TITLE: Science High School Students' Perceptions of Science High Schools in Turkey

AUTHORS: Ata PESEN,Behçet ORAL,Ugur EPÇAÇAN

Science High School Students' Perceptions of Science High Schools in Turkey [*]

Ata Pesen [**]   **Behçet Oral**[***]   **Uğur Epçaçan**[****]

Abstract

The aim of this study is to investigate the 10th, 11th and 12th grade science high school students' perceptions of science high schools where they are educated. The study, which is carried out by using qualitative research methods, is a based on multiple case study model. The study group of the study consisted of 69 students studying at 10th, 11th and 12th grades. An interview form prepared by the researchers was used as a data collection tool. The data were analysed by using descriptive analysis and content analysis approaches. As a result of data analysis, it was concluded that science high school students mostly choose science high schools because of their qualified education and teachers. It has been found out that science high schools, in general, aim at educating qualified students, and enabling them to enter good universities. It has been further concluded that the students' social opportunities and experimental training in school environment should be augmented. With the students' opinions, it has emerged that science high schools are advantageous in terms of their level of achievement, qualified education, and good prospects; and disadvantageous in terms of high expectation and psychological pressure resulting from some other factors.

Keywords: Science high school, student views, curriculum.

Fen Lisesi Öğrencilerinin Fen Liselerine İlişkin Görüşleri *

Ata Pesen **   **Behçet Oral***   **Uğur Epçaçan** ****

Öz

Bu araştırmanın amacı, fen lisesi 10, 11 ve 12. sınıf öğrencilerinin öğrenim gördükleri fen liselerine ilişkin görüşlerinin incelenmesidir. Nitel araştırma yönteminin kullanıldığı çalışmada, durum çalışması deseni esas alınmıştır. Araştırmanın çalışma grubunu fen lisesinin 10., 11 ve 12. sınıflarında öğrenim gören 69 öğrenci oluşturmaktadır. Araştırmada veri toplama aracı olarak araştırmacılar tarafından hazırlanan yarı yapılandırılmış görüşme formu kullanılmıştır. Veriler betimsel ve içerik analizi yaklaşımlarıyla analiz edilmiştir. Verilerin analizi sonucunda fen lisesi öğrencilerinin, daha çok eğitim kalitesi ve öğretmen niteliğinden dolayı fen liselerini tercih ettikleri saptanmıştır. Fen liselerinin genel olarak nitelikli öğrenci yetiştirme ve iyi bir üniversiteye yerleştirme amacına sahip olduğu bulgusuna ulaşılmıştır. Öğrencilerin okul ortamında sosyal imkânlarının ve deneysel çalışmaların arttırılması gerektiği görüşü tespit edilmiştir. Öğrencilerin görüşlerinden; fen liselerinin başarı düzeyi, kaliteli eğitim ve iyi bir gelecek açısından avantajlı, yüksek beklenti ve psikolojik baskı gibi açılardan da dezavantajlı olduğu bulguları elde edilmiştir.

Anahtar Sözcükler: Fen lisesi, öğrenci görüşleri, eğitim programı.

** Sorumlu Yazar: Ata Pesen: Dr. Öğr. Üyesi, Siirt Üniversitesi, Eğitim Fakültesi, Siirt, Türkiye. E-posta: atapesen@siirt.edu.tr, https://orcid.org/0000-0003-1676-7444
*** Prof. Dr., Dicle Üniversitesi, Ziya Gökalp Eğitim Fakültesi, Diyarbakır, Türkiye. E-posta: oralbehcet@dicle.edu.tr, https://orcid.org/0000-0002-6885-1683
**** Öğr. Gör., Siirt Üniversitesi, Sosyal Bilimler Meslek Yüksekokulu, Siirt, Türkiye. E-posta: ugur56@siirt.edu.tr, https://orcid.org/0000-0003-0240-7093

Introduction

There has been a requirement to have qualified staff educated in particular scientific and technological arenas to be able to become a part of developed countries. The developed countries around the world invest a considerable amount of money to improve their educational systems by emerging technological and scientific needs. For this reason, it seems very significant for our country to manage to keep up with global competitive conditions by having science high schools throughout the country. Opening up science high schools in the country was put forward in the seventh Ministry of Education, council meeting held in 1962 (Zabun, 2007). After this decision, the first science high school was opened in Ankara in 1964 and the second in Istanbul in 1982. These schools were objected to act like laboratory schools for other schools (MEB, 1995; Ünal, Coştu & Karataş, 2004; Ünal & Ünal, 2010) and their importance was understood and consolidated in the following years, which resulted in opening more of them in several other cities.

"Science High schools aims at; preparing the students with a high level of intelligence and ability in maths and sciences for the related academic faculties, being resources for the allocation and training of qualified personnel and scholars needed in related scientific and maths areas, directing and stimulating the students to do researches, creating suitable environments for those who are interested in conducting researches or inventing new things via scientific and technological tools or means, educating those who are capable of and enthusiastic about using new technologies, producing new knowledge and preparing projects accordingly, training them in foreign languages to equip them with necessary skills to be able to make scientific researches, to follow up with the new scientific and technological advances." (MEB, 1999).

