Journal of Teacher Education and Lifelong Learning (TELL)

Volume: 5 Issue: 2 Year :2023 Research Article ISSN: 2687-5713

Refugee Students' Perspectives on Science Lessons

Ayşegül DERMAN[1] Kadriye KAYACAN[2] Serdar DERMAN[3]

[1] Necmettin Erbakan University, Ahmet Keleşoğlu Faculty Of Education, Meram/KONYA
aderman1977@gmail.com

[2] Necmettin Erbakan University, Ahmet Keleşoğlu Faculty Of Education, Meram/KONYA
kadriyekayacan@gmail.com

[3] Necmettin Erbakan University, Ahmet Keleşoğlu Faculty Of Education, Meram/KONYA
serdarderman@gmail.com

Article Info

Article History
Received: 13/07/2023
Accepted: 09/12/2023
Published: 16/12/2023

Keywords:

science education, immigrant students, attitude towards science.

ABSTRACT

This study aims to determine the opinions of Syrian students who have migrated to Turkey regarding science subjects. The present study is a non-experimental descriptive design accompanied by qualitative data collection and analysis procedure. This study was conducted with 87 (41 female, 46 male) Syrian students, who are learning Turkish in the Turkish Teaching Center (TÖMER) in a big city located in the southeastern Anatolia region of Turkey. A questionnaire with two sections developed by the researchers was used for data collection. In the first section of the questionnaire, there are 6 questions related to the demographic features of the participants. In the second section, there are five open-ended questions, which aimed at determining the attitudes of the participants towards science. Each of these five open-ended questions was designed as a writing activity. Content analysis technique was used to analyze the data obtained from the open-ended questions. At the end of the study, refugee students stated that they liked biology the most and least enjoyed the physics lesson because it was easy in science lessons and because it studied living things. Results indicated that science does indeed have an impact on their lives, and they provided the following statements as their reasons. They stated that science is more beneficial for humanity and has a significant influence on our lives.

Citation: Derman, A., Kayacan, K. & Derman, S. (2023). Refugee Students' Perspectives on Science Lessons. *Journal of Teacher Education and Lifelong Learning*, 5(2), 876-889.

INTRODUCTION

Since the beginning of human existence, individuals have been compelled to migrate from one place to another for various reasons. Migration is defined as the process of individuals or communities changing their living environments due to economic, social, political, and cultural reasons (Turkish Language Association, 2020). This migration flow occurs both within countries and internationally. In today's world, the scale and speed of transnational migration are progressing at an unprecedented pace compared to previous eras. As migration has become a global phenomenon, the number of immigrant students in school systems worldwide is increasing (Hernandez, Denton, Macartney, & Blanchard, 2012). For example, in 2015, it was reported that there were approximately 244 million international migrants, accounting for about 3.3% of the world's population (Morrice et al., 2017). Turkey, located in the migration corridor geographically, is both a destination and a source country for migration (Ersoy & Turan, 2019). Especially since the start of the civil war in neighboring Syria in 2011, there has been an increase in the number of refugees migrating to Turkey. According to a report published by the United Nations High Commissioner for Refugees (UNHCR) in 2017, the number of refugees settled in Turkey exceeded 3 million. As of June 16, 2021, the number of school-age children between the ages of 5 and 18 who migrated and were under temporary protection was reported as 1,242,379, according to the Directorate General of Migration Management (Directorate General of Migration Management, 2021). Migrating individuals expect their basic needs such as nutrition, shelter, and security, which are initially considered essential, to be met (Sarıer, 2020). From the perspective of countries hosting refugees, one of the main goals after meeting the basic needs of incoming asylum seekers is to provide education for refugees. In OECD countries, immigrant students tend to underperform in the education system compared to native students. This is particularly pronounced among students coming from socio-economically disadvantaged areas (Brussino et al., 2022). The right to receive quality education and the process itself is one of the areas most affected by migration. Considering that 54% (1,471,958) of the arrivals are children (UNICEF, 2016), the importance of this issue becomes evident once again. In many participant countries, immigrant students' significantly lower scores compared to native students in the Programme for International Student Assessment (PISA) (Entorf & Minoiu, 2005) have necessitated more careful planning of educational activities for immigrant students. This is because the use of a common program and curriculum in the education system also concerns the participation and adaptation of migrant students to the learning process, closely involving native students. Bravo Moreno (2009) argued that refugee and migrant groups influence the identities and education systems of host countries. Similarly, Padilla (2004) demonstrated how Mexicans coming to America affect American culture and the education system (Yurdakul and Top, 2018). However, the United States, which has citizens of different ethnic origins and has gaps in achievement due to socioeconomic differences, has reformed education, and when we look at the subjects that constitute the focus of the reforms, it is seen that attempts are mainly aimed at increasing the number and quality of mathematics and science courses (Güneş et al., 2021).

