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Research Article

# Being a Mathematics Teacher at Schools at Temporary Accommodation Centers: Turkish Teachers and Syrian Students

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*Abstract* – In the study, the difficulties faced by mathematics teachers at schools at Temporary Accommodation Centers in Türkiye and their ways of coping were investigated. In this sense, the study focused on the experiences of mathematics teachers working at the schools at the Temporary Accommodation Center, and it was aimed to contribute to the understanding of the teaching processes. The study data were collected from mathematics teachers working at schools at Temporary Accommodation Centers. The research was conducted with a qualitative approach. Phenomenology design was used in the study. The study observed that teachers try to create opportunities to learn mathematics. Teachers were attempting to enrich the lessons (ethnomathematics) by incorporating cultures and languages of refugee students into the class, even though they had not yet received any training. It was determined that living at a temporary accommodation center was an unfavorable language-learning environment, which hurt mathematics learning.

*Key words*: mathematics teaching, mathematics teacher, refugee student, Temporary Accommodation Center.

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## Introduction

Recently, issues such as immigrants, refugees, and integration are essential on the world agenda. The increase in the number of displaced people can also be considered one of the reasons for this situation. With the increase in the number of refugees in the world, the number of refugees living in host countries has also increased, and this increase has brought with it many problems. Some of the issues that arise are refugees' social and cultural differences and the fact that they speak different languages (Harrison et al., 2019; Hokkinen

& Barner-Rasmussen, 2023). This situation makes refugee integration difficult, and countries take various measures to that aim.

The number of refugees in countries is directly related to that country's policies. Due to the internal turmoil in Syria in 2011, the neighboring country Türkiye followed an open-door policy to Syrian citizens, and the number of refugees in Türkiye increased unpredictably (Bayır & Aksu, 2020). According to the United Nations Refugee Agency (UNCHR) 2022 data, with 3 million 800 thousand refugees, Türkiye has the highest number of refugees in the world. According to the same data, 54% of Syrian refugees are in Türkiye (UNCHR, 2022). In the first stage, refugees living at Temporary Accommodation Centers were supported to continue their lives outside the temporary shelter centers to increase their social cohesion when the time to return to their countries was prolonged. Thus, refugees could live all over Türkiye, especially in city centers. However, not all Temporary Accommodation Centers have been closed, and currently there are 9 Temporary Accommodation Centers in 7 provinces in Türkiye. According to the data of the T.R. General Directorate of Migration Management on June 8, 2023, the number of Syrians staying at temporary accommodation centers is 61 thousand 441 (T.R. General Directorate of Migration Management, 2023).

Along with the increase in refugees in Türkiye, regulations were made in the field of education as well as in every other area, and refugee students, who were educated in Temporary Accommodation Centers, were gradually placed in schools affiliated with the Ministry of National Education of Türkiye as of 2016, with the arrangements made. However, since not all Temporary Accommodation Centers were closed, the schools here continued their education under Ministry of National Education of Türkiye. The Temporary Accommodation Centers provide educational services for school-age children, adult education services, health services at the same standards as Turkish citizens, places of worship, markets, and many other opportunities (T.R. General Directorate of Migration Management, 2022). All education services, including preschool education, are provided to school-age children at temporary accommodation centers.

## Immigrant Education

Curriculum designed to support the education needs of immigrant students depends on the effectiveness of the teachers who implement them (Borjian & Padilla, 2010). The effectiveness of teachers is related to how they see their students and accept themselves as agents of change (Olsen, 1997; Valdes, 1998; Valenzuela, 1999). In this sense, providing

professional support to teachers with immigrant students is essential in increasing teacher proficiency and improving education in classes with immigrant students (Souto-Manning, 2013).

Some studies on the education of immigrant students suggest that teacher capacities should be increased so that teachers can see students as gifted learners, encourage rigorous learning environments, and meet their academic needs (Elfers et al., 2013; Liggett, 2010; Scanlan & López, 2015; Villavicencio et al., 2021). However, there is a lack of information about how teachers should be supported (Lowenhaupt, 2015). It is essential to examine the experiences and teaching processes of teachers who are refugee students in order to eliminate the lack of knowledge.

As in other countries, studies have been conducted on teachers with refugee students at public schools in Türkiye. In their study, Yenilmez and Çöplü (2019) found that teachers' main difficulties in educating refugee students was the students' need to learn Turkish and understand the lesson. Erdem (2017) states that teachers struggle with materials while teaching immigrant students. Textbooks are primarily used in lessons, but since they are prepared with Turkish students in mind, they create a deficiency for immigrant students. Şimşir and Dilmaç (2018) determined that immigrant students have problems understanding the lesson, doing homework, reading and writing, and using different curricula. İmamoğlu and Çalışkan (2017) found that international students also distract other students in the lesson because they have language problems. When the studies were examined, it was seen that not knowing the language was influential based on the difficulties encountered.

