison, 2006). They also learn how to use technology well (Bybee, 201) STEM learning should engage pupils (Baran, 2015) Students who engaged in STEM activities were more effective than those who did not (Cotabish et al., 2013). This was because STEM activities improved teamwork skills and helped students understand scientific lessons better and more easily.

At last the study has concluded that there is a significant relationship between extracurricular activities and academic performance. The extracurricular activities are most important for the well-being of the students. As extracurricular activities provide mental well-being and help in developing the students that indirectly impact on the academic performance of the students. Such as the parents educational level, is also played very important role in the academic performance of the students. Moreover, the income level and the gender has also the effect on academic performance. The study proves that income plays a vital role in the academic performance of students and as well as the gender.

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## APPENDIX A

### Survey

(Determinants of Academic Success of Foreign Students in Türkiye)

Information about students which will be asked their parents

(If you have more than one child you should repeat this survey for each child)

Questions	Answer:
1)What is your children name and surname	
2)How old is s/he?	
3) Which grade is s/he in:	
4) Gender of the child:	
5) How many years is s/he in this school	

6) Is your child doing one of these extra-curricular activities?

basketball	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
swimming	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
volleyball	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
football	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
piano	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
art	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
violin	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
drawing	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>
others (write it which )	if yes:1 <input type="radio"/>	no:0 <input type="radio"/>

7) Please write your child's teacher name and surname for every year

Course	Teacher name and surname	Course	Teacher name and surname
math_teacher1		Arabic teacher1	
math_teacher2		Arabic teacher2	
math_teacher3		Arabic teacher3	
math_teacher4		Arabic teacher4	
math_teacher5		Arabic teacher5	
math_teacher6		Arabic teacher6	
math_teacher7		Arabic teacher7	
math_teacher8		Arabic teacher8	
math_teacher9		Arabic teacher9	
math_teacher10		Arabic teacher10	
math_teacher11		Arabic teacher11	
math_teacher12		Arabic teacher12	

Islamic teacher1		science teacher1	
Islamic teacher2		science teacher2	
Islamic teacher3		science teacher3	
Islamic teacher4		science teacher4	
Islamic teacher5		science teacher5	
Islamic teacher6		science teacher6	
Islamic teacher7		science teacher7	
Islamic teacher8		science teacher8	
Islamic teacher9		science teacher9	
Islamic teacher10		science teacher10	
Islamic teacher11		science teacher11	
Islamic teacher12		science teacher12	

Physics teacher1		chemistry_teacher1	
Physics teacher2		chemistry_teacher2	
Physics teacher3		chemistry_teacher3	
Physics teacher4		chemistry_teacher4	
Physics teacher5		chemistry_teacher5	
Physics teacher6		chemistry_teacher6	
Physics teacher7		chemistry_teacher7	
Physics teacher8		chemistry_teacher8	
Physics teacher9		chemistry_teacher9	
Physics teacher10		chemistry_teacher10	
Physics teacher11		chemistry_teacher11	
Physics teacher12		chemistry_teacher12	

gym teacher1		social teacher1	
gym teacher2		social teacher2	
gym teacher3		social teacher3	
gym teacher4		social teacher4	
gym teacher5		social teacher5	
gym teacher6		social teacher6	
gym teacher7		social teacher7	
gym teacher8		social teacher8	
gym teacher9		social teacher9	
gym teacher10		social teacher10	
gym teacher11		social teacher11	
gym teacher12		social teacher12	

English teacher1		art teacher1	
English teacher2		art teacher2	
English teacher3		art teacher3	
English teacher4		art teacher4	
English teacher5		art teacher5	
English teacher6		art teacher6	
English teacher7		art teacher7	

English teacher8		art teacher8	
English teacher9		art teacher9	
English teacher10		art teacher10	
English teacher11		art teacher11	
English teacher12		art teacher12	

computer teacher1	
computer teacher2	
computer teacher3	
computer teacher4	
computer teacher5	
computer teacher6	
computer teacher7	
computer teacher8	
computer teacher9	
computer teacher10	
computer teacher11	
computer teacher12	