It can be argued that it is important to identify the problems related to the education of immigrants from the perspective of teachers and school administrators and to propose solutions, as this is a significant need for both Turkish and refugee students (Sarıer, 2020). According to Unicef (2016), there are some problems in the participation of these children in education. One of the most significant problems among these is the language barrier faced by these students. If immigrants want to adapt to the country they migrated to, their first priority should be to learn the language of that country (Temiz, 2020). Indeed, students who do not know the language of the country they migrated to cannot continue their education or, if they do, they struggle to succeed (Yurdakul and Top, 2018). Considering all these reasons, if prioritization is to be made regarding the education of immigrant students, the first step should be learning the language of the host country. Acquiring a language or languages reinforced by society is closely related to the process of becoming a competent member of that community. Conversely, a lack of proficiency in the language(s) reinforced by the host community and taught at

school can be associated with a lack of academic success (Cummins, 2015; Heller and McLaughlin, 2017; Weber, 2009). Following the language learning process, it is necessary for individuals to acquire knowledge in science subjects. In today's world, where countries compete in areas such as science and technology, it is crucial to raise individuals who can understand and utilize the scientific knowledge and technology required by the era. Therefore, countries, especially developed ones, are continuously striving to improve the quality of education they provide, particularly in science and technology education (Eş and Sarıkaya, 2010). In Turkey, as in all countries, students' success in science subjects holds great importance for the country's economic, social, and cultural development. Considering that education is not only determined by the school, teachers, or curriculum, when it is understood that the student is also an integral part of education, the interest and willingness of immigrant students to learn directly affect their academic success. Teachers have reported that immigrant students face obstacles such as language-related problems, cultural difficulties, exclusion by peers, adaptation issues, lack of motivation, inadequate learning environment, lack of guidance and counseling, lack of resources/materials, non-experts teaching the classes, economic issues, and lack of family support (Aydeniz and Sarıkaya, 2021).

At this point, it is important to determine students' thoughts about the subjects, their reasons for being interested or uninterested in certain subjects, in order to change their attitudes towards those subjects and increase their motivation. Motivation is a significant factor that affects students' learning achievements and serves as a driving force for their academic efforts (Chen, 2001; Martin, 2001). In fact, studies have shown that students with high intrinsic motivation tend to have higher academic achievements compared to students with low motivation (Deci and Ryan, 1985; Gottfried, 1990; Lepper et al., 2005).

This study aims to determine the opinions of Syrian students who have migrated to Turkey regarding science subjects. Based on their views, it is possible to identify how their motivation towards science can be enhanced, as well as to uncover strategies to help them succeed in these subjects. Considering all these reasons, the study is deemed important and its results are expected to contribute to the field.

METHOD

This research is a case study (Creswell, 2016) as it descriptively discusses the refugee students' perspectives on science lessons in detail and explaining the events that are assumed to be causal connections (Yin, 1992). Merriam (2013) defines a case study as an in-depth description and examination of a limited system. The case discussed in the present research is the refugee students' perspectives on science lessons. In the study, it was thought that collecting the opinions of refugee students with open-ended questions would lead to more accurate results instead of collecting data using a scale due to various reasons such as language problems, so the case study model was used.

Research Sample

This study was conducted with 87 Syrian students, who are learning Turkish in the Turkish Teaching Center (TOMER). In this center, the criteria named Common European Framework of Reference for Languages: Learning, Teaching, Assessment (Retrieved from: http://www.coe.int/t/dg4/linguistic/Source/Framework_EN.pdf in13.10.2016) is used in teaching Turkish. The Turkish proficiency of the participants is in the level of effective operational proficiency. The findings related to the demographic features of the participants are presented in Table I. All of the participants completed their high school education in Syria in the pre-war period and are students who registered at TOMER to provide the necessary language proficiency to continue their university education in Turkey. Participants were selected by purposeful sampling method (Creswell, 2016) to obtain accurate and qualified data regarding the research questions of this study.

Table 1. The Demographic Features of the Sample

Demographic Features	N	%	X	SD
Age			21.931	4.15063
Gender				
Female	41	47.1		
Male	46	52.9		
(How long they have been living in Turkey)				
6-9 months	2	2.3		
9-12 months	17	19.5		
2 years	33	37.9		
3 years	19	21.8		
more than 3 years	16	18.4		
Type of Income				
Emloyed	22	25.3		
I get a scholarship	13	14.9		
My parents meet my expenses	52	59.8		
Marital Status				
Married	16	18.4		
Single	71	81.6		
Accomodation				
I live at home with my parents	65	74.7		
I live in a refugee camp with my parents	1	1.1		
I live in a flat with my friends	10	11.5		
I live at home with my relatives	2	2.3		
I live in a student dormitory	9	10.3		
Total	87	100.0		

As can be seen in Table 1, 41 participants are women (47.1%) and 46 participants are men (52%); The average age of the participants is 21.9 (std.Dv=4.15); 16 participants are married (18.4%), and 71 participants are single (81.6%). 33 participants (37.9%) have been living in Turkey for three years. The expenses of 52 of the participants (59.8%) are met by their parents. 22 participants are employed (25.3%), while 13 participants (14.9%) get a scholarship. 65 participants (74.7%) stated that they live at home with their parents, 10 participants (11.5%) said that they live in a flat with their friends and 9 participants (10.3%) said that they live in a student dormitory.