Within this scope, Science High Schools in Turkey have got a system which is a coeducational one, has got a four-year period of education and where students with higher cognitive and academic skills compared to their counterparts are educated in a boarding environment. Therefore, these high schools which aim at improving their students with higher scientific and mathematical skills have generally a curriculum for exactly that objective. These high schools get great attention according to their classroom and educational standards such as the number of classrooms, students in those classes, foreign language education, scientific and cultural studies and so on. Moreover, their students, on the other hand, are distinguished in their general success in exams and several competitions besides their general levels and degrees (MEB, 2010).

The number of Science High schools in Turkey was reported to be 61 with thirteen thousand students in 2003-2004 educational years. However, in a report of Ministry of education in 2016-2017 it was informed that the number of schools had gone up to 302 throughout the country and the number of students was 99 thousand (MEB,2017). There were more than 20 school types in the Turkish high school educational system apart from Science High schools by 2015, whose numbers and types were reduced by the Ministry of Education by means of some regulation amendments within that year. The best students chosen by a state exam called TEOG in a province generally go on their high school education in Science High schools. After a decision in April 2018, the high schools were classified as Qualified and Unqualified, which was reported in High school preference Guide in 2018, "Central Exam Application and Implementation Guide" as there were 1367 qualified schools chosen within the country. The types of these qualified schools are as given in Table 1:

Table 1

The Distribution of Qualified High Schools according to School Types (Apaydın, 2018)

School Types	Number
Science High school	309
Anatolian High school	222
Anatolian Imam Hatip High school	298
Vocational and Technical Anatolian High school	449
Social Science High school	89
Total	**1367**

These qualified high school have got a quota of 126 510 students in total; therefore, the projected quota per school types is % 27 to Anatolian high schools, % 27 to Science High schools, % 23 to Anatolian Imam Hatip High schools, % 15 to Vocational and Technical Anatolian high schools and finally % 8 to Social Science High schools (Apaydın,2018).

As can be seen from the numbers and distribution, Science High schools have achieved to maintain their importance and place in the educational system whatever changes or amendments have been decided and applied. The general higher success of science schools compared to other school types can be attributed to the qualified training it provides to its students. The first 30 000 students in terms of success in university entrance exam are generally among science schools, which can be given as evidence to their success.

When looking into literature about science high schools, it can be said that most studies focus on the success of students, their attitudes towards various courses and some different psychological variables görülmektedir (Akboy, 1998; Batur & Adıgüzel, 2015; Barut & Odacı, 2002; Berberoğlu & Kalender, 2005; Birol, 2005; Ciğerci, 2006; Çilingir, 2006; Dilmaç, 2007; Karaduman, 1997; Mutlu, 2006; Pehlivan & Köseoğlu, 2011a; Pehlivan & Köseoğlu, 2011b; Peker & Aydın, 2003; Pehlivan, 2010; Özbaş, 2013;Önen, 2003; Yavuz, Gülmez &Özkaral, 2016). Some studies were conducted according to the training programs applied in Science schools (Ersoy, 2005; Selvi, 1996; Yılmaz & Morgil, 1992; Yürümezoğlu, 2008). For this reason, it seems necessary and important to open up a new perspective of training programs of science schools by analyzing their students' perceptions of their schools as these students are the main subjects and components of this school type.

Aim of the study

This study aims at analyzing Science highs school students' perceptions of their schools in 10th, 11th and 12th grades. Within this scope, the following research questions were analyzed to be answered: For Science high school students:

1- What are the reasons for their choice of Science High schools?

2- What do they think about the general objectives of Science High schools?

3- What are their opinions positively or negatively about their schools and training programs within the scope of educational and social contexts?

Method

Research Design

This study is a qualitative one in nature for which a multiple case study method was used. Yinn (1984) defines a case study as a method in which a subject is analyzed within its present conditions, there is not a concrete border between the subjects and its existing contexts or the data sources are used within only its present available states in specific contexts (retrieved from Yıldırım & Şimşek, 2013). Case studies focus on holistic descriptions and explanations (Merriam, 2013). According to Mcmillan (2000), a case study is to analyze deeply one or multiple cases, environments, programs, social groups or interconnected systems within their existing contexts. Within this scope, the perceptions of Science high school students of their schools were evaluated within their contexts.

Study Group

Random sampling was used to identify the participants in the study. Random sampling means choosing one according to the equal possibility of being chosen criteria. Moreover, this random sampling assures that no other non-participants were excluded by any inclusion of a chosen participant. In other words, the possibility of being chosen is free of any impact of inclusion or exclusion of others (Shavelson, 2016).