Immigrant students were given intensive Turkish lessons by the Ministry of National Education within the scope of modules created by the General Directorate of Lifelong Learning, projects implemented (Supporting the Integration of Syrian Children into the Turkish Education System (PICTES) project) and additional Turkish lessons taken from Public Education Centers (İşigüzel & Baldık, 2019). However, studies show that it takes time for Syrian students to adapt to education (Alpaydın, 2017; Dere & Demirci, 2023; Topçu et al., 2019). Compared to other courses, it is thought that the mathematics course having a universal language and using common symbols around the world will be an advantage in teaching mathematics to refugees. However, many teachers think teaching mathematics to immigrant students can be challenging (Bahadır, 2021). In the study conducted by Yolcu and Doğan (2022) with 83 mathematics teachers teaching at multicultural classrooms, it was determined that the teachers argued that the first condition of teaching mathematics to

immigrant students was to have a command of the local language. In the study of Kılıç (2020), mathematical words in mathematics education and communication with refugee students, the use of visuals and drawings to ensure communication, the use of gestures and mimics, the inclusion of refugee students in classroom activities, etc., suggested. The author stated that the cultural incompatibility of the students in the lesson should be minimized by carrying out activities suitable for their subjects by the teachers.

Offering a learning environment to every immigrant student studying in multicultural classrooms is realized by accepting the existing cultural diversity as a positive resource (Celedón-Pattichis et al., 2018). Gutstein and Peterson (2006, p. 3) stated that teachers should see students' native cultures and languages as strengths to build on rather than a deficiency that needs to be compensated. Thus, teachers know their students and their differences and reflect cultural diversity in the classroom as a favorable situation with multiple mathematics applications for all students (de Abreu, 2014). However, studies on classrooms with cultures that are entirely different from the culture of the teacher are limited. The experience of Turkish mathematics teachers, who teach a different culture at Temporary Accommodation Centers, is essential in understanding the teaching process and designing an ideal learning environment.

Therefore, mathematics teaching experiences in classes where all Turkish mathematics teachers are immigrants arouse curiosity. When the literature was examined, it was seen that the studies were carried out with the teachers at multicultural public schools where Turkish students and immigrant students take lessons together. This study differs from other studies in that it includes mathematics teachers working at schools at Temporary Accommodation Centers. Contrary to the disadvantageous situations experienced in the language learning process, mathematics is valuable because it provides an environment where language-independent refugee students can express themselves and reflect their potential in schools thanks to its universal aspect (Bahadır, 2021).

One of the 9 Temporary Accommodation Centers in Türkiye is in the province where the study was conducted. The study was carried out with 3 mathematics teachers working at the Temporary Accommodation Center in this province. According to the data of the Republic of Türkiye, Directorate General of Migration Management, dated 2023, the city with the highest density of Syrians compared to the local population in Türkiye is the city where the study was conducted, with 33.62% (T.R. Directorate General of Migration Management,

2023). These statistics are important as they show the refugee density of the region in Türkiye where this research was conducted. In the research, the term refugee was used to describe the Syrian individuals who had to emigrate from their country due to internal turmoil. This study aimed to reveal the mathematics teaching process from the perspective of mathematics teachers working at schools in Temporary Accommodation Centers in Türkiye. Based on the teachers' experiences, the study would make an effort to describe mathematics teaching process.

## Method

The study was planned and carried out with a qualitative research approach. The reason for this was the fact that qualitative research is sensitive to the natural environment, has a holistic understanding, reveals the perceptions of the participants, and the researcher also has a participatory role (Yıldırım & Şimşek, 2008). The study was a phenomenological research since it focused on mathematics teachers' experiences regarding the refugee student phenomenon. In the phenomenology design, it is essential to interpret and define the phenomenon based on the people's experiences (Jasper, 1994). In such a study, the phenomenon is defined, data is collected from experienced people, and a holistic description is presented (Creswell, 2013). Finally, the research aimed to reveal the paths that mathematics teachers follow in the education process of immigrant children, their perceptions of themselves in this process, their efforts and the parts they struggle with. In this respect, it was in the category of descriptive phenomenological research.