Research Instruments and Processes

The participants were told the content and the purpose of the study. It was also emphasized that participation was on a voluntary basis. A questionnaire with two sections developed by the researchers was used for data collection. In the first section of the questionnaire, there are 6 questions related to the demographic features of the participants. In the second section, there are five open-ended questions. Each of these five open-ended questions was designed as a writing activity which aimed at determining the attitudes of the participants towards science. The second part of the scale was designed as 5 separate writing activities which aimed at determining the attitudes of the participants towards science. The questions in the questionnaire were created by taking the opinion of a senior science education researcher that the questions and writing activities in the questionnaire were suitable for determining

refugee students' opinions about science courses. The writing skills determined for C1 level as part of the Common European Framework of Reference for Languages: Learning, Teaching, Assessment program are stated as follows: "I can express myself in clear, well-structured text, expressing points of view at some length. I can write about complex subjects in a letter, an essay or a report, underlining what I consider to be the salient issues. I can select style appropriate to the reader in mind." These skills show that the students are competent enough in Turkish to answer the questions in the questionnaire. It took approximately 40 minutes for students to fill in the questionnaire as a writing activity. The handwritten answers of the participants formed the basic data source of this study.

Data Analysis

In the present study, descriptive statistics were used to analyse the data related to the demographic features of the Syrian students. Content analysis technique was used to analyze the data obtained from the writing activities which aimed at determining the attitudes of the participants towards science. The answers to each question were read carefully and repeteadly. Students' answers were transferred to an Excell file, answers with similar meaning were coded using the same color, and categories were created using codes based on the semantic similarity criterion (Creswell, 2016). Write down the data analysis of your research without changing the format. Write down the data analysis of your research without changing the format.

FINDINGS

1- The science subject that students liked the most

The statements of the Syrian students about the science subject that they liked the most have beenreported in table 2 in detail.

Table 2. *The Attributes of Syrian Students Related to Their Favourite Science Subject*

The Attributes of Syrian Students Related to Their Favourite Science Subject	f	%
I like Biology because it is about living beings, easy and involves very little math; I like Biology teachers, I can understand biology more than other courses and I find it very entertaining.	14	
I like biology because the subject that I chose to study at university is related with health sciences	4	
Participants who did not state any reason	12	
Those who stated biology as their favorite science subject (Total)	30	34.4
It has a huge impact on our lives, and it is important and useful for human beings.	7	
I like Physics because I am interested in maths, scientific and mechanical issues; I find Physics very intersting, the most entertaining science subject it requires logical and analytical thinking, and does not require memorization.	10	
Participants who did not state any reason	3	
Those who stated physics as their favorite science subject (Total)	20	23
I like Chemistry because it involves experiments, it is fun, easy and entertaining.	6	
I just can understand Chemistry better than Physics and Biology and I like Chemistry because I like my Chemistry teacher.	2	
I like Chemistry because it is important in our lives, I would like to be a (pharmacist).	3	
Participants who did not state any reason.	5	
Those who stated chemistry as their favorite science subject (Total)	16	18.3
I do not like any of these science lessons, because they are difficult, boring and not entertaining	5	
I do not like any of these science lessons, because I like social sciences lessons.	14	
Those who do not like any science subject (Total)	19	21.8
I like all the science lessons, because I do not get bored, I do not feel sleepy, and I feel excited in science lessons, I like to comprehend rather than memorizing.	2	
Those who love all science subjects (Total)	2	2.3
Total	87	100

As seen in Table 2, 30 students (34.4%) stated biology, 20 students (23%) stated physics, and 16 students (18.3%) stated chemistry as the science subjects they liked the most. In addition, 2 students said

that they liked all three subjects, while 19 students (21.8%) stated that they liked none of them. The majority of the participants (f=14), who said that they liked the biology lesson the most, stated that they liked this lesson for the following reason; "I like Biology because it is about living beings, easy and involves very little math; I like Biology teachers, I can understand biology more than other courses and I find it very entertaining." The majority of the participants (f=10), who said that they liked the physics lesson the most, stated that they liked this lesson for the following reason;" I like Physics because I am interested in maths, scientific and mechanical issues; I find Physics very intersting, the most entertaining science subject it requires logical and analytical thinking, and does not require memorization." The majority of the participants (f=6), who said that they liked the chemistry lesson the most, stated that they liked this lesson for the following reason; "I like Chemistry because it involves experiments, it is fun, easy and entertaining." The most common reason given by the participants (f= 14) who stated that they did not like any of the courses; "I do not like any of these science lessons, because I like social sciences lessons." The most common reason given by the participants (f=2) who stated that they did like all of the courses; "I like all the science lessons, because I do not get bored, I do not feel sleepy, and I feel excited in science lessons, I like to comprehend rather than memorizing."

2- I like science learning more/less (please indicate by underlining your choice) than learning in other subjects because …

It has ben presented the reasons why students like/do not like science learning more than learning other subjects in table 3.