The participants in the study were 69 students from 10th, 11th and 12th grades in Turk Telekom Science High school in Siirt Province. During the selection of students, one class from each grade was identified randomly and 82 students out of those selected classes were interviewed. Some students who

are volunteer to participate or fill in the forms in a complete manner were excluded and there remained 69 students in the end. The demographical information of the participants is given in Table 2:

Table 2

Demographic Information of the Students

Grade	Girls	Boys
10th Grade	13	14
11th Grade	9	11
12th Grade	12	10
Total	34	35

As can be seen in Table 2, there were 13 girls and 14 boys from 10th grades, 9 girls and 11 boys from 11th grades and finally 12 girls and 10 boys from 12th grades. The number of boys and girls might be concluded to be almost equal and the distribution of students from the grade levels also seems to be equal in terms of number.

Research Instruments and Procedures

The related data was collected by a semi-structured interview form prepared by the researcher. This form was presented to expert consultation to validate its contextuality and wording before it was applied. The suggestions from the experts were taken into account and the necessary amendments were done and the form was finalized accordingly. The questions in the finalized interview form appeared as follows:

1. Explain the reasons for your choice of Science High school (you can choose more than one from the below)

- The choice of successful students in general

- Having a Science High school etiquette

- The quality of education provided

- Qualification of teachers

- Requirement of high grade in TEOG

- Social activities out of classes and lessons

- …………………………….. (if you want, you can add more reasons)

2. What do you think about the general objectives of Science High schools?

3. What do you think about your school and the education provided to you, either negative or positive perceptions?

Related permission was taken from the related authorities as well as the teachers to collect the data from the participants by means of the prepared interview form. In order to help the students to answer the questions in a relaxed and comforted manner, the forms were distributed and filled in a lesson identified by the counseling service of the school. Each student was numbered as S1, S2, S3… in the study to give the related excerpts from their answers.

Data Analysis

Contents analysis and descriptive analysis were applied to evaluate the collected data. According to descriptive analysis, the data is analyzed according to predetermined themes or codes. Direct quotations from the participants' opinions or sayings are given very often to reflect the attitudes or perceptions of them in an effective way. This kind of evaluation aims at explaining and reflecting the collected data to the readers in an organized and descriptive manner (Yıldırım & Şimşek, 2013, p.256).

Content analysis; on the other hand, provides alternatives to search for human behaviors and nature by means of indirect tools. Content analysis is among the most used techniques in Social Sciences (Büyüköztürk et al, 2014: 240). Content analysis aims at finding out common concepts or relations in the collected data. The described and evaluated data in descriptive analysis is telescoped deeply in content analysis in which the terms or concepts possibly having been skipped in descriptive analysis could turn up. For this reason, the first step is to conceptualize the collected data, then to organize emerging concepts in a tidy manner and finally to identify emerging themes out of those concepts (Yıldırım & Şimşek, 2013, p.259).

Researchers analyzed all the data to identify emerging themes, categories and codes. The codes and categories under certain themes were organized and tables were created accordingly. The appropriate emergent codes were tabled with their frequency. Moreover, some excerpts were taken out from the student answers to enrich the data and analysis.

Results

This part shows the findings emerged from the analysis of collected data from the participants. The research questions are evaluated separately one by one and tables were prepared accordingly. The reasons for choosing Science High school were given under one theme and 8 categories as seen in Table 3:

Table 3

The Opinions and Reasons for Students' Choice of Science High Schools

Theme: The reasons for choice of Science High Schools	
Category	**f**
Choice by especially successful students	47
Science High school Etiquette	32
Quality of Education	59
The quality of teachers	56
Requirement of a high grade in TEOG	38
Social activities	3
Family factor	12
A disciplined environment	2

The reasons for the choice of Science high school by the students emerged as " Choice by especially successful students" (f:47), having a "Science High school Etiquette" (f=32), "Quality of Education" (f:59), "The quality of teachers" (f:56), "Requirement of a high grade in TEOG" (f:38), "Social activities" (f:3), "Family factor" (f=12) and finally " a disciplined environment" (f:2). From the findings, the mostly and seemingly important reasons for students' choosing to study in science high schools are subsequently the quality of education, the quality of teachers and the choice of this school type by the students in general. The least mentioned reasons by the participants were the schools' having a disciplined environment and social activities, which appears quite interesting.

The perceptions of students about the scope and objectives of science school system emerged under three categories as "qualified students", "quality of education" and "possibility of opening doors to a good university" (preparation of students well for the university entrance exam, good future prospects and so on). The findings and emergent categories are given in Table 4:

Table 4

The Perceptions of Students about the Scope and Objectives of Science High Schools

Theme	Category	f	Code
The scope of Science High schools	Qualified Students	40	- to educate the ones who will play leading roles in the future of the country -outperforming of the least successful students over the others in the other school stypes - to educate qualified students and invest in the future
	Quality of Education	20	-High quality education
	Enabling to go to a good university	27	- To increase the number of possible medical school nominees - to educate the students according to their success and skill areas

The emerging categories for students' perceptions about the scope of science high schools were "Qualified Students (f=40)", "Quality of Education (f=20)" and "Enabling to go to a good university (f=27)". It can be concluded from this finding that the perceptions of students in terms of the scope of Science high schools were in accordance with the general objectives for opening these high schools by the Ministry of Education.