### Participants

The study group of this research consisted of 3 Turkish mathematics teachers (whose students are all immigrants) who worked at the temporary accommodation center, where Syrian immigrants live the most, and participate in the study voluntarily. Purposeful sampling was used because only mathematics teachers working at the temporary accommodation center were selected for the study. The demographic information of the interviewed teachers is given in Table 1.

**Table 1** Demographic Information of Participants

| Teachers | Seniority | Gender | Graduation | Level Taught |
|---|---|---|---|---|
| T1 | 1 | Female | Undergraduate | Secondary School |
| T2 | 1 | Female | Undergraduate | Secondary School |
| T3 | 2 | Male | Graduate | High School |

## Data collection

Qualitative data were used in the research, and the data were collected through semi-structured interviews. The researcher created interview questions as a result of field scanning and finalized using expert opinions for content validity. Two experts' field of study was on the education of migrant children. Along with the pilot interviews, two more questions were added to the interview questions shaped by expert opinions. Pilot interviews were held with 2 teachers working at the temporary accommodation center. The interview questions, which took their final form at the end of the pilot study, consisted of 17 open-ended questions. The prepared questions mostly aimed to reveal the difficulties, conveniences, differences and recommendations that teachers experience in mathematics teaching processes. Necessary permissions were obtained before the data were collected. The interviews were carried out in empty classrooms within the school, coinciding with the hours when the teachers did not have classes. In order to avoid data loss, voice recorders were used, and permission was obtained from the teachers. The researcher took extra notes where necessary. The interviews were conducted in a casual atmosphere, and the teachers were not shown a restrictive attitude. While conducting the interviews, the questions were asked to the teachers in the same order, and the interviews were completed by asking additional questions depending on the answers from the teachers. Each interview lasted an average of 35 minutes. The records were written in order to analyze the data in the interviews.

## Data Analysis

Data were analyzed using content analysis method. The main goal of content analysis is to reach concepts and relationships that can make sense of the data obtained (Tekin-Karagöz, 2014). The obtained data were analyzed separately by the researcher and an expert. The expert was working in qualitative research and gave postgraduate courses on qualitative data analysis. The results of the two analyzes were compared, and a consensus was reached on each finding. While analyzing the data, first, codes were created. Secondly, some codes were combined, limited and simplified. A different expert's opinion was taken for the findings that could not be reconciled, and a conclusion was reached. Thus, the reliability of the study was increased. In addition, to increase the validity and reliability of the research, all stages were explained step by step in a transparent manner. Finally, the codes created based on the data gathered under themes.

In order to ensure internal validity, the researcher and an expert used the triangulation analyst's strategy (Patton, 2000, p. 560) to independently analyze the data set, which was finalized as a result of the coding and sorting phase and compared the analysis results.

In the study, a different expert who has knowledge of mathematics and similar studies was determined. Then, the text file that contain the three themes created as a result of the analyzes and their explanations, and the file that contain the answers of the working group were sent to the expert. In this direction, the expert was asked to compare the answers of the study group with the three themes and match them in such a way that no student was left out. The feedback received after the matching and the themes created by the researcher and the expert (the expert who analyzed with the researcher) were compared according to the formula developed by Miles and Huberman (1994, p. 64). Reliability = (Agreement) / (Agreement + Disagreement)

The consistency between the coders was calculated with the formula (1). According to the formula developed by Miles and Huberman (1994, p. 64), the calculated value was 92%. In this context, it could be noted that the study was reliable. The analysis framework of the study is given in Table 2.

**Table 2** Analysis framework of the study

| Themes | Description | Code | Description |
|---|---|---|---|
| Mathematical Focus | Challenges of, awareness, and recommendations for the mathematics teaching process | ethnomathematics | Efforts to create fair mathematics learning environments in the mathematics teaching process |
| | | the language of mathematics | Expressions of universal symbols of mathematics accepted all over the world |
| | | structure of math topics | Content structures of the topics covered in the mathematics lesson. Verbal or symbol-based expressions |
| | | structure of language | Differences in writing styles of Turkish and Arabic languages, the effect of fonts starting from the right or starting from the left on mathematics |
| | | mathematical achievement | Refugee students' performance in mathematics |
| | | materials | Equipment supports in the school's mathematics teaching process |
| Classroom Management | Planning and implementation of the mathematics teaching process | culture | Perspectives of Syrian refugees on education and teachers stemming from their own culture |
| | | life conditions | Living conditions of refugees at the Temporary Accommodation |
| Psychological Process | Teachers' emotions in the | satisfaction | Teachers' sense of professional satisfaction |
| | | the feelings of failure and inadequacy | Teachers' perceptions of themselves during the teaching process |

| | | |
|---|---|---|
| mathematics teaching process | source of motivation | The situations that motivate teachers in the process of teaching mathematics to refugees |

## Ethical Procedures

This study was found suitable to research and publish according to the decisions taken with the letter numbered 12101 at the meeting of the Social and Human Sciences Ethics Committee of Kilis 7 Aralık University, dated 10.11.2022, and numbered E-76062934-044.