Table 3. *The reasons why students like/do not like science learning more than learning other subjects*

Responses	f
I like science learning more than learning in other subjects because …(Total)	**54**
Science Lessons are more entertaining and useful what I learn from science lessons sticks in my mind. Science lessons attract my attention more than the other lessons. They do not require memorization, they involve reason and logic.	7
I like science lessons more than the other lessons, because science is more useful for mankind, science lessons give us more information about our environment and help us understand our environment better.	5
I like science lessons because they require more thinking and effort, improve our imagination. We can think differently and discover new things.	3
In science lessons, we learn about living things; I like to learn Biology more than the other science lessons. In the Biology books there are many colorful pictures. They impact my learning.	3
There are experiments in science lessons. I find science lessons easy and entertaining. Our ideas get stronger.	3
I do not have any difficulty in understanding science lessons, I do not get bored in these lessons and I believe that I am talented in the field of science. I feel more comfortable while learning and studying science. I enjoy it.	8
I find science lessons very interesting. I like science lessons because my science teachers teach these courses really well.	4

It is very important to learn science, it is widely used in daily life. It is necessary to learn sciences in order to improve our society. Science learning is useful for countries and cultures.	10
I like these lessons because I like science and math; I would like to become a biologist; medical doctor	6
Students who stated that they liked science courses but did not provide any reason	5
I like science learning less than learning in other subjects because …(Total)	**19**
I believe that science lessons do not have any impact on my life; I find the science lessons very difficult and I have difficulty in understanding them; I felt that in Syria science lessons were not that important, because my science teachers used to lecture and leave. S/he did not approach us.	7
I like social sciences more than sciences	12
No response(Total)	**14**
Total	**87**

As seen in Table 3, 54 Syrian students in the study group stated that they liked science more than other courses.The reason for the students who think this way is the most frequently mentioned that "It is very important to learn science, it is widely used in daily life. It is necessary to learn sciences in order to improve our society. Science learning is useful for countries and cultures." 19 Syrian students in the study group stated that they like science learning less than learnng in other subjects. Most of the participants (f=12) stated that they liked social lessons more than sciences. 14 of the participants did not answer this question.

3 – I feel / I do not feel (please indicate by underlining your choice) that science impacts on my life a lot because …

The reasons, why students feel/ do not feel that science impacts on their life a lot, have been presented in table 4 in detail.

Table 4. *The reasons why students feel/ do not feel that science impacts on their life a lot*

Responses	*f*
I feel that science impacts on my life a lot because …(Total)	**58**
Science is more useful for mankind and has a huge impact on our lives. All inventions and phenomena that changed human life are based on science. Science is very important and we can see its influence on our lives every moment. Science makes our lives easier and faster. It improves our lives. For example, physicists discovered electricity. The developments in medicine and technology are based on science.	21
People learn how to experiment and how to be patient with the help of science; I learn new things with the help of science and I see what I learnt in science everywhere around me.	3
The technological devices that we use and the technological facilities that we have, developed with the help of science.	23
Participants who had positive opinions, but did not provide any reason	11
I do not feel that science impacts on my life a lot because …(Total)	**9**
I do not like science, I find it very difficult and I am not interested.	9
No response(Total)	**20**
Total	**87**

As seen in Table 4, 21 Syrian students in the study group stated that science is more useful for mankind and has a huge impact on their lives. 23 Syrian students in the study group stated that the technological devices that mankind used and the technological facilities that mankind had, developed with the help of science. 11 Syrian students in the study group had positive opinions, but did not provide any reason but 9 Syrian students in the study group stated that they do not feel that science impacts on their life a lot.

4- I am/I am not (please indicate by underlining your choice) thinking of a future career in science related

jobs (scientist, engineer, lab technician, medical doctor, …), because.....

It has been presented, the reasons why students think/ do not think of a future career in science related jobs (scientist, engineer, lab technician, medical doctor, …) in table 5.

Table 5. *The reasons why students think/ do not think of a future career in science related jobs (scientist, engineer, lab technician, medical doctor, ...)*

Responses	*f*
I am thinking of a future career in science related jobs (scientist, engineer, lab technician, medical doctor, …), because..... (Total)	**44**
I would like to become a scientist because,	**4**
There is no medicine to cure some illnesses, so I can discover medicine for these illnesses; Maybe I will make new discoveries and become a very famous scientist; Our country needs this.	4
I would like to become a biologist because I have been interested in this field since my childhood	**1**
I am thinking of a future career in science related jobs because...(Total)	**9**
My country has been destroyed in the war, so we need absolutely science to restructure our country.	2
I like these jobs because they are more useful for me, mankind and society; I would like to create new things for the people; I can discover new medicine for epidemic diseases and help the people.	2
I would like to develop my country, we use these jobs in our lives and they are very useful for the whole world.	2
Participants who did not provide any reasons	1
I would like to become an engineer because.....(Total)	**13**
I like this profession	3
I like math; physics and would like to make physics experiments	2
Everything in our lives is related to engineering; Our country needs this.	2
Participants who did not provide any reason	6
I would like to become a medical doctor because.....(Total)	**17**
I like this profession and would like to save people; I like this profession and believe that I can be useful for people; It is a compassionate profession; It is very important in our lives and I like this profession; It is nice to be a doctor, because I can serve both people and my country; It is the best and most useful profession in the world. I love helping people.	11
I like this profession and I believe that I will be successful; medicine is a good profession and I can make money.	4
Participants who did not provide any reason.	2
I am not thinking of a future career in science related jobs (scientist, engineer, lab technician, medical doctor, …), because..... (Total)	**24**
I am not thinking of a future career in science related jobs	4
I am not interested in science related jobs, I do not like these jobs.	2
Science is important but because I do not like these subjects and I just cannot understand them, I find them very difficult.	2
I prefer to choose a profession related to social sciences	16
No response (Total)	**19**
Total	**87**