Under "Qualified Student" category, some excerpts taken out of student answer were as in the following:

"Investment into the future by educating qualified students…….." (S2)
"To educate or train qualified, sophisticated and thoughtful individuals……" (S4)
"…..to educate brains who will play leading roles in the development and improvement of the country…" (S61)
Under "Qualified Education" category, some excerpts taken out of student answers were as in the following:
"By means of qualified education here, the least successful student can outperform the others in other school types…." (S2)
"……..to provide a qualified education by giving more focus to science lessons" (S33)
"…..to provide qualified education to the ones who are interested in sciences and technology…" (S56).
Under "Enabling to go to a good university" category, some excerpts taken out of student answer were as in the following:
"….to enable every student to get registered to a good university as deserved…" (S5)
"…to enable the students to pass the university exam to their dreamed departments as much as possible…" (S40)
"…to direct the students generally to medical schools as well as some prestigious engineering departments..." (S41)

The perceptions of students about the educational and social issues at their school were analyzed under positive or negative perceptions. In positive ones, the qualifications of teachers, having a science-based curriculum and quality of education categories emerged. Within the negative theme, the lack or scarcity of social, sportive and artistic activities, the lack or scarcity of experimental (laboratory) activities, the untidy distribution of lessons and their hours, a memorization-based education system and finally the difficulty of exams emerged. The related codes and themes are given in Table 5:

Table 5

The Perceptions of Students about the Educational and Social Issues at Their School

Theme	Category	f	Code
Positive	Efficiency of teachers	11	-having the best teachers in their subject areas
	Science lessons focus	5	-having science or maths lessons even in the elective courses
	Quality of education	12	-qualified education
Negative	Lack or scarcity of social, sportive and artistic activities	17	-devoid of literary, musical activities -the lack of social activities resulting in psychological destruction
	Scarcity of experimental (Laboratory) activities	11	-requirement of effective experiments and observations to enhance imagination and creativity -not being able to use the laboratory in an efficient way
	Untidy distribution of lessons and their durations	29	-not enough time allocation to each course, - the elective courses being allocated 3 hours, science lessons like physics, chemistry and biology being only for 2 hours, - the elective courses outperformed and outnumbered the science lessons
	Memorization based system	7	- though being in science high school, having the same amount and duration of science courses equal to other school types, - being a technology and science-based school though more focus on memorization of knowledge without practical information - objective of converting the students into some kind of robots, - educating not humans but maybe machines - giving orders like " eat, study, sleep" imperatives
	Difficulty of exams	12	- too much force via difficult exams

As can be seen from Table 5, the theme, "positive" was divided into three main categories, namely "quality of teachers" (f=11), "science lessons focus" (f=5) and "quality of education" (f=12. The negative perceptions had been analyzed under five categories, "lack or scarcity of social, sportive and artistic activities" (f=17), scarcity of experimental (laboratory) activities (f=11), "Untidy distribution of lessons and their durations" (f=29), "memorization-based system" (f=7) and finally "Difficulty of exams" (f=12). The number of negative perceptions outnumbered the positives ones as seen 5-3 and this is very interesting because the students mostly focused on their complaints about the school system.

Some excerpts related to "Quality of Teachers" category in the positive theme are as given in the following:

"Our teachers are very qualified….." (S3)
"…..Each teacher is qualified and knowledgeable about their subject area.." (S13)
Some excerpts related to "science lessons focus" category in the positive theme are as given in the following:
"….it is positive for us to have more science lessons focus…" (S24)
"…it is important to give more importance to science lessons…" (S44)

Some excerpts related to "quality of education" category in the positive theme are as given in the following:

" …we are having a good education…" (S26)

"…the quality of education is really high…." (S57)

Some excerpts related to "lack or scarcity of enough social, sportive and artistic activities" category in the negative theme are as given in the following:

"…the quantity of social activities is too low…" (S2)

"…more sportive activities should be included in the curriculum…" (S28)

". …the students are devoid of enough artistic, literary or musical activities" (S51)

"…we are mostly not allowed to do any social activity; on the contrary we are always told to study all the time. As human being, a person. l should be social, be able to play football, create a friendship environment for him/her. ..These schools are educating people but maybe humanly machines. We are given orders like "eat, study, sleep" and that is what we do most of the times…" (S59)

Some excerpts related to "scarcity of enough experimental (Laboratory) activities" category in the negative theme are as given in the following:

"…the frequency of laboratory usage must be increased…" (S3)

"…there should be an educational system which aims at enriching our creativeness and imagination by means of rich experiments and activities..." (S55)

"…it is an unforgettable and unacceptable mistake for us not to be able to use science class as we have one and it is obvious that we cannot perform enough scientific activities as much as this school is supposed to provide." (S56)

