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An Examination of Academically Successful Secondary School Students' Aspirations with Regard to Potential Human Capital Flight (Brain Drain)

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Abstract

The main goal of this study is to determine the extent to which academically successful students studying in secondary schools in Turkey that only accept students scoring in extremely high (94th-99th) percentile on standardized tests harbor intentions to emigrate from Turkey in the future. In addition, a secondary goal is to examine why they intend to carry out the various academic work, scientific work, cutting-edge technological research, and/or plans, patents, and discoveries related to R & D that they have already designed or plan to do in the future in different countries, i.e. why they intend to emigrate. The study was designed in accordance with qualitative research methods; three different groups were defined in order to obtain three sets of data. The first set of data was collected from 40 students from a school in Ankara that only accepts students who score in the 99th percentile or higher on the LYS-TEOG [LYS=Undergraduate Placement Exam; TEOG= Transition From Primary to Secondary Education Exam], the second set of data was obtained from a total of 98 students from a school that accepts students whose scores range from the 97th to the 99th percentile on the LYS-TEOG, and the third and final set of data was collected from a total of 56 students from a different school, one that accepts students whose scores range from the 94th to the 96th percentile on the LYS-TEOG. NVIVO 11, a qualitative data analysis computer software package, was used during the analysis of the findings; content analysis was the preferred research method. The findings of the study indicate that a large percentage of the most academically successful students in Turkey intend to emigrate as a direct result of the lack of trust in their own country, non-merit-based hiring standards & administrative decisions, the perception that science and research are not highly valued in Turkey, and concerns over the lack of support for workers and researchers alike.

Key Words: Human capital flight, Brain drain, Research & development (R&D)

Introduction

Human capital flight (hereinafter referred to in most instances as 'brain drain') is the emigration of individuals who are educated and highly qualified in their field from their home countries to foreign countries which offer them more comfortable working conditions and an overall better quality of life; recently, it has become a focal point of research as it is seen as a vital component of the phenomenon of migration (Bauder, 2003; Gökbayrak, 2008; Özden, 2006; Sager, 2014; Sağırılı, 2006; Schiff, 2006). Brain drain is brought about when people who are successful and well-trained in the arts, sports, or academic subjects decide to do their work, projects, and research in countries that are more developed than their own (Körner, 1998). While this situation constitutes a serious human capital crisis for developing and undeveloped countries, it is seen as a major boon for the country or countries of destination (Aktaş, 2014; Beine, Docquier & Rapoport, 2008; Dodani & LaPorte, 2005). At the same time, brain drain can be described as a barrier to sustainable development for the countries that migrants leave (Bakırtaş and Kandemir, 2010; Tessema, 2009); while it is oftentimes advantageous for the destination country to accept migrants who will or have the potential to carry out high-level, high-profile projects, research, and scientific studies, it almost always means a loss of highly-qualified workers for the home countries of these workers (Sönmez-Çalış, 2019).

Although brain drain is a sociological reality that countries which consistently perform poorly on reports enumerating the most important indicators of economic, judicial, democratic, and social development have had to deal with in past decades, more recently, it has turned into a matter of international importance (Gibson & McKenzie, 2011; Wolburg, 2000). One example of how this has become an international phenomenon is seen in one of the many possible scenarios developed by the European Union in response to their aging population:

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importing young, dynamic, and highly-qualified workers from other countries (Demographic Scenarios for the EU - Migration, Population and Education, 2019). Similar scenarios are also being developed in the United States of America (Losing Our Minds, 2019). Countries that dominate international relations and retain the vast majority of economic power and human capital have essentially been attracting qualified workers from other countries by presenting them with enticing offers and a high standard of living and have even constructed their future population estimates based on immigration. The countries with the highest standard of living, according to OECD indicators from 2018, are shown below in Table 1; scores are out of ten.

Table 1: OECD Indicators

Rank	Country	Score	Rank	Country	Score
1	Denmark	8,21	20	Czechia	6,31
2	Norway	8,10	21	Slovenia	6,22
3	The Netherlands	7,94	22	Estonia	5,84
4	Sweden	7,89	23	Israel	5,76
5	Switzerland	7,85	24	Japan	5,70
6	Finland	7,80	25	Slovakia	5,64
7	Canada	7,75	26	Poland	5,58
8	Australia	7,64	27	Italy	5,52
9	Iceland	7,59	28	Russia	5,25
10	Germany	7,51	29	Chile	5,18
11	USA	7,45	30	Latvia	5,12
12	Belgium	7,41	31	South Korea	5,10
13	Ireland	7,30	32	Hungary	5,08
14	New Zealand	7,22	33	Portugal	5,00
15	Luxembourg	7,18	34	Brazil	4,7
16	Austria	7,04	35	Greece	4,1
17	England	6,92	36	Mexico	3,4
18	France	6,85	37	Turkey	3,2
19	Spain	6,52	38	South Africa	2,4

Source: <http://www.oecdbetterlifeindex.org/#/11212111213>

The scores for countries listed in Table 1 are based on specific parameters including household living standards, household income, job guarantee policy, wages, level of prosperity, the caliber of social capital and community support, quality of education, environmental livability, indicators of the quality of democratic institutions and health services, security/safety, and work-life balance. While the countries which are highly developed according to all the parameters enumerated above are found at the top of the list, Turkey is second to last. Waves of immigration and, more specifically, brain drain to these developed countries have been increasing every year, a fact which supports the data and indicators found in Table 1 (Bakırtaş, 2012; Docquier & Rappaport, 2011). The high percentage of skilled and educated workers and the high HCVA (Human Capital Value Added) that they offer to their country of destination are two factors that distinguish brain drain from other types of immigration.

According to data from the International Labor Organization, one of out every 35 immigrants and approximately 300,000 people a year can be classified as brain drain immigrants. The United States of America is at the top of the list of destination countries (Brücker, Capuano & Marfouk, 2013; Kaya, 2009). One of the major factors contributing to the rise of brain drain at the start of the 20th century has been the relatively freer movement of students between countries and exchange programs designed to facilitate this movement. According to OECD data, the number of international students connected to these programs has, as of 2010, exceeded four million (Şimşek & Bakır, 2016) and is expected to reach seven million by 2025 (Böhm, Davis, Meares & Pearce, 2002). Worldwide, 50% of international students are Asian, while 25.16% are European and 12.38% are African (Levent & Karaevli, 2013).

Numerical measures that list and record the qualifications of the people who emigrate from different countries to acquire expertise in various fields and the projected demand for these professionals are helpful tools that show the direction of brain drain. In Canada, for instance, there are over two million people who were born outside the country but immigrated there to acquire expertise in specific fields and enroll in higher education programs, while in Turkey, the number of students leaving and arriving stands at about 175,000 for both immigrants and new arrivals. However, an important distinction that must be taken into consideration is that a large percentage of the students coming to Turkey from Europe are Turkish citizens who were born in different countries (Aydemir, 2011). Foreign nationals who choose to pursue higher education in Turkey mostly come from other

Turkic republics such as Kazakhstan and Uzbekistan and African countries (Şimşek & Bakır, 2016). Some of the attributes that make a country enticing to potential immigrants (in terms of brain drain) are competitive institutions of higher education, excellent libraries, and substantial funds earmarked for R & D and laboratory research (Pazarcık, 2010).