As seen in Table 5, 44 Syrian students in the study group stated that s/he was thinking of a future career in science related jobs whereas, 24 Syrian students in the study group stated that s/he was not thinking of a future career in science related jobs. Besides, 16 Syrian students stated that s/he prefered to chose a profession related to social sciences.

5- I think/I do not think (please indicate by underlining your choice) investing in learning science is very important to restructuring my country for the future because.....

It has been presented, the reasons why students think/ do not think investing in learning science is very important to restructuring their country in table 6.

Table 6. *The reasons why students think/ do not think investing in learning science is very important to restructuring their country*

Responses	**f**
I think investing in learning science is very important for restructuring my country for the future	**53**

because.....	
My country has been destroyed in the war, everything has gone since the war. So teaching science is very important for restructuring and improving our country.	18
Development of the countries depends on science and scientists.	6
Science has an important place in our lives, science is in every part of our lives.	6
I believe that countries which give importance to science develop and progress.	3
Engineers, doctors, scientists, and technicians will play an important role in the restructuring of my country.	6
There is a need for every branch of science for the development of society; the path leading to civilization passes through science	4
My country needs to be restructured. Many people have been subject to harm and disease because of the war. My country will need doctors, engineers and scientists in the future.	4
It is important to teach science for the restructuring and development of our country, and also for the peace and health of future generations.	6
No response (Total)	**34**
Total	**87**

As seen in Table 6, 18 Syrian students in the study group stated that her/his country had been destroyed in the war, so teaching science was very important for restructuring and improving her/his country.

DISCUSSION, CONCLUSION, RECOMMENDATIONS

In this study, which focuses on the views of students who migrated from Syria regarding science subjects, it was observed that biology is the most liked science subject among students (f=30), while physics is the least liked subject (f=16). Only 2 students stated that they liked all three subjects, while 19 students mentioned that they didn't like any science subject. The reasons for their dislike of science can be listed as: believing that science lessons have no impact on their lives; finding science lessons very difficult and having difficulty in understanding them; and feeling that science lessons are not that important in Syria. In a study conducted by Ornek et al. (2008), students expressed that physics is a difficult subject due to lack of motivation and interest, not studying extensively, not reading the textbook, not practicing enough problems, only working on assigned problems, not doing homework, lack of previous experience, lack of physics background, and lack of advanced mathematics skills.

Among the students who liked biology (f=14), some stated that they liked the subject because it is related to living organisms, easy, has minimal mathematics content, they like biology teachers, they understand biology better than other subjects, and they find it very enjoyable. Some of them (f=4) mentioned that they like biology because it is related to health sciences, which they chose to study at the university. 12 participants did not provide a reason for liking biology. In a study by Özbaş (2016), students stated that they see biology as a fun, enjoyable, and liked subject. Similarly, in their study, Ekici and Hedevanlı (2010) concluded that students have a positive attitude towards biology, while Gül and Yeşilyurt (2010) found that students perceive biology as an important and beneficial subject but do not like it. In another study, Çimer (2011) listed various reasons for students experiencing difficulties in learning biology, including the nature of the subject, teachers' teaching methods, students' learning and studying habits, students' negative feelings and attitudes towards the subject, and lack of resources.

Among the students who liked physics more (f=7), some stated that they like physics because it has a significant impact on our lives and is important and beneficial for people. Some of them (f=10) mentioned that they find physics very interesting because it deals with mathematical, scientific, and mechanical concepts; it is the most entertaining scientific discipline that requires logical and analytical thinking and does not require rote memorization. The number of students who did not provide any reasons for liking physics is 3. Despite the fact that physics is present in every aspect of our lives and facilitates our lives, national and international studies indicate that achievement in physics education is lower compared to other disciplines (Dieck, 1997; Gök and Silay, 2008; Mattern and Schau, 2002; Rivard and Straw, 2000). Özyürek and Eryılmaz (2001), Tamir et al. (1975), and Simpson and Oliver

(1990) stated in their studies that teachers' behavior, teaching methods, and willingness to learn have an impact on students' attitudes towards physics. Based on these studies, increasing students' motivation to learn is crucial for them to like physics more.

Sixteen of the students in the study group stated that they liked Chemistry course more than other courses. The most common reason given by these students was that chemistry course includes experiments, is fun, easy and entertaining. Freedman (1997) has found that a positive attitude toward science was related tothe laboratory program. In Greece, chemistry is being taught theoretically without hands-onactivities and this practice decreases students'interest for chemistry lessons (Salta & Tzougraki, 2004).

