THE EFFECTIVENESS OF MATHEMATICS TEACHING IN THE PROVINCES THAT HAVE MIGRATED DUE TO DISASTERS: A SURVEY STUDY

Research article

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Abstract

Due to the great disaster of February 6, 2023, known as the Kahramanmaraş earthquake, 11 provinces in Turkey were primarily affected. In these provinces, health, education, tourism and many other sectors were damaged. People living in the provinces with first-degree damage have settled in the nearest and less damaged provinces due to basic needs and education problems. In this regard, both the provinces that received in- migration and the people who migrated faced difficulties in various areas, especially in adaptation and transition. The purpose of this study is to obtain detailed information about the effectiveness of teaching mathematics in accordance with the difficulties of mathematics teachers in the provinces that migrated due to the earthquake. A total of 128 mathematics teachers were reached by the method of random sampling in the study designed in survey design. The instrument used to collect data is a questionnaire prepared by the researchers, which was set to 29 items based on expert opinions. The questionnaire was prepared using Google forms and data collection was started. Descriptive statistics were used for data analysis. The results showed that teachers indicated that they had no problems with lesson planning, lesson introduction, content presentation, and teaching, although they mostly reverted to traditional teaching, but they had difficulties in terms of motivating students for teaching, communicating with students, and measuring and evaluating.

Keywords: Earthquake, migration, mathematics teaching, questionnaire study.

1. Introduction

Emergency situations such as wars, riots, earthquakes, and natural disasters hit every individual in society hard. Children suffer the most from this situation. Children have a low coping capacity and find it very difficult to cope with these events. People who have to leave their homes become refugees. Adult refugees can adapt to this situation more easily. They join with like-minded people in their neighbourhood and continue their lives. For children, on the other hand, this situation is not so easy. Children who have to leave the place where they live have difficulty adapting and adjusting to the culture where they have settled and continuing their lives where they left off.

One of the most important problems faced by societies forced to migrate due to war or disaster is the disruption of education. In emergency situations, the right to education is often considered a secondary right, but education, which has become a tool that supports rescue and

protection as well as rehabilitation and development, should be the first and primary goal (Türmen, 2012).

It is the educational situations that affect the future life that children suffer the most. Studies show that more than 72 million children worldwide cannot continue their education (Penrose & Takaki, 2006). Almost half of these children are individuals who cannot continue their education due to natural or man-made disasters. However, education is the most fundamental right guaranteed by international conventions and laws. Education makes it easier for refugee children to overcome many obstacles. This process, which can partially relieve them psychologically, has some difficulties. When the sudden and difficult migration situations experienced by children are combined with different individual and cultural characteristics in their new living spaces, this process may become more difficult (Ferris & Winthrop, 2010). In the face of emergencies and disasters, the state that shelters its society has to guarantee the rights of the society to education, health, care, shelter and food (Sinclair, 2007; Türmen 2012).

Mathematics is among the most important knowledge that contributes to the acquisition of problem-solving skills and that today's society expects from people. As Çağlar and Ersoy (1997) state, mathematics plays an important role in solving problems, creating problems, viewing events objectively, enhancing self-awareness, and establishing the cause-effect relationship of problems. Mathematics, which is a fundamental science, is used in scientific research, technological developments, and society's ability to live together smoothly. It is a very effective science in solving problems of daily life, in running events through the philtre of logic, in thinking and communicating, in making connections and relationships between concepts, in making generalisations and conclusions, in creative thinking, in developing thinking, in developing behaviours such as analysis-synthesis and evaluation (Aksu, 1991). For all these reasons, mathematics education is a basic course and has an important place in the education and training programmes of elementary and secondary schools.

Mathematics, which plays a very important role in the development of science and technology, is constantly used in human life, knowingly or unknowingly (Pambudi, 2022). A person's success in mathematics affects many areas, from career choices to problems in daily life to success in other disciplines (Andaya, 2014). In line with scientific studies and technological developments, it is an indispensable branch of science that every individual who forms the society uses in the field of life. It can be said that mathematics is a compulsory science to learn in order to develop logical thinking, communication, generalisation and inference from parts to the whole, creative thinking, analysis-synthesis, and evaluation skills that are needed in the process of solving problems in daily life (Aksu, 1991). In both the problem formulation and problem solving processes, the objective approach, the establishment of cause- effect relationships among the problems encountered, and the individual's ability to act independently are promoted by mathematics (Çağlar & Ersoy, 1997). For all these reasons, it can be said that mathematics is one of the most fundamental and important disciplines in primary and secondary education (Tanışlı & Sağlam, 2006). Teaching and learning methods and techniques related to mathematics, which is such an important subject, should be developed and the necessary steps should be taken to increase the effectiveness of mathematics teachers (Öztop, 2022).