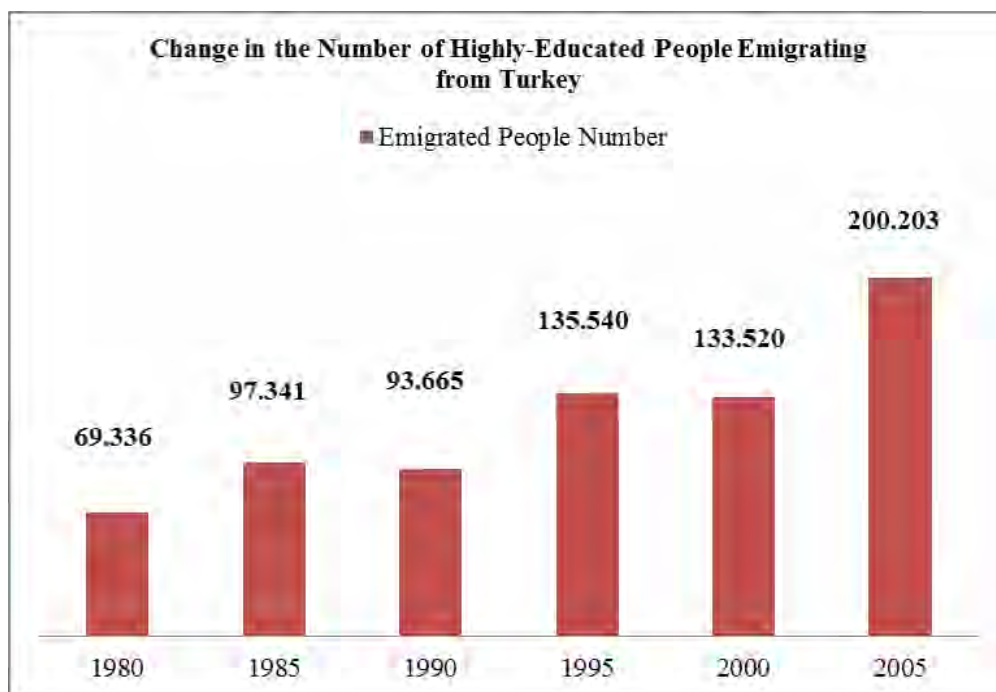
There is a multitude of factors that contribute to the brain drain of the workforce of economically undeveloped or developing countries and which, at the same time, make developed countries seem extremely enticing by comparison. These factors include economic, social, and political elements which simultaneously lay the groundwork for, trigger, and accelerate the process of brain drain; the most significant factors include economic instability and uncertainty, bureaucratic obstacles, low levels of occupational prestige, political pressure and discrimination, and a dearth of environments where one can become self-actualized. Other factors include the lack of opportunities for development, the slow drift away from the rule of law, the search for a better education system, the failings of democratic institutions in the country of origin, and a lack of resources and support for new projects (Akman, 2014; Çoban, 2019; Johnson, 2009; Sağbaş, 2009; Yalçinkaya & Dülger, 2017).

The situation is markedly different in destination countries, where the majorities of the push factors listed above either simply do not exist or are at manageable levels. This, taken together with the many other advantages offered to highly-qualified personnel, can be interpreted as a deliberate move (and policy) designed to attract said workers. An example from the United States is the H-1B visa program, which is designed to ease the process of obtaining employment for highly skilled and qualified workers who offer high HCVA to the country; it has been in effect since 1990 (Aktaş, 2014). In 2012, the number of people benefiting from this visa reached almost 300,000, and the most common occupations were educators, managers, architects, engineers, and IT professionals (Yearbook of Immigration Statistics Report, 2013). Other developed countries have similar immigration policies; in fact, while almost 50% of developed countries have taken steps to ease the immigration process, only 19% of developing countries have done the same (Rajan, 2012).

There are thousands of Turkish academics and specialists who have obtained international recognition while working and conducting specialized research abroad. In addition, people from various occupational backgrounds including engineers, architects, managers, educators, economists, entrepreneurs, and scientists have attained a great deal of success using opportunities presented to them abroad and in developed countries in particular (Sönmez-Çalış, 2019). Although they have had a very little beneficial impact on their own country, it is evident that they have contributed to the societal and economic development of the country they live in (Erdoğan, 2015). Turkey, however, is aiming to reverse brain drain but the fact that Turkey is unable to provide people with the high standards of living and working conditions that they would have in developed destination countries has so far prevented Turkey from achieving this goal (Aysıt & Güngör, 2003). Moreover, the failure to create policies which address the concerns of those who intend to immigrate to developed destination countries also impedes progress in this area (Güngör, 2003; Esen, 2014; Kaçar, 2016; Köser-Akçapar, 2006; Öztürk, 2001; Tansel & Güngör, 2003, 2004, & 2009).

The fact that many highly-qualified young people who are currently studying in Turkey (and have achieved major success in academic subjects, sports, and the arts) intend to immigrate to other countries is one of the most significant handicaps *and* risk factors that prevent Turkey from developing both socially and economically. Therefore, the inability to retain qualified human capital also spells the loss of intellectual and cultural capital as well (Erel, 2010; Kelly & Lusi, 2006). Turkey's failure to attract highly-qualified personnel and specialists from developed countries is an enduring problem for the country and prevents it from meeting its future goals (Aydemir, 2011, Şap, 2019). The most important factor that prevents a surplus of well-qualified human capital from staying in Turkey is high-quality education. Recent statistical analysis shows that there has been a significant increase in the percentage of highly-educated people emigrating from Turkey to different countries; these statistics show that 253,640 people emigrated from Turkey in 2017 because of economic, political, social, and/or cultural reasons, an increase of 42.5% compared to the previous year (TÜİK, 2017).

Figure 1 shows statistics related to yearly changes in emigration from Turkey in the past decades.



Source: Brücker, Capuano & Marfouk, 2013

Figure 1: Change in the Number of Highly-Educated People Emigrating from Turkey between 1980 and 2005

Every year, more than one million students take standardized exams designed to facilitate the transition into the next level secondary education, while the number of schools that the students can study based on the results of the exam is, as of 2020, set at 1,531. Put another way, more than 85% of the students who take the test will not get the chance to study at the secondary school of their choice. Among those who do get the chance to study at the school of their choice, an even smaller and more academically distinguished cohort, who score close to perfect on the exam, study at schools which only accept students who score in the 99th percentile or higher on the LYS-TEOG [LYS=Undergraduate Placement Exam; TEOG= Transition From Primary to Secondary Education Exam). These are the people who will be running the country, working on issues of planning and production, heading scientific research and R & D teams, filing for patents, and developing various projects in many fields in Turkey in the years to come. Consequently, students who possess these attributes are the best representatives of Turkey's potential strategic and intellectual power. The inability to lay the groundwork for research and projects which could ultimately benefit both Turkey and humanity, in general, is thought to be one of the major factors pushing highly-qualified young professionals to emigrate from Turkey.

As both visual and print media sources in Turkey have indicated recently, academically high-achieving students who receive education in well-established schools harbor intentions to immigrate to more developed countries whenever they found a chance; what's more, they follow through on these intentions. For example, 94% of students who graduated from the German School of Istanbul in 2019 went abroad for higher education. For the first time in the 135-year history of Istanbul High School (one of the most renowned high schools in Turkey), the number of graduates who decided to stay in Turkey was lower than that of those who went abroad for higher education. This means that Turkey is losing qualified human capital to other countries, and it is unclear whether or not these students will return to Turkey in the future. Therefore, more field research must be done in Turkey on academically high-achieving high school students in order to determine whether or not they intend to emigrate as no such study has yet been conducted according to the available educational science literature.

The main purpose of this study, therefore, is to analyze key factors underlying the perceptions and intentions of students studying at Science High Schools (who score in the 99th percentile or higher on the LYS-TEOG) and Anatolian High Schools (whose scores range from the 94th to the 99th percentile on the LYS-TEOG) regarding brain drain. With this research, it is expected to reveal the brain migration intentions and justifications of students with high academic success. The study is expected to contribute to policy makers, administrators, teachers and researchers in the field. Various academic studies of the brain drain in Turkey generally relates to people at university level (Güngör, 2003; Kaçar, 2016; Kurtuluş, 1988; Yılmaz, 2019). Having observed the

academic achievement of a study about the brain drain high on students in Turkey is estimated to fill an important gap in the field of this study.