It has been observed that the majority of students (f=54) express a greater liking for science subjects compared to other subjects. The reasons they mentioned for liking science subjects include the importance of learning science (f=7), not having difficulty understanding science subjects, not getting bored in these classes, believing that they are talented in the field of science, feeling more comfortable when learning and studying science (f=8), recognizing that science is widely used in daily life, finding science enjoyable, understanding that learning knowledge is necessary for societal development, and acknowledging the benefits of science education for countries and cultures (f=10). On the other hand, students who dislike learning science subjects less than other subjects listed their reasons as believing that science subjects have no impact on their lives, finding science subjects difficult and challenging to understand, feeling that science subjects are not as important in Syria because they do not like the approach of science teachers (f=7), and expressing a greater preference for social subjects (f=12). The finding that the majority of participant students like science subjects aligns with the results of studies by Akça (2017), Oskay (2019), Şahin and Kaya (2020), and Özbuğutu (2021), which indicate that middle school students have low levels of anxiety related to science.

In response to another question regarding whether science significantly affects their lives or not, the majority of students (f=58) indicated that science does indeed have an impact on their lives, and they provided the following statements as their reasons. They stated that science is more beneficial for humanity and has a significant influence on our lives. All inventions and phenomena that change human life are based on science. Science is very important, and we can see its impact in our lives at every moment (f=21). Science makes our lives easier and faster. It improves our lives. For example, physicists discovered electricity. Developments in medicine and technology are based on science (f=24). However, some students (f=9) believe that science does not significantly affect their lives because they do not like it, find it difficult, and lack interest in it. Chala et al. (2020) emphasize the need for science educators to establish closer connections between science and students' cultural environments and daily lives in order to generate more interest in science education among students.

In another question where students were asked whether they consider a career related to science (such as scientist, engineer, laboratory technician, medical doctor), the majority of students (f=44) stated that they would choose a profession related to science. They expressed their intentions to pursue a career in science in the future without specifying a particular field, citing reasons such as the need for science to rebuild their country, which has been destroyed by war, and its potential to be beneficial to themselves, humanity, and society. They mentioned the desire to create new things for people, discover new drugs for infectious diseases, and help others (f=4). Some students expressed their desire to become a scientist due to reasons such as finding a cure for currently incurable diseases, making new discoveries and becoming a renowned scientist, and the need for scientists in their country (f=4). One student mentioned considering a career as a biologist due to their interest since childhood. The number of students considering becoming engineers (f=13) because they enjoy physics, mathematics, and the applications of physics, and the number of students considering becoming doctors (f=17) due to the belief that it is the most beneficial profession and a compassionate profession that saves lives, are also significant. However, students who prefer working in social sciences expressed that they do not

consider a career related to science (f=24). According to Lindner et al. (2004), although the implementation of science is emphasized in middle school curricula, the importance of science is generally not taught to students in middle school. To better influence students in choosing science-related careers, there is a need for information on what middle school students believe about science and who has the greatest influence on their career choices in science. Their study concluded that students' attitudes towards science were not low, but they had negative perceptions regarding career choices related to science because they did not find science enjoyable. In the study by Salta and Tzougrad (2004), the majority of students agreed that chemistry knowledge is useful in interpreting their daily lives, but only 4% of the students stated that they would like to continue studying chemistry. In Greece, the profession of chemist is one of the least preferred professions. On the other hand, it is promising that most students believe that chemistry contributes to solving environmental problems and improves our lives. Greek students have a more positive attitude towards the importance of chemistry rather than the use, difficulty and interest of chemistry courses.

The majority of students (f=53) who were asked about their views on the importance of investing in science learning expressed that their countries have greatly suffered after war and emphasized the significance of investing in science education for reconstruction and development purposes (f=18). According to the OECD's (2022) report on building the future of education, "we are facing unprecedented social, economic, and environmental challenges caused by accelerated globalization and rapid technological advancements. At the same time, these forces offer countless new opportunities for human progress. The future is uncertain, and we cannot predict it, but we need to be open and prepared for it. Children who entered education in 2018 will become young adults in 2030. Schools can prepare them for jobs that have not yet been created, technologies that have not yet been invented, and unforeseen problems to solve. Seizing opportunities and finding solutions will be a shared responsibility. To navigate through such uncertainty, students will need to develop curiosity, imagination, resilience, and self-regulation; they will need to respect and appreciate others' ideas, perspectives, and values," as mentioned in the report regarding student attributes. One of the courses that can provide these qualities is the science course. Therefore, due to all these reasons, students need to allocate more time and importance to science in order to elevate their countries to better levels.

In this study with 87 refugee students, the majority of the students stated that they liked science courses (physics, chemistry, biology), while a small number of them stated that they did not like science courses. Students who stated that they liked science lessons stated that they found these lessons important for their lives and that they liked them because they were fun and exciting, while students who did not like science lessons stated that they did not like them because they were difficult and boring. The students who stated that they liked science lessons less than other lessons stated that the reason for this was that they had difficulty in understanding science lessons and that these lessons were not considered important in their country of origin. Lastly, the students thought that investing in learning science is very important and the reason for this was that science is necessary for the development and development of countries where their countries have suffered great losses in the war.