According to Korkmaz and Kaptan (2001), the main purpose of teaching mathematics is not only to impart knowledge. It is to provide students with the ability to acquire knowledge. To this end, they should acquire high-level thinking skills. Therefore, it is important for students to learn information conceptually rather than memorising it. Instead of learning the information as independent and unrelated information, the person should be able to make a connection

between old and new information and have high-level thinking skills (Topan, 2013). Therefore, the person who learns how and why information is acquired can learn permanently.

Despite all the known advantages, mathematics performance in Turkey is quite low in national and international examinations (Olkun & Aydoğdu, 2003). The main reasons for this situation are that mathematics is described as abstract, boring and difficult. Some prejudices that students usually acquire in elementary school lead them to develop a negative attitude and consider this course as a phobia. In addition, the teacher-centred teaching of this course, which can be learned through action and experience, is believed to cause a negative attitude toward the course.

With the renewed curricula, mathematical knowledge is not passed directly to the students. Students are expected to participate in this process through their individual efforts, and teachers are expected to guide students in this process (Ministry of Education (MoE) 2009). Today's mathematics curriculum supports active student participation and a constructivist approach instead of traditional teaching methods. Thank you to the recommended conceptual learning, students gain concrete experience through action and experience. This allows them to make connections between concepts and develop abstract thinking skills. The active role that individuals take in the process of participating in class makes it easier for them to make connections between concepts and increase their ability to learn. In this regard, rote learning approaches that do not encourage individuals to think are not considered sufficient in the education and training process (Doymuş, Şimşek, & Bayrakçeken, 2004). Student-centred approaches and teaching methods that support this are recommended in terms of the permanence of the information learned and the effectiveness of the teacher (Ünlü & Aydıntan, 2011). In fact, this situation becomes more critical during exceptional times. For example, during distance education, there was an urgent transition to distance education due to the coronavirus, and problems occurred in many dimensions of teaching (planning, delivery, assessment, etc.) (Bozkurt & Sharma, 2020; Can, 2020; Çetinkaya, 2020; Houlden & Veletsianos, 2020; Keskin & Özer Kaya, 2020). Hodges et al. (2020) described this situation as a temporary learning process that is not long-term and complete, but remedial in the context of continuing existing education. A similar situation was organised after the earthquake, where schools opened later and students could be taught in any other province in Turkey.

With the beginning of the migration process in Turkey, academic studies in this field have also increased. Yıldız (2013) analysed the problems, expectations and future perceptions of Syrian asylum seekers in Turkish camps. Apak (2014) analysed the adaptation of Syrian asylum seekers to Mardin province, and Korkmaz (2014) examined the problems caused by asylum seekers to health and nursing services. Ağır and Sezik (2015) addressed the security problems arising from the wave of migration from Syria to Turkey, Koç et al. (2015) examined the employment problems of asylum seekers, and Tunç (2015) analysed refugee behaviour and social effects. Paksoy et al. (2015) analysed the economic impact of Syrians for Kilis province, Yavuz (2015) examined the legal and ethical foundations of health aid to Syrian refugees in Turkey, Altundeğer and Yılmaz (2016) investigated the effects of political instability caused by the Syrian crisis on Turkey.

As it is known, both students and teachers have been exposed to many changes due to migration. Students had to live with different cultures at once, adapt to their school and friends, get used to their new lives and rebalance their emotional and social development. It is also known that education, which is the most important factor in this process, is also important as it will shape the future of individuals. In this direction, it can be said that migrations caused by disasters closely affect our students and educators. The aim of the study is to examine the changes in the education and training process in this process and to investigate the effectiveness

of teaching in mathematics courses, which are accepted as basic courses from the perspective of our teachers. Among the studies conducted, the effect of migration due to disasters on the educational situation has not been found. In this direction, the study is important.

1.1. Purpose of the Research

Due to the earthquake in Turkey, many provinces were affected and many provinces, especially the neighbouring provinces, were affected by the exodus. This troubled situation throughout the country has also negatively affected the education and training process. The purpose of this study is to obtain detailed information about the difficulties of mathematics teachers in the provinces who migrated to our country after the earthquake, as well as the management of mathematics courses and the effectiveness of teaching.

1.2. Importance of the Research

It is believed that the study is important to determine the measures taken by mathematics teachers against the problems of our students who have problems both with the process of adaptation to the school and with the process of adaptation to the new city as a result of migration or the possible change in the form of teaching.