Method

Research Model

The study made use of a holistic single-case study design, a method of qualitative research. Yin (2017:4) defines a case study as an empirical inquiry that investigates a contemporary phenomenon (the case itself) in-depth and within its real-world context when the boundaries between phenomenon and context are not clearly evident. This case study was designed specifically to tackle the issue of academically high-achieving secondary school students' intentions to emigrate and, thusly, contribute to the phenomenon of brain drain.

Data Collection & Analysis

Data was collected by the researcher during the fall semester of the 2019-2020 academic years; participation in the study was strictly voluntary. Volunteers were informed of the aim, scope, and content of the study, while the researcher also underlined the importance of the fact that the data gathered would be used solely for scientific purposes. Data collection was completed in three stages; in the first stage, data was collected from a 40-student group in a Science High School which only accepts students who score in the 99th percentile or higher, while in the second stage, the same process was completed with a 98-student group from an Anatolian High School which accepts students whose scores range from the 97th to the 99th percentile. The third and final stage was carried out with a 56-student group from a different Anatolian High School which accepts students whose scores range from the 94th to the 96th percentile.

The data collection period for each individual class lasted approximately one class hour; descriptive analysis and content analysis were used to analyze the data obtained from the classes. In order to increase credibility, content analysis is included and the opinions of the participants are shared directly in this context. Expert confirmation was obtained to ensure the validity of the study. The codes and themes created in this context were created in consultation with two academic scholars. The NVIVO 11 program was used to create code-words, categories, and topics and also visualize the data during analysis. Purposeful sampling, expert opinions, and the rich description method were used to ensure the validity and reliability of the study (Merriam, 2013; Yıldırım & Şimşek, 2013).

Data Collection Tool

Unstructured interviews were used in this study; this type of interview offers the researcher a large degree of flexibility and the chance to procure valuable information. The interview form itself contained five main questions and a variety of related probing questions.

Example question one: If you were offered an amazing opportunity and had the chance to go abroad to complete your work and research, would you capitalize on that opportunity? Please explain your reasoning and rationale.

Example question two: If there are any important projects/studies that you are considering working on in the future, would you prefer working on them in Turkey or in more developed countries? Why?

Evaluation Groups

Convenience sampling, a type of purposeful sampling, was the method employed in this study. As students' success in the arts, sports, and academic subjects tends to be used as a barometer to measure both their ability to succeed in other areas and their propensity toward immigrating later in life, students from renowned schools famous for producing academically gifted students were included in the purposeful sampling. Three different evaluation groups were created for the study. The first group was given the designation School One; this school only accepts students in Ankara who score in the 99th percentile or higher on the LYS-TEOG. In other words, it is one of the most exclusive institutes of secondary education in both Ankara and Turkey and as such contains many high-achieving students. The second group was given the designation School Two and accepts students whose scores range from the 97th to the 99th percentile on the LYS-TEOG. The third group was given the designation School Three and is comprised of students whose scores range from the 94th to the 96th percentile on the LYS-TEOG. In total, there are 194 students from three different schools in the evaluation groups. Demographic data for each evaluation group can be found in Table 2 below.

Table 2: Demographic Data for Evaluation Groups

Variables		School One (SHS)	School Two (AHS)	School Three (AHS)	Sum Total
Sex	F	11	49	27	87
	M	29	49	29	107
Grade Level	9	0	0	0	0
	10	13	38	0	51
	11	11	60	56	127
	12	16	0	0	16
Mother's Education Level	Elementary	2	9	3	14
	Middle	0	8	6	14
	High	8	30	14	52
	Bachelor's	23	47	26	96
	Grad/Postgrad	7	4	7	18
Father's Education Level	Elementary	0	4	1	5
	Middle	0	4	3	7
	High	6	28	18	52
	Bachelor's	24	54	28	106
	Grad/Postgrad	10	8	6	24
Number of Foreign Countries Visited	None	29	64	39	132
	Between 1-3	8	25	14	47
	Between 4-6	1	5	2	8
	7+	2	4	1	7
TOTAL		40	98	56	194

As shown in the table above, there were 29 male and eleven female students in the evaluation group in School One, the school with the most rigorous entrance requirements; thirteen were in 10th grade, eleven were in 11th grade, and the remaining sixteen were in 12th grade. The students all scored at least 498 (out of a possible 500) on the TEOG/LYS, meaning they were all in the 99th percentile or higher. Two of the students' mothers were elementary school graduates, eight were high school graduates, 23 had completed a bachelor's degree, and seven had done graduate or post-graduate work. The students' fathers had attained similar levels of education: six were high school graduates, 24 had completed a bachelor's degree, and ten had done graduate or post-graduate work. 29 students had never left Turkey before while eight students had visited between one and three foreign countries, one student had visited between four and six, and two students had visited over seven.

There were 49 male and 49 female students in the evaluation group in School Two for a total of 98 students; 38 were in 10th grade and 60 were in 11th grade. The students all scored between 482 and 488 (out of a possible 500) on the TEOG/LYS, meaning they ranged from the 97th to the 99th percentile. Nine of the students' mothers were elementary school graduates, eight were middle school graduates, and 30 were high school graduates; 47 of the mothers had completed a bachelor's degree, while a further four had done graduate or post-graduate work. As for the fathers of the students, four were elementary school graduates, four were middle school graduates, and 28 were high school graduates; 54 of the fathers had completed a bachelor's degree, while a further eight had done graduate or post-graduate work. 64 students had never left Turkey before while 25 students had visited between one and three foreign countries, five students had visited between four and six, and four students had visited over seven.

There were 29 male and 27 female students in the evaluation group in School 3 for a total of 56 students; all of the students in this group were in 11th grade. The students all scored between 478 and 481 (out of a possible 500) on the TEOG/LYS, meaning they ranged from the 94th to the 96th percentile. Three of the students' mothers were elementary school graduates, six were middle school graduates, and fourteen were high school graduates; 26 of the mothers had completed a bachelor's degree, while a further seven had done graduate or post-graduate work. As for the fathers of the students, one was an elementary school graduate, three were middle school graduates, and eighteen were high school graduates; 28 of the fathers had completed a bachelor's degree, while a further six had done graduate or post-graduate work. 39 students had never left Turkey before while fourteen students had visited between one and three foreign countries, two students had visited between four and six, and one student had visited over seven.

Results

The first topic, *Perceptions of Brain Drain*, was created using data obtained from the student participants. Categories and codes related to this main topic are shown below in Table 3; there are a total of two categories and 22 code-words contained within this topic.

Table 3: Categories and Code-words related to topic *Perceptions of Brain Drain*

Topic	Categories	Code-words	<i>f</i>
Perceptions of Brain Drain	Positive	Benefits for humanity, international recognition, research opportunities, advanced laboratories and equipment, opportunities for personal development, extensive professional network, high value given to developers and manufacturers, high income, a plethora of job opportunities, chance to develop oneself in order to serve the home country better, value placed on scientific inquiry, a promise of a better future, freedom to travel abroad, increase in quality of life	166
	Negative	Loss of capital, loss of prestige for the home country, financial overburn for the home country systems, decrease in able leaders for home country, permanent loss of emigrants, increasing sense of hopelessness, loss of trust in the home country	28

As is evident from the data collected in Table 3, the vast majority of participants ($n=166$; 85.56%) evinced a positive approach to brain drain while a minority ($n=28$, 14.44%) thought that brain drain was decidedly negative. In addition, some students specified that they thought brain drain was a net positive for the emigrant leaving Turkey but negative for Turkey itself.