## Findings and Discussions

The research data were examined, and it was seen that three categories were formed as a result of the analysis. These categories were the mathematical focus, classroom management, and psychological process. These categories were also divided into codes within themselves. Mathematical focus was gathered under five codes as ethnomathematics, the language of mathematics, the structure of mathematics subjects, the structure of language, and mathematical success. Classroom management was grouped under two codes: culture and living conditions. Psychological process was grouped under three codes: satisfaction, source of motivation, and feeling of failure-inadequacy.

### Mathematical Focus

Mathematical focus was gathered under five codes as ethnomathematics, the language of mathematics, the structure of mathematics subjects, the structure of language, and mathematical success.

#### *Ethnomathematics*

All teachers stated that they did not receive any training for immigrants. Despite this, the high school mathematics teacher who was interviewed stated that he sometimes tried to emphasize the cultures of his students in the subject teaching part and the question solution part. He expressed that they were interested in the lesson and that this situation pleased them, albeit slightly. A part of the interview with T3 is below.

Researcher: You mentioned that you did not receive any education, but what changes have you made to teaching mathematics to immigrant students?

T3: It is very suitable to adapt some subjects to their culture. For example, when I talk about ratio, I start with their food, they give the recipe, and I emphasize the ratio in the recipes.

Two middle school mathematics teachers who were interviewed stated they did not emphasize students' culture and they were born in Türkiye because they were secondary school students. A part of the interview with T1 is below.

T1: Secondary school students need to learn either Turkish or Syrian culture. They are foreign to Syrian culture because they were not born in Syria; they are foreigners to Turkish culture because they live in a temporary shelter. However, since they speak Arabic at home, they try to speak Arabic in every environment, including school. That is why their Turkish needs to develop. We also sometimes express certain things with Arabic words out of necessity. For example, I use the word "taksim" when I want to say division.

As seen in the dialogue above, the teacher sometimes uses mathematical terms of Arabic origin.

***The Language of Mathematics***

All teachers stated that having a universal language in mathematics is an advantage compared to other courses, so the interview with a participant teacher is as follows.

T2: Although they are at a low success level, they like mathematics the most. Because when numbers are involved, their level of understanding increases more. Teachers of verbal lessons have a more challenging time than us. We can find something in common with numbers, albeit a little.

As seen in the dialogue above, he stated that mathematics attracts students' attention because it has a universal language and that mathematics is in an advantageous position compared to other lessons.

***Structure of Math Topics***

All teachers stated that since the mathematics lesson was not just about numbers, students get disconnected from the lesson, especially when problems based on verbal understanding were involved. They stated that they used numbers more while giving basic information at a superficial level depending on the subject of the mathematics course. However, they stated that they had difficulties in some subjects. A part of the interview with the participant teacher is given below.

T3: I need help explaining the subject of clusters. We already set the curriculum. This school has such a nice practice. At the beginning of the year, we prepare a mathematics curriculum for each level according to the level of the students and submit it to the school

administration. It is not possible to give mathematics teaching plans in public schools here. I teach in high school, but most of my students are at the elementary level. So I needed help getting my students to comprehend the concept of the cluster. Therefore, I did not include the subject of clusters in my curriculum this year. It remains abstract according to students; they need more Turkish knowledge to concretize.

In the dialogue above, the teacher stated that they needed verbal expressions to embody the expression of some subjects that remained very abstract. However, the students needed help understanding this.

***Structure of Language***

Two secondary school teachers stated difficulties, especially in the division process. When asked the reason, they stated that it was due to the structure of languages. A part of the interview with T2 is given below.

Researcher: Why do you particularly have trouble with division?

T2: Because the structure of their language and ours are different, we divide the numbers starting from the left when dividing. According to our practice (in Turkish), the articles are written and read starting from the left. Since their language (Arabic) is written and read from the right, they try to start from the right when dividing. Therefore, we need help explaining them. Although it is essential, I need help solving the problem of partitioning.

As seen in the dialogue above, teachers had difficulties in the division process due to the structure of the Arabic and Turkish languages (starting from the right, starting from the left).