2. Method

This research, conceived in survey design, describes the relevant phenomenon or event by determining participants' opinions and attitudes about a particular topic or event (Karakaya, 2012). In a study that is suitable for survey design, it is important that the sample represents the population and that the data are collected systematically using a standardised data collection instrument specifying the general characteristics and then analysed statistically (De Vaus, 1991; Neuman, 2016). It can be readily said that this study is a descriptive study in survey design because it meets the above conditions. Descriptive analysis method is "a method often used by researchers to obtain summary information about various facts and events they want to study" (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2008, p. 125). For this reason, the aim of this study was to describe the effectiveness of mathematics education from the perspective of mathematics teachers who play an active role in the educational process in the provinces that migrated due to the earthquake and to obtain detailed information about the situation.

2.1. Working Group

The study was conducted with mathematics teachers selected by the method of random sampling who teach in the spring semester of the academic year 2022-2023 in the Southeast Anatolia and East Anatolia regions of our country. The random sampling method can be defined as the researcher's orientation to the simplest elements that the researcher can achieve in forming the sample from the target population (Patton, 2005). Although the random sampling method has lower representativeness compared to most other sampling methods, the reason for this preference is that it is quite difficult to reach mathematics teachers in all provinces that migrated due to the earthquake.

2.2. Data Collection Tool

The data of the study were collected with the questionnaire technique within the survey model. Questionnaire is a measurement tool that facilitates the collection of detailed data by delivering a large number of questions to the desired audience in a short time (Balcı, 2002; Büyüköztürk, 2005). The first part of the questionnaire prepared as a data collection tool

includes demographic information such as gender, professional experience, province of education, and grade level. The general categories in the questionnaire are lesson plan (2), introduction to the lesson (5), presenting the content (13), management (3) and assessment and evaluation (6). With a total of 29 items in these categories, it was aimed to obtain detailed information from mathematics teachers. The questionnaire was prepared in 5-point Likert type and coded with the numbers "Strongly Disagree" 1, "Disagree" 2, "Undecided" 3, "Agree" 4 and "Strongly Agree" 5.

While designing the data collection tool, the literature was firstly reviewed. As a result of the interview with a mathematics teacher working in a state school affiliated to the Ministry of National Education, a number of problems were identified. In line with these problems, 5 categories were determined by 3 faculty members who are experts in mathematics education and a total of 36 items in these categories were prepared. Then, 3 field educators and 3 measurement and evaluation experts were consulted and the questionnaire was finalised with 26 items. Lawshe Technique was used for the validity and reliability study of the questionnaire.

Lawshe technique consists of 6 stages. These stages are;
1. Formation of a group of field experts,
2. Preparation of candidate scale forms,
3. Obtaining expert opinions,
4. Obtaining content validity ratios for the items,
5. Obtaining content validity indices for the scale,
6. Creating the final form according to the content validity ratios/index criteria (Yurdugül, 2005).

Then, the opinions of 6 mathematics teachers were taken for pilot application. After the opinions, it was seen that there was no problem about the comprehensibility and answerability of the questionnaire and it was decided that it was suitable for the research and field studies were started.

2.3. Data Collection Process

In the process of developing the questionnaire used to collect data within the scope of the research, the experiences of the researchers in mathematics education and training processes, free interviews and brainstorming were effective. For about a week before the study, each of the researchers conducted a literature review on the subject. A pool of 46 items of the questionnaire was created by focusing especially on studies as Gökçe, Önal & Çalışkan (2021), Kiremit, Kara & Çinici, (2021), Özer, (2022), Özkul et. al., (2020) from the relevant literature. Then, the draft of the 36-item questionnaire was prepared by using the opinions of 3 mathematics educators and 3 measurement and evaluation experts. Then, the pilot study of the questionnaire was applied to 7 elementary mathematics teachers and the items with confusion or difficulty in understanding were revised. In this process, the ethics committee permission letter was applied and ethical permission document was obtained through the institution. The questionnaire, which was finalised with 30 items, was digitised by one of the researchers with the help of google form. Then, based on the convenience sampling method, each researcher sent the google form to the primary mathematics teachers in the regions he/she was close to or could reach via e-mail. The statistical analysis of the findings obtained from the questionnaire applied to a total of 128 elementary mathematics teachers was carried out with the help of SPSS package programme. Then the research data were reported.