Students with Positive Perceptions of Brain Drain

The vast majority of students, for a variety of reasons, reacted positively toward the concept of brain drain. Some of the reasons which came up time and time again where the idea that brain drain was more beneficial to humanity as a whole, the abundance of jobs and business opportunities, the chance to obtain a higher standard of living, the support given to scientific research and projects, and higher incomes in general. Some students' views on this situation can be found below:

"I think it's a positive thing because it's very difficult and irritating for people to stay in a place where they can't reach their full potential. Also, a lot of occupations which are seriously undervalued in our country are highly valued abroad and they pay good money to keep you there. I think that highly-qualified people moving abroad because they want a better life are doing something really positive for themselves." (S30, a student at the Science High School, mother, and father both have postgraduate degrees, the mother is a teacher, and father is a high-ranking officer in the Turkish Armed Forces, scored in the 99.93rd percentile)

"They emigrate from Turkey because they aren't supported in our country and because their standard of living would be a lot lower here. There are a lot of positives for them as they will be able to develop their skill-set quickly and effectively and they'll be supported at the same time. They'll be a lot better off financially, as will their families." (S1, a student at the Science High School, mother and father both have postgraduate degrees, the mother is a veterinarian, father is an academic, scored in the 99.96th percentile)

"The fact that all these people are leaving and we're experiencing brain drain is a reflection of the current situation in Turkey. Successful people who move abroad are freer, receive more support for their scientific work as well as work in other areas, and are rewarded for their efforts, which is why we have this situation in the first place. Sadly, in Turkey right now, no one offers this sort of working environment." (S92, a student at an Anatolian High School, mother and father both have postgraduate degrees, the mother is a teacher, and father is a dentist, scored in the 96.5th percentile)

There are a number of cognitive and psychological factors that influence academically successful students' (who have highly educated parents and, by Turkey's standards, lead an upper-middle-class lifestyle) positive impressions of brain drain. One of the main factors is the widespread belief that both scientific research and the

researchers themselves are held in much higher esteem abroad, while secondary factors include occupational prestige, a high standard of living, and a large social circle, all of which contribute to the development of cognitive schemata regarding brain drain and working abroad. Many students had positive impressions of brain drain due to their belief that it would bring many individual benefits to the person who emigrated; however, other students looked at brain drain favorably as they thought it would eventually lead to potential benefits and a greater HCVA for Turkey as a whole. For example, one student had this to say about emigration and an eventual return to Turkey:

"I think it's a great thing. A lot of countries are more developed than ours, and it's smart to reap the rewards of the educational and professional opportunities available there. But I only think it's meaningful when they return to their own country and share all the wonderful things they've learned and done." (S26, a student at the Science High School, mother has a bachelor's degree, father has a postgraduate degree, the mother is a homemaker, a father is a soldier, scored in the 99.89th percentile)

It is evident from the statement above that some students think that people who move abroad should return to Turkey with the knowledge and experience gained from their time in foreign countries in order to help Turkey develop; these students are of the opinion that brain drain could, in the long term, work in their country's favor. Some students had a distinctly different point of view; the main factors that led to them viewing brain drain in a positive light were the fact that they didn't feel free in Turkey and that the rule of law was not enforced or implemented properly. One student's statement is quite direct: *I feel neither free nor protected by the law in my country* (S121, a student at an Anatolian High School, mother and father both have bachelor's degrees, the mother is a civil servant, father is a soldier, scored in the 95th percentile). Another student's statement was similar: *No one has any rights here, there is no rule of law, no justice, so that's why I think brain drain is a positive thing* (S141, a student at an Anatolian High School, mother and father both high school graduates, the mother is an engineer, the father is a shopkeeper, scored in the 95th percentile). Students who shared this view often interpreted brain drain as a form of individual escape from the harsh and unjust conditions in Turkey to countries which they perceived as freer and more just.

Other factors that came up when researching the roots of positive views and perceptions regarding brain drain were the plethora of exciting job opportunities available abroad, entrenched prejudices regarding certain occupations in Turkey, and deficiencies in the Turkish education system. Some students' statements supporting these ideas can be found below:

"I think it makes sense for them to go, especially if they're going to study subjects like AI or machine learning which will never go anywhere in Turkey. For instance, if I got a job offer from a place in Silicon Valley, I'd go because the opportunities and facilities here are limited." (S75, a student at an Anatolian High School, the mother is a high school graduate, father has a bachelor's degree, the mother is a homemaker, the father is a retired soldier, scored in the 96th percentile)

"I think it's a good thing because I have no faith that our education system will ever work properly. I don't think anyone works in an occupation they love. Only people who make it into med school or make it into the top 5,000 on the university entrance exam can do anything with their lives. Taking an example from my own life, I want to be a fashion designer, but I can't become one because everyone always says the same thing: do you want to starve? I don't want to hear that anymore and I think brain drain is a positive thing." (S188, a student at an Anatolian high school, the mother is a high school graduate, the father has a bachelor's degree, the mother is a homemaker, and the father is a civil servant, scored in the 95th percentile)

Students with Negative Perceptions of Brain Drain

Just as there were students who thought brain drain was a net positive both for the individuals who emigrated from Turkey and for the country as a whole, there were also many who determined that the loss of highly qualified specialists and workers was a decidedly negative phenomenon. The rationale that lies behind the negative perceptions of brain drain is varied; two of the major reasons include the view that brain drain represents a loss of human and economic capital for Turkey and the idea that the 'best' people leaving a country will harm that country's international reputation. Other explanations include the financial burden it places on Turkish systems (as these systems helped rear the individuals only to send them off to another country), the decrease in able leaders available, the permanent loss of emigrants, the increasing sense of hopelessness felt among those who stay in Turkey, and the loss of trust in one's country. Some students' views on this situation can be found below:

"I think it's a bad thing because highly qualified professionals go to other countries and don't help or provide any benefits for their own country." (S13, student at the Science High School, mother and father both have bachelor's degrees, mother is a nurse, and dad is a biologist, scored in the 99.89th percentile)

"I think that brain drain really slows down Turkey's development and costs our country a lot. I think the main reason that we're dealing with this situation is the lack of appreciation for highly qualified specialists and workers in our country; they aren't valued nearly enough." (S38, student at the Science High School, mother and father both have postgraduate degrees and both work as physicians, scored in the 99.93rd percentile)

"I feel comfortable calling it a negative development. It would be helpful both for individuals leaving and for the country itself if those who decided to leave came back immediately after receiving their training or education. I don't think it is right for people to only think about their own interests and completely ignore all the resources their country has expended helping them grow and mature. They should think about how they can best serve their country; being comfortable should be the last thing on their minds." (S21, student at the Science High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a civil servant, scored in the 99.92nd percentile)

It is once again evident from the statements above those ideas regarding the importance of serving one's country and working for the public good instead of self-interest were key factors influencing negative perceptions of brain drain; these students clearly valued the interests of the majority over their own wants. However, it is also evident that some of these students are in a quandary; the tension between the desire to develop oneself and achieve great things individually and the desire to remain connected to their own country sometimes leads them to look at the phenomenon of brain drain from a reductive perspective. Tension and uncertainty are both clearly evident in statements from two students:

"Brain drain, in general, occurs because of poor conditions. I think it's positive for the individual but negative for Turkey's development. The individual will have improved their life but done nothing to improve Turkey." (S109, a student at an Anatolian High School, mother is a high school graduate, father is an elementary school graduate, mother is a homemaker, father is a cook, scored in the 96th percentile)

"I think brain drain is bad for the country but good for the individual who goes. People who go want to be in a place where they can best develop themselves. It's pretty hard to do that in Turkey." (S111, student at an Anatolian High School, mother is an elementary school graduate, father is a middle school graduate, the mother is a homemaker, the father is a carpenter, scored in the 97th percentile)

Another student explained the situation with a simile:

"It's like if a soccer team had a talented player work up through the ranks of their farm teams and then, without actually playing him or giving him the chance to play and develop on the actual team, sent him to another team altogether. It's a complete disaster for this country." (S90, a student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a civil servant, scored in the 96th percentile)

As stated previously, the rationale that lies behind the negative perceptions of brain drain are varied; one of the most important is the idea that people who emigrate from Turkey will never return, and even if they do, they would never be able to secure the prestige and the earnings they became accustomed to abroad. The idea that people who have developed themselves and made contributions to studies, research, and projects in the country of destination will face numerous bureaucratic and political obstacles in Turkey and be sidelined, bypassed, or eliminated from consideration for specialist jobs altogether, no matter how solid their credentials, is often used to rationalize brain drain.