In line with these results, the following recommendations can be made

- lessons can be taught using effective and innovative methods to make students love science.
- Additional lessons, studies and practice hours can be planned for subjects they have difficulty understanding.
- students can be encouraged to do additional activities such as watching documentaries, movies, and reading books about the contribution of learning science lessons to the development of countries.

- teachers should adopt research based teaching strategies to be able to afford students needs.

ACKNOWLEDGEMENTS

We would like to thanks to Prof. Dr. Ingo Eilks from Bremen University/Germany for his valuable support.

REFERENCES

Akça, B. (2017). Ortaokul öğrencilerinin fene yönelik zihinsel risk alma davranışları ile fen kaygıları arasındaki ilişkinin belirlenmesi. Unpublished Master Thesis, Adnan Menderes Üniversitesi Fen Bilimleri Enstitüsü], http://hdl.handle.net/11607/2942

Aydeniz, S. & Sarıkaya, B. (2021). Göçmen çocukların eğitiminde yaşanan sorunlar ve çözüm önerilerine ilişkin öğretmen görüşleri. Milli Eğitim Dergisi, Türkiye'de ve Dünyada Göçmen Eğitimi (Special Issue), 385-404. DOI: 10.37669/milliegitim.959700

Brussino, O., & Mezzanotte, C. (2022). The resilience of students with an immigrant background: an update with PISA 2018 OECD Education Working Paper No. 261. OECD Education Working Paper. https://doi.org/10.1787/e119e91a-en

Chala, A. A., Kedir, I., & Wami, S. (2020). Secondary school students' beliefs towards learning physics and its influencing factors. Research on Humanities and Social Sciences. 10 (7), 37-49. https://core.ac.uk/download/pdf/327152033.pdf

Cimer, A. (2012). What makes biology learning difficult and effective: Students' views. Educational Research and Reviews, 7(3), 61-71. https://academicjournals.org/journal/ERR/article-full-text-pdf/6AD7EA84352

Cummins, Jim. (2015). How to reverse a legacy of exclusion? Identifying high-impact educational responses. Language and Education 29 (3), 272–279. doi:10.1080/09500782.2014.994528

Chen, A. (2001). A theoretical conceptualization for motivation research in physical education: An integrated perspective. Quest, 53(1), 35-58.

Creswell, j. W. (2016). Qualitative research methods (3). Ankara: Siyasal Kitabevi.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. Berlin: Springer Science & Business Media. https://doi.org/10.1007/978-1-4899-2271-7

Dieck, P. A. (1997). The effect of a newsletter on children's interest in and attitude toward science. Unpublished Master Thesis, Arizona State University.

Ekici G, Hevedanlı M. (2010). Lise öğrencilerinin biyoloji dersine yönelik tutumlarının farklı değişkenler açısından incelenmesi. Journal of Turkish Science Education, 7(4), 97 - 109.

Entorf, H. & Minoiu, N. (2005). What a difference immigration policy makes: A comparison of PISA scores in Europe and traditional countries of immigration. German Economic Review, 6(3), 355-376. https://doi.org/10.1111/j.1468-0475.2005.00137.x

Ereş, F. (2015). Türkiye'de göçmen eğitimi sorunsalı ve göçmen eğitiminde farklılığın yönetimi. Çankırı Karatekin Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 6(2),17-30. https://dergipark.org.tr/en/pub/jiss/issue/25891/272819

Ersoy, A. F. , Turan, N. (2019). Sığınmacı ve göçmen öğrencilerde sosyal dışlanma ve çeteleşme. Üçüncü Sektör Sosyal Ekonomi Dergisi, 54(2), 828-840.

Eş, H., & Sarıkaya, M. (2010). A comparison of science curriculum in Ireland and Turkey. Elementary Education Online, 9(3).

Freedman, M. P. (1997). Relationship among laboratory instruction, attitude toward science andachievement in science knowledge. Journal of Research in Science Teaching, 43(4), 343–357.

General Directorate of Migration Management (2020). Syrians under temporary protection by year. Retrieved from https://www.goc.gov.tr/gecici-koruma5638.

Gök, T., & Silay, I. (2008). Effects of problem-solving strategies teaching on the prmblem-solving attitudes of cooperative learning groups in physics education. Journal of Theory & Practice in Education (JTPE), 4(2).

Gül, Ş.,& Yeşilyurt, S. (2011). Ortaöğretim öğrencilerinin biyoloji ve biyoloji dersine yönelik tutumları (Pilot Uygulama). Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, 1(20), 28-47.

Güneş, H. Duru, L. Göktaş, Y. (2021). Sputnik sonrası Amerikan eğitim reformlarının değerlendirilmesi, Ahmet Keleşoğlu Eğitim Fakültesi Dergisi, 3(1), 48-68.

Gottfried, A. E. (1990). Academic intrinsic motivation in young elementary school children. Journal of Educational Psychology, 82(3), 525.