***Mathematical Achievement***

All of the teachers stated that the students' success was meager. Below is a part of the interview with T1:

T1: Even though we achieve a universal language with operations in mathematics, more is needed for success in mathematics. We are reaching a certain point, but more is needed. Language is one of many reasons. Students here have no goals. They have yet to grasp the importance of having a profession and reading. There are no good examples around. Mainly, very few people get a job by studying at the shelter and can set an example.

The teacher stated that, as seen in the dialogue, the students' mathematical achievements were generally low and that language was not the only reason. He stated that the other factors in their failure were the lack of goals of the students and the lack of good examples in their environment. He also mentioned that living in a temporary shelter affects them.

**Materials**

All the teachers stated that there were too many materials in their schools and that it was beneficial in explaining some subjects. A part of the interview with T3 is below.

T3: The school has some advantages indeed. For example, we have a large number of materials. Students are more interested in the lessons where we use materials. In this sense, I like the facility of the school. They are a lifesaver in some of the issues we have difficulty with.

As seen in the dialogue above, the teacher mentioned that the school's material facilities were good. He emphasized that students were more interested in the lessons in which materials are used. Other teachers, such as T3, also stated that the students were interested in the materials.

**Classroom Management**

Classroom management was grouped under two codes: culture and living conditions.

***Culture***

All of the teachers stated that they had problems in terms of classroom management. For example, two secondary school teachers, who were in the beginning of their profession, stated that they want to receive training in classroom management. In this sense, T3 felt having more advantages than secondary school teachers. A part of the interview with T3 is below.

T3: We have problems regarding classroom management in the 9th grade. However, when you go towards the 12th grade, this problem decreases. Because now they are slowly starting to adapt to our culture. They are starting to pay more attention to education. However, the job of secondary school teachers is challenging in this sense.

For example, I have only one expectation from parents. That is to leave my students alone. Because they want to marry female students at an early age, they want male students to work and earn money without studying. Unfortunately, these are the thoughts of our parents at

the temporary shelter. Without these, I am sure the students will be more willing to attend the lessons.

In the dialogue above, T3 mentioned that students adapt better to Turkish culture over time. He stated that their perspective on education gradually changed in a positive direction. He mentioned that the work of teachers at secondary school was difficult. In addition, the fact that female students get married early, and male students were required to work and earn money, the students' desire for lessons decreased. He stated that this was the parents' point of view at the temporary accommodation center.

A part of the interview with T1 is below.

Researcher: You stated that you felt inadequate. In what sense do you feel inadequate in mathematics lessons?

T1:Women are not valued in Syria. I see it better in this shelter. When we are female teachers, they do not take our words seriously. One of my students said that in our society, teachers are valued. So I asked why you do not value us. He fell silent and did not answer. Most of the time, mathematics is in the background anyway. So we emphasize the concept of respect rather than the concept of love.

In the dialogue above, the teacher stated that classroom management in mathematics lessons was adversely affected due to the Syrian culture.

***Life Conditions***

All teachers stated that the fact that families generally work in the fields at the temporary accommodation center affects classroom management. Teachers who stated they could not get parent support stated that this situation affected their mathematics achievement. A part of the interview with T2 is below.

T2: Families stay at the shelter because they want to benefit from the facilities (house, electricity, natural gas, …) provided by the state. Here, parents usually work in the fields. Students' families are often oppressive, but they do not use this attitude for school. Students are afraid of their families. Of course, we do not want to teach out of fear, but at least we want them to be respectful towards us in the lessons. There are interpreters at our school, but since the families work, we cannot communicate with the parents anyway; even if we call them, they do not come. Since the students' parents are working, we cannot even visit them.

Therefore, students do not listen to the lessons knowing that their families will not be informed, and they disrespect us. As they have the mentality that teachers cannot reach our family and tell them what we have done, they are disrespectful in the lessons. However, 2-3 students in each class are very respectful and focused on the lesson. However, when you consider that the class is 30-35 people, you will see how small this number is.

In the dialogue above, the teacher stated that although the students wanted to communicate with their families, they could not. He said that this was because the families were working. He stated that the students generally do not listen to the lesson because the teachers cannot communicate with the parents and the students disrespect them without hesitation.

**Psychological Process**

Psychological process was grouped under three codes: Satisfaction, Source of Motivation, and Feeling of Failure-Inadequacy.

***Satisfaction***

Two teachers said that they had professional burnout despite their first job. A part of the interview with T1 is below.

T1: Sometimes, I explain the subjects I teach in classes to the air. I need more professional satisfaction. There are 1 or 2 people who pay attention to the lesson in a class of 30-35 students. Others do not listen because some do not understand, and some are not keen on education. This upsets me a lot.