"There are positive and negative aspects of the brain drain. It's logical to go abroad and work, they are underappreciated here, the infrastructure is inadequate, and they don't have a lot of opportunities. That being said, it's really important for them to come back and create the same type of opportunities in Turkey after they do all their work. It's hard to blame them though because no one appreciates the value of what they do here." (S28, a student at the Science High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a shopkeeper, scored in the 99.96th percentile)

Just as there are factors which shape academically high-achieving students' perceptions of brain drain either positively or negatively, there are also many reasons which underlie the emergence of brain drain from Turkey to developed countries and play a catalytic role in its continuation. Figure 2 shows a breakdown of the components of students' positive *and* negative views regarding brain drain.

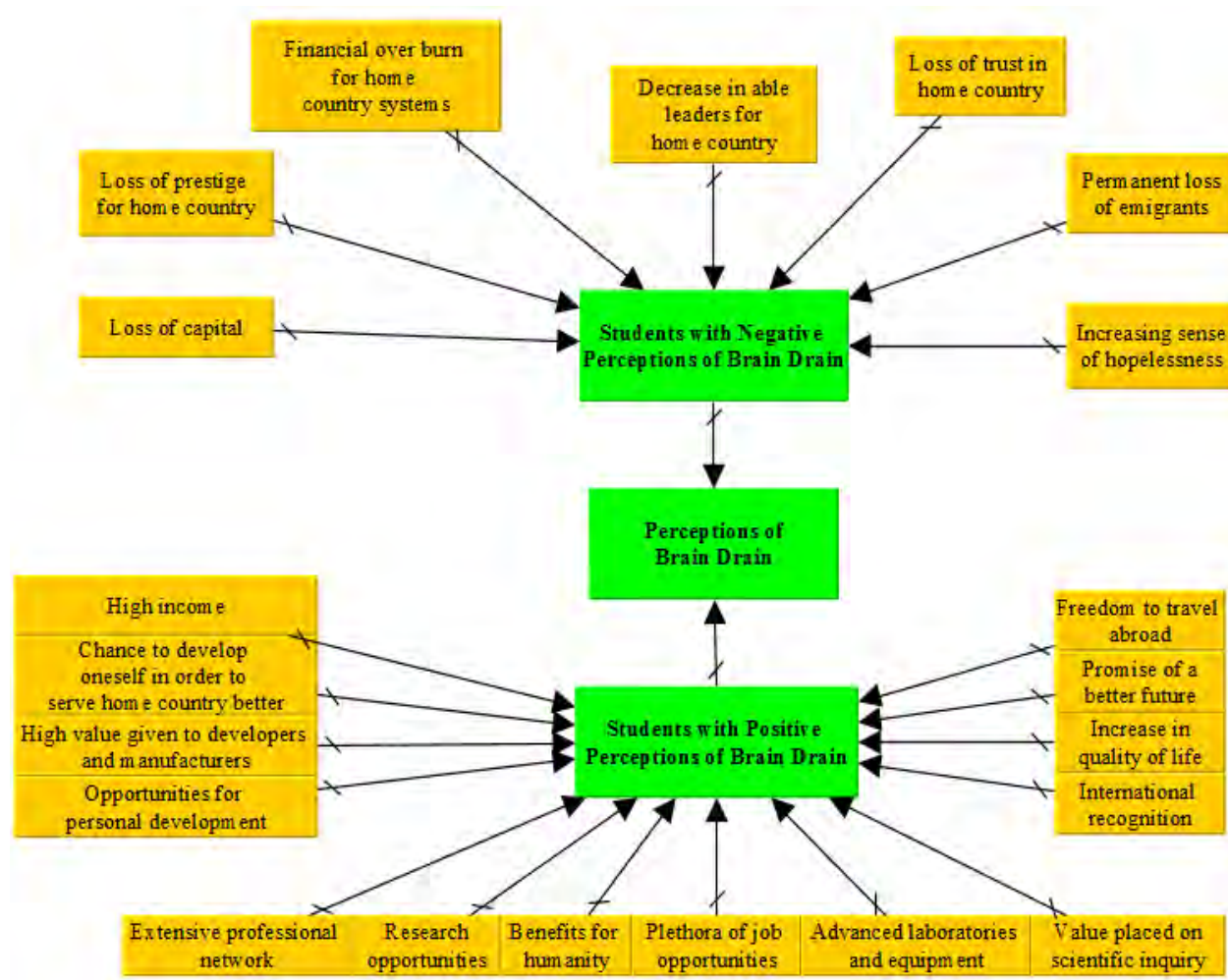


Figure 2: Components of Students' Positive and Negative Views and Perceptions of Brain Drain

Causes of Brain Drain

The views of the students who participated in this study regarding the reasons that played a catalytic role in the emergence and continued prevalence of brain drain, both in terms of those who have already emigrated from Turkey and those who intend to do so, have been collected under the topic heading *Causes of Brain Drain*, shown below in Table 4.

Table 4: Categories and Code-words related to topic *Causes of Brain Drain*

Topic	Categories	Code-words	<i>f</i>
Causes of Brain Drain	Economic Factors	Lack of opportunity, limited job market, unemployment, working conditions, desire to earn more	108
	Bureaucratic & Administrative Factors	Lack of support, unfair decisions and inequitable policies, widespread nepotism, feelings of worthlessness, use non-merit-based factors in hiring, discrimination	81
	Educational Factors	Low quality of education	32
	Scientific Factors	Little to no value placed on research	20
	Political Factors	Various type of political pressure and restrictions, lack of intellectual freedom/freedom of speech	8

The views of these students indicate that there are five main factors or causes which have played a catalytic role in the emergence and continued prevalence of brain drain in Turkey: economic reasons, bureaucratic/administrative reasons, educational reasons, scientific reasons, and political reasons. The economic factors include lack of job opportunities, limited job market, widespread, chronic unemployment, gulf between actual working conditions and worker expectations, and the desire to earn more and attain a higher standard of living.

The fact that economic concerns topped the list as the dominant factor also sheds light, albeit indirectly, on students' trepidation regarding their future. Concerns about not being able to procure a job with working conditions that meet their expectations despite having had a highly successful academic career lead them to view brain drain as a legitimate and justifiable option. The modern social dynamics of the economy and the ways in which it shapes lives also affects views on brain drain. Some striking remarks from students regarding this situation can be found below:

"Inflation, unemployment, nepotism, and inequity are just a few of the major problems that Turkey has right now. I think the main cause [of brain drain] is the fact that people know they won't be rewarded properly for the work they do in Turkey, so they decide to leave and go to a place where they think they will be rewarded."(S153, student at an Anatolian High School, mother has a bachelor's degree, father is a high school graduate, mother is a pharmacist, father is a retired soldier, scored in the 95th percentile)

"The unemployment rate in Turkey is really high and many unemployed people are college graduates. If someone buckles down and works hard, sacrificing a large portion of their youth and social life, and then can't even find a job after all those years, of course they're going to leave. I also think that people who are successful in their field are not supported in Turkey, so they go to places where they are supported and where their degree means something."(S130, student at an Anatolian High School, mother and father are high school graduates, mother is a homemaker, and father is a shopkeeper, scored in the 96th percentile)

The increasing number of highly educated yet unemployed young professionals in Turkey has amplified academically successful students' concerns, and they have started to feel the effects of these concerns despite having years of study ahead of them. Some societal issues which spring from economic indicators (for example, social prestige and the desire to attain high social status) suggest that young, highly educated professionals take these economic factors seriously as well. One of the factors connected to the economy that triggers emigration from Turkey to other countries shows up frequently in different students' comments: the unequal distribution of wealth/income inequality, which conflicts with students' hope for a higher standard of living in the future.