Some excerpts related to "Untidy distribution of lessons and their durations" category in the negative theme are as given in the following:

"…the hours of some elective courses add up to 3 hours a week whereas we have only two hours of physics, chemistry which are of great importance for us especially in university entrance exam…" (S5)

"…we have the same amount of science lessons as in the other school types. We must have more science courses…" (S21)

Some excerpts related to "Memorization based system" category in the negative theme are as given in the following:

"… we are expected to become successful in every lesson, this memorization-based system is not informative and useful at all…" (S33)

"…This school has been converted into something where we are only expected to memorize the given information passively in contrast to the main objective of this school type…" (S37)

Some excerpts related to "difficulty of exams" category in the negative theme are as given in the following:

"…the exams are difficult; the other school types ask easier questions in the exams so this decreases general average points in the university entrance exam…" (S32)

"…the exams are not so good. The easiness of exams in other school types affects our general average points negatively without our control on it. Their average points are higher than us." (S35)

"… unnecessarily the exams force us a lot. Where is the justice?" (S36)

"…the exams are boring. They only want us to study. go to a medical school and study more. Work for the rest of life after you finish medical school. Is there anything to solve this problem…" (S53)

"…always study always study. Where does it stop? We are not robots…" (S62)

"…I do not like the education program in general as they make my skills rusty. I started forgetting even the subjects that I was good at. ..they are only preparing us for the exams…" (S65)

"…A bad program for students but a good one for robots..." (S67)

Discussion, Conclusion and Recommendations

The focus of the present study was to analyze the perceptions of science school students about their schools and it was found out that the ultimate reasons for the students' choice of science schools included quality of the school, qualified teachers and the choice of this school by more successful students in general. It is highly significant for the teachers to be able to have a quality for educating individuals, to have enough and updated knowledge incompatible with the age he is living in and apply approaches accordingly. For this reason, the efficiency of teachers plays a very important role on effective learning and teaching activities and motivating the students to learn in an efficient way (Abazoğlu, Yıldızhan & Yatağan, 2015). Science school seems to be deficient in satisfying student needs in terms of social activities. In a study conducted by Çilingir (2006), it was concluded that there was a significant difference between science high students and common high school students' perceptions in terms of social skills, especially for Affective Sensitivity. This finding was interpreted as the students of common high schools have got more ability to understand nonverbal messages and convey those messages compared to science high school students. In spite of the long time period that has passed since the date of this study, it appears to be very interesting to see still similar complaints of students in terms of deficiency of social activities in science high schools.

Upon looking at the perceptions of students in terms of the scope and objectives of science high schools, the emergent issues were mostly educating students in a more qualified manner, placement to a good university and qualified education. These perceptions seem to be in harmony with the objectives mentioned in the Regulation of Science High Schools (MEB, 2010). Moreover, Özbaş (2013) expressed in his study, which focused on the perceptions of common and science high students in terms of equality of opportunity principle in education, that there was a considerable amount of inequality distributed in common and science high schools, which is in harmony with the findings above.

It was concluded in the study that the perceptions of students about the general school program waere mostly positive including issues like quality of education, efficiency of teachers and more focus on science lessons. However, some students expressed their negative feelings of the school claiming that the distribution of lessons was disorganized, some elective courses outnumbered important science lessons and scarcity of sportive and artistic activities made everything worse. The science high school students who are generally regarded as having some very important skills generally lacked enough amounts of social and sportive activities to spend their energies, as they claimed. According to Yüksel (1997), social skill is something which causes positive interpretation by others, prevents some negative reactions from others, enables interactions with the others, is acceptable socially, leaving an impact on the environment, is objective oriented, can change according to the social context, includes both observable and unobservable cognitive and affective elements and learnable behaviors (Retrieved from Çilingir, 2006). The Science high school students who are mostly devoid of social and sportive activities, seem to have difficulty in expressing themselves while fully satisfied socially according to the definition of Social Skill made by Yüksel.

It is very important for any person living in a society to be able to express his opinions, to have him understand and comprehend what the others are saying. All these depend on the ability of the persons' communication and interactional skills. For this reason, it seems highly significant for individuals to have the skill of communicating effectively. Such communication skill inevitably results in a successful life in the end. Especially for youngsters at high school levels, they need to interact with their surroundings in an efficient way. Interpersonal communication is highly essential for high school students. Adolescence period is a duration in which the individual faces a lot of indecisiveness and difficulty to express himself/herself in effective manners. Therefore, the adolescence may have problems to interact with other young friends, family members and other adults. The weakness in communication and interaction skills especially for adolescents leads to insufficient problem-solving abilities and facing indecisiveness for them (Çilingir, 2006). For this reason, as some of the students already mentioned in the excerpts, alienation of oneself can be inevitable at the end.