As seen in the dialogue above, the teacher stated that she could not get professional satisfaction by thinking that the students did not listen to the lesson and that what she said was wasted.

***The Feeling of Failure and Inadequacy***

Two teachers said that students see life as a temporary shelter. The teachers said this situation distracted the students from the lesson, so the students got poor exam scores. They stated that the general failure of the students created a feeling of inadequacy in themselves as mathematics teachers. However, T3 stated that there were gradual improvements in his students and that this made him happy, so he did not feel inadequate. A part of the interview with T2 is below.

T2: For example, our students take the entrance exam to high school in the 8th grade. However, even our best students need help getting into good schools. Sometimes I feel inadequate when 2-3 students in each class need help to get the result, I want from them. So there is a feeling of not being able to teach, which bothers me a lot.

As can be seen above, the teacher felt terrible that he could not teach mathematics. He thought this was the reason for the general failure of the students.

A part of the interview with T3 is below.

T3: I see that especially my senior students' interest in mathematics has gradually increased. That makes me happy. I was teaching addition and subtraction to these students, but now I am teaching polynomials and functions. Think about it; this is a beautiful thing. Yes, their level of success is low in general, but their interest is gradually increasing, which means their success in mathematics will gradually increase.

As can be seen, T3 does not have a feeling of inadequacy. However, he stated that because his students' interest in mathematics increased, this made him happy and that he did not have the feeling of inadequacy.

**Source of Motivation**

Two teachers stated that the most significant motivation sources were students. They stated that seeing the changes in students was an excellent source of happiness for them. A part of the interview with T3 is below.

T3: Although the students tire us, they are children. Due to war, they had to leave their country and come to another country. They need us. No matter what happens, we are educators; even if we are tired and sometimes even helpless, we must bring them to this country. We have to be the light for them. They are so innocent. My aunt was a teacher when I was appointed to this school for the first time. She told me, "You are an educator, you should do whatever your job is and you should not waste time with complaints. If you love your students very much, even if you get tired, you will forget all your tiredness with their smiles. Always do your job with passion." -I love my aunt very much; she is an excellent teacher, and I always took her as an example. Even though I am tired, I love my job. These words will always be a light to me.

In the above dialogue, T3 mentioned that as an educator, it was necessary to integrate students into society. He stated that children were very innocent, and this situation motivated

him. He mentioned that this situation also contributed to the advice he received from his family elders.

## Conclusions and Suggestions

The study showed that mathematics teachers working at temporary accommodation centers had some advantages in terms of language. This advantage was based on the fact that mathematics is a universal language. Considering that the biggest problem of teaching immigrants was not speaking the language (Başar, Akan & Çiftçi, 2018; Gorgorió & Planas,2005; Nortvedt & Wiese, 2020; Yolcu & Doğan, 2022), this could be considered as a great advantage. However, it was determined that the common language they created with numbers constituted an advantage to a certain extent, and then there were problems caused by not speaking the language. This situation was compatible with the studies on teaching mathematics to immigrant students (Bahadır, 2021; Yenilmez & Çöplü, 2019; Yolcu & Doğan, 2022; Moschkovich, 2002). It was determined that it was difficult to teach mathematics to subjects that required more verbal expressions to understand. This showed that the universal language of mathematics was limited to numbers and formulas only.

Students whose first language is not the language of instruction have to learn certain forms of the language of mathematics through the classroom, although there is no specific support for this (Gorgorió & Planas, 2001). According to the findings, since there were no Turkish students to interact with at the temporary accommodation center, it could be argued that it was a disadvantageous environment in terms of understanding the language of mathematics. The fact that the students lived at the temporary accommodation center, the people around them were entirely Syrian, and the people only spoke Arabic among themselves made the language learning process difficult. Although there were translators and Turkish teachers, it was thought that the students at the temporary accommodation center had more difficulties in terms of language than the immigrants who did not live at the temporary accommodation center. This situation affected the mathematics course, which has a universal language like all courses.

Based on the study's findings, it was determined that teachers had difficulties teaching division, one of the basic mathematical skills. It was stated that this was due to the structure of the Arabic language. Arabic is a language that is written and read from the right. In division, the division is done by starting from the left of the number. Therefore, it was stated that the students tried to make operations starting from the right of the dividing number. When the literature was examined, it was seen that although Turkish is a language that is

written and read from the left, students learned to perform operations by starting from the right in addition, subtraction and multiplication. However, they applied the same rule in the division by generalizing the last division they learned. In their study, Varol and Kubanç (2015) found that the students started the division operation from the right by generalizing the right starting rule, valid in subtraction and multiplication operations, to the division operation. According to Reys et al. (1998), the division is difficult for students for various reasons. One of these reasons is that it starts from the left, not the right, like other operations. In other words, writing and reading languages from the right or left does not change the fact that students have difficulty in the division. However, it was thought that while the language of Syrian immigrants was written and read from the right, addition, subtraction and multiplication were done by starting from the right, and only the operations starting from the left in the division process were more complex for the students who read and write the language from the left.