Academic Supervisor1		Floor Supervisor1	
Academic Supervisor2		Floor Supervisor2	
Academic Supervisor3		Floor Supervisor3	
Academic Supervisor4		Floor Supervisor4	
Academic Supervisor5		Floor Supervisor5	
Academic Supervisor6		Floor Supervisor6	
Academic Supervisor7		Floor Supervisor7	
Academic Supervisor8		Floor Supervisor8	
Academic Supervisor9		Floor Supervisor9	
Academic Supervisor10		Floor Supervisor10	
Academic Supervisor11		Floor Supervisor11	
Academic Supervisor12		Floor Supervisor12	

8) Please write your child's grades for every year

math_grade1		Arabic grade1		Islamic grade1	
math_grade2		Arabic grade2		Islamic grade2	
math_grade3		Arabic grade3		Islamic grade3	
math_grade4		Arabic grade4		Islamic grade4	
math_grade5		Arabic grade5		Islamic grade5	
math_grade6		Arabic grade6		Islamic grade6	
math_grade7		Arabic grade7		Islamic grade7	
math_grade8		Arabic grade8		Islamic grade8	
math_grade9		Arabic grade9		Islamic grade9	
math_grade10		Arabic grade10		Islamic grade10	
math_grade11		Arabic grade11		Islamic grade11	
math_grade12		Arabic grade12		Islamic grade12	

English grade1		science grade1		chemistry_grade1	
English grade2		science grade2		chemistry_grade2	
English grade3		science grade3		chemistry_grade3	
English grade4		science grade4		chemistry_grade4	
English grade5		science grade5		chemistry_grade5	
English grade6		science grade6		chemistry_grade6	
English grade7		science grade7		chemistry_grade7	
English grade8		science grade8		chemistry_grade8	
English grade9		science grade9		chemistry_grade9	
English grade10		science grade10		chemistry_grade10	
English grade11		science grade11		chemistry_grade11	
English grade12		science grade12		chemistry_grade12	

computer grade1		art grade1		social_grade1	
computer grade2		art grade2		social_grade2	
computer grade3		art grade3		social_grade3	
computer grade4		art grade4		social_grade4	
computer grade5		art grade5		social_grade5	
computer grade6		art grade6		social_grade6	
computer grade7		art grade7		social_grade7	
computer grade8		art grade8		social_grade8	
computer grade9		art grade9		social_grade9	
computer grade10		art grade10		social_grade10	
computer grade11		art grade11		social_grade11	
computer grade12		art grade12		social_grade12	

Household questionnaire :

Questions for father

- 1) What is your name and surname
- 2) How old are you?
- 3) Which highest education level you graduate from?
- 4) What is your years of schooling?
- 5) What is your nationality ?
- 6) Where did you come from ?
- 7) What is your income?
- 8) How many boys (children) are there in the family , including the student?
- 9) How many girls (children) are there in the family including the student ?
- 10) What is your job in Türkiye?
- 11) What is your reason for being in Türkiye?

work in Türkiye	<input type="radio"/> yes:1	<input type="radio"/> no:0
I got a scholarship to study in Türkiye	<input type="radio"/> yes:1	<input type="radio"/> no:0
I came to Turkey for treatment	<input type="radio"/> yes:1	<input type="radio"/> no:0

Questions for mother:

- 10) What is your name and surname
- 11) How old are you?
- 12) Which highest education level you graduate from?
- 13) What is your years of schooling?
- 14) What is your nationality ?
- 15) where did you come from?
- 16) What is your income ?
- 17) How many boys (children) are there in the family , including the student?
- 18) How many girls (children) are there in the family , including the student ?
- 19) What is your job in Türkiye?
- 20) What is your reason for being in Türkiye?

work in Türkiye	<input type="radio"/> yes:1	<input type="radio"/> no:0
I got a scholarship to study in Türkiye	<input type="radio"/> yes:1	<input type="radio"/> no:0
I came to Turkey for treatment	<input type="radio"/> yes:1	<input type="radio"/> no:0