Kesercioğlu et al (2001) expressed that countries around the world are conducting studies to identify the problems and deficiencies in their education systems according to the presentation types of their education programs in order to be successful at international levels. Therefore, it is very important

to see the opinions of students in the system about both the positive and negative aspects of the system as the students are one of the most important shareholders and are direct victims of the system, to be able to see and adjust the program and thus ultimately to be successful both nationally and internationally.

Lack of enough experimental (laboratory) activities at school has emerged a very important deficiency in the school as expressed by the students. Laboratories are generally designed for science courses in the schools. This design contributes to science course by providing a special touch. Laboratories enable the teachers and students to teach and learn some difficult tasks more easily by facilitating the learning activities. Experiments in science lessons contribute to students' exploring new knowledge while confirming some of the information learnt by means of various ways. The science lessons taught along with experiments enhance students' learning motives. This makes them consistent and insistent in science courses (Kaptan 1999; Doymuş etal, 2006). Yıldız et.al. (2007) conducted a study to see the attitudes of science teachers in terms of science lessons experiments. They concluded in their study that the teachers' perceptions of a highly equipped science laboratory were positively different that of the ones with less equipped labs. The Ministry of Education got a scale prepared to see the perceptions of science and maths teachers in 1967-1968. %90 of the teachers expressed that the duration, location and lab activities allocated to experimental studies were not sufficient enough although the interest rates of students to the experimental activities appeared between high and average levels (Demirbaş &Yağbasan 2005). Although a considerable amount of time has passed since the mid-1960s, it is very thought-provoking to see almost the same application approaches in science high schools in terms of lab works at the present time. With the existing program, the number of expressing positive opinions in terms of the programs is almost the same for the ones expressing negative feelings in terms it. The students regard the difficulty of exams as being very unfair and unnecessary for them compared to other school types.

It was concluded that going to high school has both advantages and disadvantages. The seemingly important advantage of being a member of this school is high profile education and high-profile successful students. On the other hand, high expectations from almost everybody around the students reach to such extents as to make students more stressed out and pressured as a disadvantage. Moreover, some students exclaimed that they are in constant competition, which seems very interesting as some of them regarded this competition as leading to too much ambition.

The following suggestions could be provided according to emergent results of this study:

1. The elective courses could be provided to students according to their skills and interest areas voluntarily

2. Instead of completing the science and maths courses in elective courses, a more organized could be made in order to increase the weekly hours of those courses

3. The reorganization of social, artistic and sportive activities in an efficient way according to students' interests and abilities would contribute more to effective interaction and communication environment

4. Labs need to be designed and used in such a way as to serve the students according to emerging technological enhancements

5. The psychological counseling services may work more actively for some emerging problems imposed possibly by going to this high school such as "high expectations," "social pressure", "too much fatigue", alienation

6. As the most successful students academically are placed in these schools by means of a state exam, there could be science-talent classes for already talented students in order to maintain their enthusiasm and skills in their interest area.

References

Abazoğlu, İ., Yıldızhan, Y., & Yatağan, M. (2015). Türkiye'de fen bilimleri ve matematik eğitimi. *İlköğretim Online, 14*(2), 557-573.

Akboy, R. (1998). Fen lisesi ve genel lise öğrencilerinin benlik kavramı: Denetim odağı ve sürekli kaygı açısından karşılaştırılması. [Self-concept of science high school and general high school students: Comparison of audit focus and trait anxiety]. In *Proceedings of the 7th National Educational Sciences Congress* (pp: 189-197). Selçuk University, Konya.

Apaydın, S. Retrieved 26 April, 2018 from http://www.dogrulukpayi.com/bulten/basarili-bircok-lise-nitelikli-olamadi

Barut, Y. & Odacı, H. (2002). Fen lisesi ile genel lise öğrencilerinin mesleki yönelimlerinin karşılaştırılması. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, [Ondokuz Mayıs University Journal of Education Faculty] 14*, 38-45.

Batur, H. Z. & Adıgüzel, O. (2015). Schein'in kariyer degerleri perspektifinde öğrencilerin kariyer tercihlerini etkileyen faktörler üzerine bir araştırma: Isparta ili fen lisesi öğrencileri örneği [*a research based on factors effecting students 'carrier decisions from the perspective of scheın's carrıer anchors: sample case of scıence high schools in the cıty of Isparta*]. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, [Dumlupınar University Journal of Social Science] (42),* 327-348.

Berberoğlu, G. & Kalender, İ. (2005). Öğrenci basarisinin yıllara, okul türlerine, bölgelere göre incelenmesi: ÖSS ve PISA analizi. *Journal of Educational Sciences & Practices, 4*(7), 21-35.

Birol, Z. N. (2005). Fen lisesi ve sosyal bilimler lisesi öğrencilerinin mükemmeliyetçilik, benlik saygısı, liderlik özelliklerinin incelenmesi [*The research on the characteristics of perfectionism, self-esteem and leadership of the students at science high school and social sciences high school].* Karadeniz Technical University, Institute of Social Sciences, Educational Sciences Department, Psychological Counseling and Guidance, Trabzon.