It was observed that when teachers had problems caused by not speaking the language, they developed some strategies to solve them. For example, it was seen that they tried to make the lesson understandable by learning Arabic words, and at the same time, they taught the lessons by trying to emphasize their culture. This situation showed that teachers benefit from ethnomathematics to create opportunities to learn mathematics. This finding of the study was found to be positive in terms of teaching mathematics to immigrants. It was thought that benefiting from the cultures of immigrant students would contribute to associating mathematics with real life. Barwell (2009) stated that teachers should be aware of cultural and language issues and how they relate to mathematics teaching and learning. Bahadır (2021) stated that teaching immigrants using ethnomathematics would have positive results in terms of mathematics achievement and attitudes towards mathematics. The fact that teachers used ethnomathematics methods without any training may indicate teachers' efforts to teach mathematics. Rousseau and Tate (2003) identified mathematics teachers' views on equality as the main barrier to equitable teaching practices that give all students the best possible learning opportunities. The fact that teachers see all students as equal and ignore their cultural and individual differences can be seen as an injustice to both students and themselves. This situation causes students to miss the factors that prevent learning (Nortvedt & Wiese, 2020). It is essential that teachers adapt the subjects according to their students and give importance to cultural differences while teaching mathematics to immigrants. This study finding showed

that teachers had a fair perception towards the concept of equality to create learning opportunities.

It was seen that the feeling of inadequacy and inability to teach some teachers had been directly related to student failure. It was determined that teachers had negative feelings because they thought they spent more effort at this school than at regular schools and did not receive success in return. Teachers' mastery of these feelings in the first years of their duties was thought to affect their mathematics teaching processes negatively. The formation of this feeling was based on the fact that teachers were appointed to schools without receiving any training for immigrant students. It was considered that teachers would not feel so inadequate when they consider immigrant students as not unsuccessful but as disadvantaged due to their culture and living conditions. In order to create this awareness, the training given to the teachers for immigrant students would play an important role. Boos-Nünning et al. (2007) stated in their study that immigrant students should be regarded as bilingual individuals who will act as a bridge between cultures, superior to monolingual children. It was thought that this perspective should be taught to teachers.

All the teachers stated that they felt inadequate in classroom management. Some teachers stated that they wanted to receive training in this regard. When we the reasons of this situation were examined, it was seen that it was based on the cultural and living conditions of Syrian immigrants, especially the language problem. However, some studies (Akın, 2006; Alkan, 2007; İlgar, 2007; Sağlam, 2007; Erol, 2006; Terzi, 2001) revealed that as the experience of teachers increases, their classroom management skills also increase. The fact that the interviewed teachers were in the first years of their profession was thought to be another factor in their feeling of incompleteness in classroom management. Despite this, the adverse effects of culture and language insufficiency on classroom management should not be ignored. Due to the language problem, it is inevitable that immigrant students do not understand the lesson and turn to other distractions in the lesson. Studies have shown that teachers who teach immigrant students negatively assess themselves in terms of classroom management (Yenilmez & Çöplü, 2019; İmamoğlu & Çalışkan, 2017), a situation which shows parallels with the study.

All of the teachers stated that they did not receive parental support. A teacher stated that the only expectation from parents was to leave the children alone. In the findings of the study, it was revealed that the parents wanted their daughters to marry early, and their sons to work and earn money. It was argued that this situation was caused by the culture and the economic

situation they were in. Sarıtaş, Şahin, and Çatalbaş (2016) stated in their study that Syrian parents do not take care of their children, that the economic difficulties they experience negatively affect the children and that they also have difficulties in communicating due to language differences. These results were in agreement with the present study.

Considering the study findings, it was seen that the students were more compatible towards the last year of high school. This may indicate that as students' stay in Türkiye increases, cultural adaptation increases and language problems gradually disappear.

Research findings showed that the Ministry of National Education sent many materials specifically to accommodation center schools. Teachers stated that students' interest in lessons increased with materials. Teachers also stated that they stretched the mathematics curriculum a little more, taking into account the student's level. Taking these statements into consideration, it could be argued that the Ministry of National Education follows an appropriate strategy for the mathematics education of immigrant students.