Another factor often mentioned alongside economic factors are the administrative and bureaucratic obstacles encountered in Turkey on both a micro and macro scale. The root causes of these obstacles are thought to include the lack of support given to qualified specialists and workers by all levels of management and relevant decision-making authorities, unfair decisions and inequitable policies, widespread nepotism, feelings of worthlessness, use of non-merit-based factors in hiring, and discrimination. Some students' statements support this view of administrative obstacles:

"The major factor behind the brain drain in Turkey is the state's lack of support, assistance, and aid for both people and research projects. Another reason is that people in some important occupations don't get the respect they deserve." (S24, a student at the Science High School, mother has a postgraduate degree, the father has a bachelor's degree, the mother is an academician, father is a bank employee, scored in the 99.95th percentile)

"Deterioration in the standard of living in Turkey over the years as a result of poor public planning and policy, rampant inequity and nepotism in the hiring process, even for jobs with average wages. Not providing enough opportunities for talented people and the fact that our country's future isn't exactly rosy – all of those are the reasons behind brain drain."(S144, student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a factory worker, and father is a civil servant, scored in the 96th percentile)

"Inequity, rampant nepotism in the hiring process, an outdated, reductive management model that doesn't take personal differences into account, unemployment – I could go on and on. I'm so sick of this system that tries to fit everyone into the same mold. I think this county needs good people who can think for themselves, not unhappy people who have all been raised to think and act the exact same way by the system."(S98, a student at an

Anatolian High School, mother is a high school graduate, father has a bachelor's degree, mother is a homemaker, father is a civil servant, scored in the 95th percentile)

The blatant disregard for using and implementing merit-based hiring practices, decision-making processes, and management systems shown by managers who have a direct impact on many people's lives has led to a serious loss of trust in both institutions as a whole and management in particular. In time, loss of trust in institutions paves the way for loss of trust in the country on a macro level and can also lead to severance in the emotional bonds that link people to their country. From this, we can ascertain that just practices and equitable administrative policies are among the most important factors which bind individuals to their country.

Other important factors that students touched on in their responses to brain drain were the structural problems of the Turkish education system as well as issues related to the quality of education and course content. The system uses standardized testing to weed out and eliminate students from consideration for certain schools and departments, and the widespread use of these tests at all levels of primary, secondary, and tertiary education, coupled with the fact that the methods and procedures regarding elimination are constantly shifting, creates a feeling of unrest and dissatisfaction among the students. An additional indication of Turkey's academic opacity and abstruseness is the fact that new procedures are adopted within an extremely short amount of time and without having had the chance to determine their positives and negatives. This tendency reinforces the perception that people have of a country which has not determined a clear course of action for its education system. People who plan their futures mainly around the education they receive will, as a matter of course, lose their faith in the country's education system and educational policies after being confronted time and time again with opacity and structural obstacles. One other concern of note is the tendency of academically successful students to rationalize and justify brain drain when the policies of and education provided by institutes of higher education do not match up with their expectations for their future. Some student views which express this concern can be found below:

"Education in Turkey gets less rigorous by the day and that pushes people to look for educational options abroad. Then the people who emigrate don't want to return because of the conditions [here], and you get brain drain."(S118, student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a bank employee, and father is a civil servant, scored in the 97th percentile)

"Instead of being allowed to find themselves and discover what they love to do, people in Turkey are treated practically like racehorses. The curriculum changes every year, the standardized tests constantly change, it wears people out. I'm getting tired just talking about it."(S120, student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a civil servant, scored in the 96th percentile)

"The broken education system in Turkey causes brain drain. People aren't able to distinguish themselves in this system. They don't allocate time or money to education. There's no way to measure how successful people are with this ridiculous system. The [standardized] testing system constantly changes and we can't keep up with it." (S88, student at an Anatolian High School, mother has a bachelor's degree, father is a high school graduate, mother is a factory worker, father is a shopkeeper, scored in the 97th percentile)

One of the factors that strengthen the bonds between people and their country and make people trust their country is a high-quality, well-structured education system that allows citizens to plan for all possibilities in their future as they pass through it. Students who participated in the study made multiple references to the idea that their hopelessness regarding the future and the education they were receiving served as a rationale for themselves and other successful people to emigrate from Turkey. Another factor is scientific research, an endeavor which is inextricably bound up with education. The paucity of scientific research in Turkey and the lack of appreciation shown for it is, according to the students, an important factor that causes successful individuals to emigrate from Turkey. One student had this to say on the subject: *The working environment in universities is not adequate or sufficient and because they don't allow more research to be done, people leave* (S9, a student at the Science High School, mother and father both have bachelor's degrees, mother and father are both teachers, scored in the 99.97th percentile). A different student voiced similar views: *Scientists in Turkey can't find a place to develop themselves and no one cares about the research, which obviously leads to brain drain* (S104, student at an Anatolian high school, mother is an elementary school graduate, father has a bachelor's degree, mother is a homemaker, father is a civil servant, scored in the 97th percentile). These statements show that some students think people who are working on scientific research are not held in high enough regard by university administrators and the public in general.

Another factor thought to play a significant role in the continued prevalence of brain drain is, according to the students, political views. Various types of political pressure and restrictions on certain ideas, lack of intellectual freedom and freedom of speech, meddling and interference in people's lifestyles, and homogenization of thought and opinion were all sub-components of this topic. Discontent with the ruling political consensus and its representatives combined with the aforementioned factors makes brain drain, according to some students, inevitable.

"Brain drain happens when successful people are not given the appreciation they deserve and when they can't live comfortably in our country, when there is no intellectual freedom or freedom of speech, and when you can't write or work freely. Outside of this, social and religious pressure and discrimination that people are subjected to as a result of their views and beliefs are aggravating factors as well."(S69, a student at an Anatolian High School, mother is a high school graduate, father has a bachelor's degree, the mother is a homemaker, the father is a civil servant, scored in the 96th percentile)

A visualization of the various situations which lead to brain drain is given below in Figure 3.