Buyukozturk, Ş., Kılıç Çakmak, E., Akgun, Ö., Karadeniz, Ş., & Demirel, F. (2014). Bilimsel araştırma yöntemleri [*Scientific research methods*]. Ankara, Turkey: Pegem Akademi.

Cigerci, C. Z. (2006). Üstün yetenekli olan ve olmayan ergenlerde benlik saygısı, başkalarının algılaması ve psikolojik belirtiler arasındaki ilişkiler: Fen lisesi ve düz lise karşılaştırması [*To compare selfs-esteem, being perceived by others and psychologic indications in adolescents who are gifted or not].* Sakarya University, Institute of Social Sciences, Educational Sciences Department, Psychological Services in Education, Sakarya.

Çilingir, A. (2006). Fen lisesi ile genel lise öğrencilerinin sosyal becerileri ve problem çözme becerilerinin karşılaştırılması [*The comparison between high school and high school of science students' social and problem solving skills*]. Atatürk University, Institute of Social Sciences, Educational Sciences Department, Erzurum.

Demirbaş, M. & Yağbasan, R. (2005). Türkiye'deki ortaöğretim kurumlarında uygulanan fen öğretim programlarının analizi: modern fen öğretim programı uygulamaları [*analysis of science curriculums applıed at hıgh schools ın Turkey: modern science currıculum applıcatıons*]. Gazi Üniversitesi Kırşehir Eğitim Fakültesi [*Gazi University Kırşehir Faculty of Education*], 6(2), 33-51.

Dilmaç, B. (2007). *Bir grup fen lisesi öğrencisine verilen insani değerler eğitiminin insani değerler ölçeği ile sınanması. [The assesment of the teaching of humane values which are imposed a group of science high school students by humane values scale]* (Unpublished Doctoral Disseration), Selçuk University, Konya, Turkey.

Doymuş, K., Aksoy, G., Daşdemir, İ., Şimşek, Ü. & Karaçop, A. (2006). Fen bilgisi laboratuvarı uygulamalarında işbirlikli öğrenme yönteminin kullanılması [The Use of Cooperative Learning Method in Science Lab Educatıon]. *Kazım Karabekir Eğitim Fakültesi Dergisi [Journal of Kazım Karabekir Education Faculty],* (13), 157- 166.

Ersoy, Y. (2005). Fen lisesi matematik öğretmenlerinin görüşleri II: matematik öğretim ortamı ve bazı kısıtlar [the views of scıence lyceum mathematıcs teachers-II: The medıa of mathematics teachıng and some constraınts]. *TheTurkish Online Journal of EducationalTechnology, 4 (4), 135-145.*

Karaduman, B. D. (1997). Ankara fen lisesi öğrencilerinin kendini kabul düzeylerinin bazı değişkenler açısından incelenmesi [*An Examination of self acceptance level of Ankara Fen Lisesi students according to some variables*]. Ankara University, Institute of Social Sciences, Ankara.

Kesercioğlu, T., Balım, A., Ceylan, A., & Moralı, S. (2000). İlköğretim okulları 7. sınıflarda uygulanmakta olan fen dersi konularının öğretiminde görülen okullar arası farklılıklar. IV. Fen Bilimleri Eğitimi Kongresi. Ankara: Hacettepe Üniversitesi.

McMillan, J. H. (2000). Educationalresearch: Fundamentals fortheconsumer. New York: Longman.

MEB. (1995). 1923-1983 Yıllarında Talim ve Terbiye Kurulu Çalışmaları [Studies of Board of Education]. İstanbul: Milli Eğitim Basımevi.

MEB. (1999). Millî Eğitim Bakanlığı Fen Liseleri Yönetmeliği [Ministry of National Education Regulation on Science High Schools]. Ankara.

MEB. (2010). Millî Eğitim Bakanlığı Fen Liseleri Yönetmeliği [Ministry of National Education Regulation on Science High Schools]. Ankara.

MEB. (2017). Millî Eğitim İstatistikleri Örgün Eğitim [National Education Statistics Formal Education] 2016/'17. Ankara.

Merriam, S. B. (2013). Nitel Araştırma – Desen ve Uygulama İçin Bir Rehber [Qualıtatıve research- A Guide to Design and Implementation]. (S. Turan, Çev. Ed.) Ankara, Turkey, Nobel.

Mutlu, M. (2006). Anadolu lisesi, anadolu öğretmen lisesi, fen lisesindeki öğrencilerin öğrenme stilleri ile biyoloji dersine karşı tutumları arasındaki ilişki [The Relation between the Learning Styles of the Students In Anatolian High Schools, Anatolian Teachers' High Schools Science High Schools and Their Attitudes towards Biology Course]. *International Journal of Environmental&ScienceEducation,* 1(2). 148-162.