Two teachers stated that the sources of motivation were students and the positive changes they observed in them. One teacher stated that the increase in students' interest in mathematics made him very happy. He stated that his motivation towards his work increased when he thought that his students might have experienced war trauma and that they were children. At the same time, he stated that one of his loved ones was an educator who said that he should do his job with love. The teacher said that he was very impressed by this statement. Experienced teachers who love the teaching profession would positively impact their professional experience and the scope of the teaching profession.

The number of immigrants in Türkiye has increased suddenly and rapidly in a certain period. It could be argued that this situation also causes problems in the education system. While teaching mathematics to immigrants, despite having a universal language, it was seen that problems were caused by needing to learn the language after a certain point. In particular, the fact that students speak Arabic among themselves and the absence of Turkish students was seen as a negative situation regarding language learning at schools at the shelter centers, where all students were immigrants. Although measures were taken to eliminate this situation (Turkish instructors and Arabic translators were available at this center), it was observed that there were problems arising from the need for more interaction with Turkish. The teachers' attempts to explain the lesson by emphasizing the culture while teaching mathematics or trying to explain the lesson by learning Arabic words were considered efforts to create

opportunities for learning mathematics. It could be considered a valid policy in mathematics teaching that the Ministry of National Education gives material (tools) aid to schools with immigrants. Considering the reality of immigrants in Türkiye, it was suggested that teacher training programs include information about immigrant education. In addition, in-service training for immigrant education should be suggested to increase effectiveness of teachers employed at the temporary accommodation center and their professional satisfaction. Finally, it was recommended to carry out studies with more participants by removing the study's limitations.

## Limitations of the Research

Current research has some limitations. This study was conducted with three teachers working at the temporary accommodation center. This was a mandatory choice as the temporary accommodation center has a limited number of math teachers. All interviewed teachers had their first teaching experience in these schools and were in the first years of their teaching profession. Since the first years of the teaching profession are the years of learning and experiencing the profession, interviewing teachers who have no experience in the study requires a discussion of the results in a specific context. Therefore, there is a generalizability problem in comparisons. Despite these limitations, the mathematics teachers' experiences working at the temporary accommodation center were tried to be described. The study will inspire and provide resources for other researchers focusing on mathematics education at temporary accommodation centers.

## Compliance with Ethical Standards

*Disclosure of potential conflicts of interest*

No conflict of interest.

*Funding*

None.

*CRediT author statement*

The study was single authored and the whole process was carried out by the corresponding author.

*Research involving Human Participants and/or Animals*

The study involved human participants. Ethics committee permission (Date: 10.11.2022, Number: E-76062934-12101) was obtained from Kilis 7 Aralık University, Social and Human Sciences Research Ethics Committee.

## Geçici Barınma Merkezindeki Okullarda Matematik Öğretmeni Olmak: Türk Öğretmenler ve Suriyeli Öğrenciler

**Özet:**

Çalışmada, Türkiye'de Geçici Barınma Merkezi'ndeki okullarda matematik öğretmenlerinin karşılaştığı zorluklar ve başa çıkma yolları araştırmıştır. Bu anlamda Geçici Barınma Merkezi'ndeki okullarda görev yapan matematik öğretmenlerinin deneyimlerine odaklanılmış ve öğretim süreçlerinin anlaşılmasına katkı sunmak amaçlanmıştır. Çalışmanın verileri Kilis ilinde bulunan Geçici Barınma Merkez'lerindeki okullarda görev yapan matematik öğretmenlerinden toplanmıştır. Araştırma nitel bir yaklaşımla planlanmış ve yürütülmüştür. Çalışma matematik öğretmenlerinin mülteci öğrenci olgusuna ilişkin deneyimlerine odaklandığı için fenomenolojik bir araştırmadır. Araştırmada mesleklerinin ilk yıllarında olduğu tespit edilen öğretmenlerin matematik öğretimi yaparken başta dil bariyerine takıldıklarını ve buna rağmen matematik öğrenme fırsatları oluşturmaya çalıştıkları görülmüştür. Öğretmenlerin eğitim almadıkları halde mülteci öğrencilerin kültürlerini ve dillerini derse katarak (etnomatematik) dersleri zenginleştirme çabalarına rastlanmıştır. Geçici Barınma Merkezi'nde yaşamanın olumsuz bir dil öğrenme ortamı olduğu ve matematik öğrenimini olumsuz etkilediği belirlenmiştir.

Anahtar kelimeler: matematik öğretimi, matematik öğretmeni, mülteci öğrenci, geçici barınma merkezi

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