Heller, Monica & Mireille McLaughlin. (2017). Language choice and symbolic domination." In encyclopedia of language and education. Volume Language Choice and Symbolic Domination, edited by Stephen May, 87–95. Berlin: Springer.

Hernandez, D. J., Denton, N. A., Macartney, S., & Blanchard, V. L. (2012). Children in immigrant families: Demography, policy, and evidence for the immigrant paradox. In C. G. Coll & A. K. Marks (Eds.), The immigrant paradox in children and adolescents: Is becoming American a developmental risk? (pp. 17–36). American Psychological Association. https://doi.org/10.1037/13094-001

Martin, A. J. (2001). The Student Motivation Scale: A tool for measuring and enhancing motivation. Journal of Psychologists and Counsellors in Schools, 11, 1-20.

Mattern, N., & Schau, C. (2002). Gender differences in science attitude-achievement relationships over time among white middle-school students. Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching, 39(4), 324-340.

Merriam, S. B. (2013). Nitel araştırma: Desen ve uygulama için bir rehber (3. Baskıdan Çeviri, Çeviri Editörü: S. Turan). Ankara: Nobel Yayın Dağıtım.

Morrice, L., Shan, H., & Sprung, A. (2017). Migration, adult education and learning. Studies in the Education of Adults, 49(2), 129-135.

Lepper, M. R., Corpus, J. H., & Iyengar, S. S. (2005). Intrinsic and extrinsic motivational orientations in the classroom: age differences and academic correlates. Journal of Educational Psychology, 97(2), 184–196. https://doi.org/10.1037/0022-0663.97.2.184

Lindner, J. R., Wingenbach, G. W., Harlin, J., Li, Y., Lee, I.-H., Jackson, R., Johnson, L., Klemm, W., Hunter, J., Kracht, J., & Kochevar, D. (2004). Students' beliefs about science and sources of influence affecting science career choice. NACTA Journal, 48(2), 2–7. http://www.jstor.org/stable/43765844

Oecd, F. A. O. (2022). OECD-FAO agricultural outlook 2022-2031.

Oskay, S. (2019). Ortaokul öğrencilerinin motivasyonel, bilişsel ve bilişüstü yeterlikleri ile fen bilimleri dersine yönelik tutum ve kaygıları. Unpublished Master Thesis, Bolu Abant İzzet Baysal Üniversitesi Eğitim Bilimleri Enstitüsü.

R., & Haugan, M. P. (2008). What makes physics difficult?. International Journal of Environmental and Science Education, 3(1), 30-34.

Özbaş, S. (2016). Lise öğrencilerinin biyoloji dersine yönelik tutumları. Electronic Turkish Studies, 11(9).

Özbugutu, E. (2021). An ınvestigation in to anxiety about the science lesson through a mixed model. Journal of Education and Learning, 10(1), 104-117.

Özyürek, A., & Eryılmaz, A. (2001). Öğrencilerin fizik dersine yönelik tutumlarını etkileyen etmenler. Eğitim ve Bilim, 26(120).

Rivard, L. P., & Straw, S. B. (2000). The effect of talk and writing on learning science: An exploratory study. Science education, 84(5), 566-593.

Salta, K. and Tzougraki, C. (2004), Attitudes toward chemistry among 11th grade students in high schools in Greece. Sci. Ed., 88: 535-547. https://doi.org/10.1002/sce.10134

Sarıer, Y. (2020). Türkiye'de mülteci öğrencilerin eğitimi üzerine bir meta-sentez çalışması: sorunlar ve çözüm önerileri. Eğitimde Yeni Yaklaşımlar Dergisi , 3 (1) , 80-111.

Şahin, M., & Kaya, H. (2000). Ortaokul öğrencilerinin fene yönelik kaygı düzeylerinin farklı değişkenler açısından incelenmesi. Academia Eğitim Araştırmaları Dergisi, 5(2).

Simpson, R.D. and Oliver. J. S. (1990). A Summary of majör influences on attitude toward and achievement in science among adolescent students. Science Education, Vol.74 (1): 1-18.

Tamir, P,, Arzi, A. and Zloto, D. (1974). Attitudes of Israeli high school students towards physics. Science Education, Vol.58: 75-86

Temiz, D. N. (2020). Göçmen ve mülteci öğrencilere Türkçe öğretiminde okulda yapılan oryantasyon çalışmalarının rolü. Uluslararası Liderlik Eğitimi Dergisi, II (II), 45-59. https://dergipark.org.tr/en/pub/ijolt/issue/57393/830143

Turkish Language Association (2020). Turkish language institution dictionaries. https://sozluk.gov.tr

Uprooted, U. N. I. C. E. F. (2016). The growing crisis for refugee and migrant children. New York: UNICEF, 17-36.

Yurdakul, A. & Tok, T. N. (2018). Öğretmen gözüyle göçmen/mülteci öğrenci. Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi, 9(2), 46-58. https://dergipark.org.tr/en/pub/aduefebder/issue/41071/428033

Weber, Jean-Jacques.(2009). Multilingualism, education and change. Frankfurt: Peter Lang.

Yin, R. K. (1992). The case study method as a tool for doing evaluation. *Current sociology*, *40*(1), 121-137.