Önen, E. (2003). *Ortaöğretim kurumları öğrenci seçme ve yerleştirme sınav başarısı ve lise 1. sınıftaki akademik başarıya ilişkin bir yordama geçerliği çalışması: Fen lisesi örneği [A validity study related to secondary school institutions student selection and placement exam's achievement and academic achievement at high school: Science school sample].* Ankara University, Institute of Educational Sciences, Educational Sciences Department, Measurement and Evaluation in Education, Ankara.

Özbaş, M. (2013). Genel lise ve fen lisesi öğrencilerinin ortaöğretimde fırsat ve imkân eşitliğine yönelik algılarının incelenmesi [analysıs of general and scıence hıgh school student perceptıons related to opportunıty and possıbılıty equalıty]. *Uluslararası Avrasya Sosyal Bilimler Dergisi [International Journal of Eurasia Social Sciences],* 4(10), 1-18.

Pehlivan, H. (2010). Ankara fen lisesi öğrencilerinin matematik dersine yönelik tutumları ile akademik benlik tasarımlarının bazı ailesel faktörler açısından incelenmesi [an analysis of Ankara scıence hıgh school students' attıtudes towards math and thıer academıc self-concepts ın term of some famıly characterıstıcs]. *Kastamonu Eğitim Dergisi [Kastamonu Education Journal*], 18(3), 805-818.

Pehlivan, H. & Köseoğlu, P. (2011). Ankara fen lisesi öğrencilerinin matematik dersine yönelik tutumları ile akademik benlik tasarımları [attitudes towards mathematġcs course and the academic self concept of the students attendıng at Ankara scıence hıgh school]. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi [Buca Faculty of Education Journal],* (31), 153-167.

Pehlivan, H. & Köseoğlu, P. (2011b). Fen lisesi öğrencilerinin kimya dersine yönelik tutumları ile akademik benlik tasarımlarının incelenmesi [an examınatıon of scıence hıgh school students' attıtudes towards chemıstry course and theır academıc self concept]. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi [Buca Faculty of Education Journal]*, (29), 90-102.

Peker, M. & Aydın, B. (2003). Anadolu ve fen liselerindeki öğrencilerin öğrenme stilleri [Learning styles of students in Anatolian and science high schools]. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi [Pamukkale University Journal of Education]*, 14(14), 167-172.

Selvi, K. (1996). *Fen Lisesi ve Matematik Öğretim Programlarının Değerlendirilmesi. Ankara Fen Lisesinde Bir İnceleme. [Evaluation science and math programs of the science high school].* (Unpublished Master Thesis), Ankara University, Institute of Social Sciences, Ankara.

Shavelson, R. J. (2016). Sosyal bilimler için istatistik [Statistics for social sciences]. (N. Güler, Translated & Ed.) Ankara: Pegem Publications.

Ünal, F. & Ünal, M. (2010). Türkiye'de ortaöğretim programlarının gelişimi [development of secondary school currıculums in Turkey]. *Sosyal Bilimler Araştırmaları Dergisi [Social Sciences Research Journal].* 1, 110-125.

Ünal, S., Coştu, B. & Karataş, F. Ö. (2004). Türkiye de fen bilimleri eğitimi alanındaki program geliştirme çalışmalarına genel bir bakış [A General Look at the Science Curriculum Development Studies in Turkey]. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi [Gazi University Journal of Gazi Educational Faculty], 24*(2).

Yavuz, M., Gülmez, D. & Özkaral, T. C. (2016). Fen lisesi öğrencilerinin akademik başarıları ile ilgili deneyimlerinin değerlendirilmesi [the evaluation of experiences regarding academic achievement of science high school student]. *Kastamonu Üniversitesi Kastamonu Eğitim Dergisi [Kastamonu Education Journal], 24*(4), 1655-1672.

Yıldırım, A. & Şimşek, H. (2013). Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in the social sciences]. Ankara: Seçkin Publications.

Yıldız, E., Aydoğdu, B., Akpınar, E. & Ergin, Ö. (2007). Fen bilgisi öğretmenlerinin fen deneylerine yönelik tutumları [science teachers' attitudes towards science experiments]. *Boğaziçi Üniversitesi Eğitim Dergisi [Boğaziçi University Journal of Education], 24*(2), 71-86.

Yilmaz, A. & Morgil, F. İ. (1992). Türkiye'de fen öğretiminin genel bir değerlendirmesi sonuçları ve öneriler [A general evaluation of science teaching in Turkey results and recommendations] *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi [Hacettepe University Journal of Education], 7*(7).

Yürümezoğlu, K. (2008). Fen öğretiminde sorunsalın önemi [The importance of problematic in science teaching]. *Hasan Ali Yücel Eğitim Fakültesi Dergisi [Journal of the Hasan Alı Yucel Faculty of Education],* 2008-2(10), 15-24.

Zabun, B. (2007). *Ankara fen lisesi monografisi (1964-2004) [Ankara Science High school (1964-2004)].* (Unpublished Doctoral Disseration). Gazi University, Ankara, Turkey.