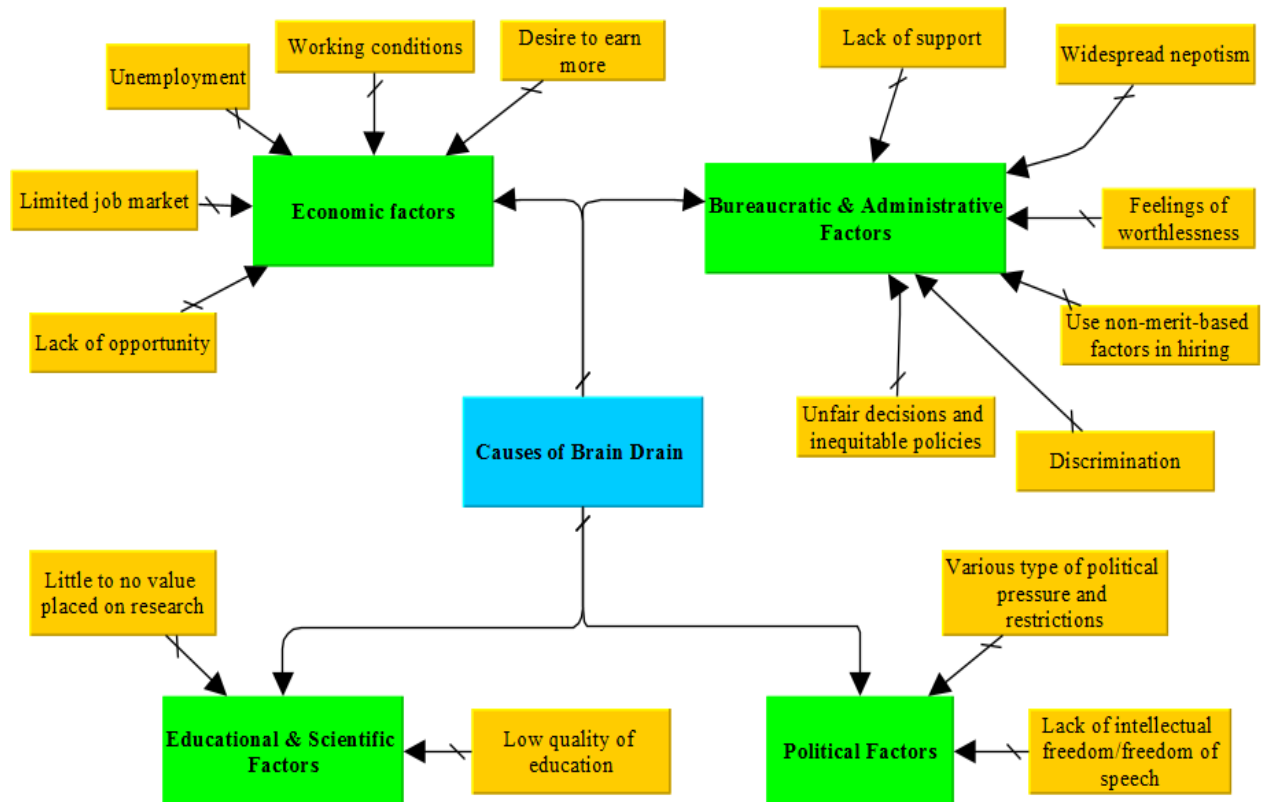


Figure 3: Students' Views of the Underlying Causes of Brain Drain in Turkey

Intent to Emigrate

Academically high-achieving students' positive and negative perceptions of the brain drain phenomenon as well as their views regarding the underlying causes of brain drain in Turkey were revealed in the preceding paragraphs. As a supplement, another topic entitled *Intent to Emigrate* was created in order to see exactly how likely students were to emigrate from Turkey to another country and which factors influenced their likelihood to emigrate.

This topic is explored fully in the table below.

Table 5: Categories and Code-words related to topic *Intent to Emigrate*

Topic	Categories	Code-words	f
Intent to Emigrate	I would leave and never come back if I had the opportunity	Poor working conditions in Turkey, quality of education abroad, exciting opportunities offered abroad, standard of living, respectability and being held in high esteem, myriad opportunities, bureaucratic efficiency	168
	I would leave and then return if I had the opportunity	Desire to serve country with newly acquired knowledge	20
	I wouldn't go even if I had the opportunity	Strong sense of patriotism	6

The vast majorities of academically high achieving students intend to immigrate to other countries as soon as they get the chance and never return to Turkey. The main factors that contribute to this trend are the poor working conditions in Turkey, the quality of education and exciting opportunities offered abroad, the higher standard of living that is obtainable, and the fact that certain occupations held in high esteem. Successful students in Turkey tend to view this situation as a way to gain valuable experience or to quickly improve their lot in life. Some students in this group were very vocal about the individual benefits of emigration from Turkey and made comments to this effect:

"Of course I'll go. Instead of being stuck here like all the other unemployed college graduates or people who can't find a job in their line of work, I'll go abroad, hone my skills, and work at a proper workplace doing the job I want to do." (S1, student at the Science High School, mother and father both have postgraduate degrees, mother is a veterinarian, and father is an academician, scored in the 99.96th percentile)

"Yes, I'll go when I get the chance because the research conducted abroad is given a lot more support, and it's easier to do and of a higher caliber as well. I'd also prefer to study abroad because I think the education systems there are more effective than the system in Turkey." (S24, a student at the Science High School, mother has a postgraduate degree, father has a bachelor's degree, the mother is an academician, the father is a bank employee, scored in the 99.95th percentile)

"Yes, I'd like to go. I believe that scientific research should be universal; I don't think it really matters which country it's done in. If I found working conditions better than the ones in Turkey then I'd definitely go." (S18, a student at the Science High School, mother has a bachelor's degree, father has a postgraduate degree, the mother is a teacher, the father is a physician, scored in the 99.99th percentile)

"Yeah, I've definitely thought about it. In fact, I've even started to prepare for the eventuality. After I finish university here, I want to go abroad and develop my academic career in a foreign country. I think that I'll be able to make more money, go further in my field, and gain a lot more experience there." (S128, a student at an Anatolian High School, mother and father are both high school graduates, the mother is a cook, the father is a technician, scored in the 97th percentile)

The various reasons that these successful students put forth as rationale to explain their intent to emigrate can absolutely be interpreted as Turkey transferring or even losing qualified human capital to foreign countries. The quotes above show that some of the participants in the study did not look at scientific research as a national or domestic endeavor but rather as a universal one, which led to them believing that the country in which the work is done is not all that important. However, some students believed that working on acclaimed, important research and projects abroad should be seen as a source of pride for Turkish citizens and Turkey. One student's views on this subject show that, although they were not excited about the prospect of studying and working abroad, these ideas were instrumental in influencing their intent to emigrate from Turkey: *I'd love to be able to say that I want to work in my own country but so long as we remain undervalued and unappreciated here that's just not possible* (S160, student at an Anatolian High School, mother and father both are middle school graduates, mother is a homemaker, father is a laborer, scored in the 97th percentile)

Just as there are political, economic, sociological, and pedagogical factors (among others) which influence high-achieving students' likelihood to emigrate, there are also enticing opportunities offered in developed countries

which influence their decisions as well. Developed countries pick and choose the most highly qualified people and make use of this qualified human capital in order to generate and produce a wide variety of scientific innovations, projects, patents, and technological products; this practice enables them to solidify their international reputation and gain hard and soft power. Some students, however, after developing themselves and acquiring knowledge, skills, and expertise in developed countries, intend to return to Turkey and put their knowledge and acquired experience to good use there. These students have a very strong sense of patriotism; they believe that brain drain (more broadly, emigration from Turkey) must, in the long run, benefit the country and not the individual. Also, they desire to contribute to the betterment of the entire world with their knowledge and experience. Some students' opinions on this subject can be found below:

I definitely want to go abroad to continue my education when I get the chance. Of course, I would only do it on the condition that I return to Turkey. If all of us go abroad and never return, we can't ever expect the situation in Turkey in change." (S100, a student at an Anatolian high school, mother and father both have bachelor's degrees, mother is a teacher, and father is a soldier, scored in the 97th percentile)

"I want to [go abroad] but I also want to help my country. It's very important for me to develop individually you should only do these types of things if it will benefit the world and humanity in general. It's important to make the world a better place. If I do anything, I want it to be beneficial first to my country and then to the world." (S81, a student at an Anatolian high school, mother and father are both high school graduates, mother is a homemaker, father is a civil servant, scored in the 97th percentile)

Although they were in the minority, a number of students stated that they had no intention of ever emigrating from Turkey, even if they got the chance. For these students, staying in Turkey and working for the good of their own country, no matter what, was the right course of action. One student's statement corroborates this view: *No, I don't want to go abroad because I want to contribute to my country. I want to be recognized as a leader by my people* (S37, student at the Science High School, mother and father are both high school graduates, mother is a homemaker, father is a shopkeeper, scored in the 99.95th percentile). Another student expressed similar ideas: *I wouldn't want to go because I love my country, I want my work to benefit my country* (S102, student at an Anatolian High School, mother and father are both high school graduates, mother is a homemaker, father is a civil servant, scored in the 98th percentile). Yet another student had this to say:

"No, I wouldn't want to go because if I do, I'll be contributing socially and economically to that country by working and researching there. I'd rather stay in my own country and work on scientific research with limited resources to help out my own people." (S131, a student at an Anatolian high school, mother is a middle school graduate, father is a high school graduate, mother is a homemaker, the father is a laborer, scored in the 97th percentile)

It is evident that there is a direct correlation between the positive perceptions of brain drain and potential emigration from Turkey and the more favorable conditions found in developed countries for the work they intend to perform and carry out.

Discussion, Conclusion, and Recommendations

The phenomenon of international migration is a social and political issue that many countries are currently being forced to deal with, and brain drain occupies a distinct place in the conception of both emigration and immigration (Günay, Atılğan, & Serin, 2017). Thusly, countries that have attracted and benefitted from the contributions of qualified human capital are in a more advantageous position relative to other countries (Koçak and Terzi, 2012). Brain drain is a phenomenon that puts undeveloped and/or developing countries at a disadvantage while it turns developed countries into a mecca of immigration for highly qualified workers. It is evident that there are many factors that affect the perceptions of students who view brain drain in a positive light. These factors include individual values and their vested interest in their own career development as well as their intention to contribute to their own country with the money and knowledge acquired in developed countries. Students who view brain drain as an extremely unfavorable phenomenon believe that it causes the home country to lose a serious amount of economic and human capital, damages the country's reputation, and undermines the bond between the country and its citizens who decided to stay; they also believe that it intensifies feelings of hopelessness in those same citizens.

Economic, social, political, administrative, legal, educational, and scientific factors play a major role in pushing high-achieving students to consider immigrating to other countries. As economic factors play a determining role in this process, the fact that Turkey fails to properly manage and employ its own qualified and highly-educated human capital make the people who comprise this human capital more inclined to immigrate. A study by

Ermağan (2018) indicates that 59% of highly educated students intend to emigrate from Turkey; this high percentage is attributed to Turkey's inability to provide industry and sector-specific opportunities to workers and specialists.

Bakırtaş & Kandemir (2010) have laid out the main reasons that highly educated people gravitate toward emigration: the pressure of unemployment, limited funds allocated for R&D, a low standard of living, and political instability. Pazarcık (2010) states that factors such as academic freedom in universities, the allocation of significant research funds, and social prestige play a major role in pushing Turkish academics who work at prestigious universities in the U.S. to immigrate and also to delay or abandon altogether plans to return to Turkey. İçduygu, Erder, and Gençkaya (2014) note that the majority of the roughly 250,000 Turkish immigrants found in both the U.S. and Canada is made up of people who fall under the umbrella of human capital flight and represents a significant human capital loss for Turkey. Field research interviews conducted by Krieger and Maitre (2006) in several countries indicate that Turkey ranks first in terms of having the highest number of highly educated people/workers who intend to immigrate elsewhere.

Countries that lose their human capital due to brain drain experience the far-reaching negative repercussions of this situation in a number of different areas. Capuano and Marfouk (2013), for instance, state that economic indicators in African countries which experience brain drain are not improving; therefore, although investment agencies seek various ways to inspire confidence in their country and give recommendations to investors, they are unable to attract said investors to their countries precisely *because* of brain drain. Mlambo & Adetiba (2019) and Chimboza (2012) have also called attention to similar findings which indicate that the exodus of medical personnel, teachers, professors, and engineers from North African countries has severely damaged these countries' socio-economic development. In addition, the government's inability to develop effective policies to prevent brain drain has accelerated this process. Comparative analyses performed by Docquier (2014) and Adeyemi, Joel, Ebenezer, & Attah (2018) highlight the inverse correlation between economic development and brain drain and emphasize that the number of people who emigrate from their native country decreases as countries develop economically. As a result, countries that lose both their economic and human capital are considered "losers", as stated in reports from Beine, Docquier, & Rapoport (2008).

Accordingly, this situation puts the developed countries that attract qualified workers in a more advantageous position, economically and otherwise. For example, in the United States, the country which receives the most qualified human capital of any country in the world, a large number of the engineers working in Silicon Valley are foreign nationals; a sizeable majority of these nationals are from India. These privileged immigrants, who constitute a large percentage of technology manufacturers, contribute billions of dollars to the US economy and create lots of job opportunities in the region (Alarcon, 1999). Between 1973 and 1999, the number of doctoral-level scientists and engineers who immigrated to the United States doubled to over 200,000 people (Saravia and Miranda, 2004). Docquier and Rapoport (2011) note that globalization and collective diaspora activities are some of the instigating factors which influence brain drain.

Human capital flight from Turkey is not only a present-day concern. During the early Republican era, Turkey fast-tracked a program which sent Turkish students to developed countries so they could receive quality education, but the fact that students who were sent abroad didn't return in the following years turned this situation into a problem for the country. For instance, a study done by Dalgıç (1977) suggested that brain drain has been a serious social problem in Turkey for over 50 years and that engineers, physicians (medical doctors), and scientists constituted the large majority of immigrants between 1962 and 1966. Turkey's inability to find an effective and permanent solution to this problem must be considered a loss of domestic capital as Turkish systems produced these qualified workers and specialists and then subsequently lost them to other countries. The number of highly qualified and well-educated people who immigrated to OECD countries from Turkey has more than doubled between 1980 and 2010 (Acar, 2017).

Academically successful students list the political atmosphere of the country and concerns they harbor regarding conflicts among different segments of society as some of the political factors underlying brain drain. Freedom to think and express oneself as one pleases, freedom from oppression and being blacklisted, shelter from the effects of discrimination, and the ability to express one's thoughts without fear or hesitation are among the expectations today's young generation have from a democratic country. When these expectations remain, to a large degree, unfulfilled, the emotional bond between people and their country starts to wither and, accordingly, this situation leads people to look for new opportunities elsewhere. Separate studies from Dodani and LaPorte (2005) and Elveren & Toksöz (2018) support these findings.

If Turkey manages to reverse the brain drain by providing exclusive opportunities for its citizens who have contributed to a variety of important scientific studies in developed countries, it will gain important competitive advantages both economically and pedagogically. The concept of reverse brain drain will also make high-achieving students, who lean towards emigration and intend to move to developed countries, have more confidence in their own country. New policies must also be developed along with this reversal in order to attract qualified workers from other countries and to turn Turkey into a mecca for scientific studies; if they are not, the fact that high-achieving students intend to move abroad and settle there permanently constitutes a serious strategic risk for Turkey. In order to be able to minimize this risk, it is essential to create a strong democratic climate based on the rule of law, support employees and manufacturers, and establish a system of management based on the principle of merit. It is possible to reverse high-achieving students' intent to emigrate and thereby contribute to the retardation of brain drain by improving the quality of education and implementing pedagogic policies that help increase their confidence in their own country. Turkey will face the risk of drifting away from its vision for the future unless it is able to develop effective policies to manage and retain qualified human capital. Therefore, founding training and research centers, conducting scientific studies, and allocating a substantial amount of funds for research and development (R&D) will strengthen the bond between qualified workers and their own country. However, this study has several limitations; first, the sample of the study is limited to three renowned secondary schools. Another significant limitation is that data was collected solely from students; further field studies should focus on broadening the perspective of the study by collecting data related to this phenomenon from parents and teachers as well.

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