2.4. Data Analysis

Questionnaires have a different development process than scales due to their nature (Karışan et al., 2017). Therefore, Exploratory Factor Analysis, Confirmatory Factor Analysis, item difficulty and reliability tests were not applied in both the original and the development process of the questionnaire in this study. In the study, the answers given to the questionnaires were taken as frequency and percentage. In order to evaluate whether the differences of the variables were significant or not, Chi-square test was applied using SPSS 15 as it was applied to the original questionnaire, and in cases where it could not be met, Fisher's test was applied and interpreted similar to the chi-square test (Mehta & Patel, 1996).

Random sampling method was used in the study. The questionnaires were sent to the teachers via Google form. It was sent to approximately 250 mathematics teachers and a total of 128 mathematics teachers completed the questionnaire.

3. Findings

In this section, the findings related to the data obtained from the mathematics teachers are presented.

3.1 Demographic Information on Teachers

In the tables below, the demographic structures of the secondary school mathematics teachers who answered the questionnaire are analysed. In this context, the gender of the teachers, their professional experience and the provinces where they work were analysed. The data related to demographic information are analysed in the tables below.

Table 1. *Gender of teachers*

Gender	Frequency	Percent
Woman	73	57
Male	55	43
Total	128	100

When the table is analysed, it is seen that most of the teachers participating in the study are women. However, it can be said that the difference is not significant.

Table 2. *Professional experience of teachers*

Professional experience (years)	Frequency	Percent
1-10	45	35,2
11-20	53	41,4
21-30	27	21,1
30+	3	2,3
Toplam	128	100

When Table 2 is analysed, it is seen that most of the teachers work between 11-20 years. Afterwards, most of the teachers have 1-10 years of professional experience. The least number of teachers with more than 30 years of experience participated in the survey.

Table 3. *Provinces where teachers work*

Professional experience (years)	Frequency	Percent
Eastern Anatolia Region	28	21,9
Marmara Region	41	32
Mediterranean Region	14	10,9
Southeastern Anatolia Region	13	10,2
Black Sea Region	13	10,2
Central Anatolia Region	8	6,3
Aegean Region	11	8,6
Total	128	100

When Table 3 is analysed, data were collected from 7 regions of Turkey. The most data were obtained from Marmara region, followed by Eastern Anatolia and Mediterranean regions. In addition, data were collected from 30 different provinces of Turkey. The most data was collected from Istanbul. Afterwards, Elazığ, Gaziantep and Hatay are the provinces where the most data were obtained respectively. Apart from this, data were collected from 26 different provinces.

3.2 Teachers' Answers to the Questionnaire

The questionnaire consists of 30 items and five different dimensions. The dimensions of the questionnaire are divided into five: lesson plan preparation, introduction to the lesson, presentation of the content, management and evaluation. The percentages of secondary school mathematics teachers' responses to the items are shown in the table below.

Table 4. *Teachers' answers to the questionnaire*

Dimensions of the questionnaire			Strongly disagree	Disagree	Undecided	Agree	Absolutely agree
Lesson Plan	1	I did not have any problems in planning my lessons after the migration.	9,4	25,8	14,8	33,6	16,4
	2	After the migration, I was able to implement my lesson plan easily.	7	21,1	24,2	32,8	14,8
Course Introduction (5 items)	3	After the migration, I easily attracted the attention of the students at the entrance to the lesson.	4,7	18,8	21,9	45,3	9,4
	4	After the migration, I did not have any problems with motivation at the beginning of the lesson.	5,5	21,9	26,6	40,6	5,5

	5	After the migration, I easily identified the preliminary information.	6,3	12,5	13,3	51,6	16,4
	6	After the migration, I could easily inform the students about the outcomes.	4,7	11,7	8,6	48,4	26,6
	7	I was able to establish a relationship between students' old knowledge and new knowledge in the course introductions after migration.	2,3	7,8	16,4	48,4	25
Presenting Content (13 items)	8	I easily applied the teaching methods/techniqu es I had used before the migration.	3,1	13,3	25	39,8	18,8
	9	I received information from the mathematics teachers at the school where the migrant students came from and taught the lesson with similar methods.	36,7	39,8	7	11,7	4,7
	10	I diversified the teaching methods/techniqu es I used before migration.	3,9	14,8	12,5	42,2	26,6
	11	After the migration, I used various instructional technologies.	3,9	12,3	14,8	39,8	28,1
	12	After the migration, I had difficulty in completing the subjects on time.	10,9	23,4	4,7	37,5	23,4
	13	After the migration, I diversified concrete teaching materials.	3,9	18,8	17,2	39,1	21,1
	14	After the migration, I used the traditional teaching method more.	1,6	35,9	14,8	33,6	14,1
	15	After the migration, I developed different solutions to sample	2,3	12,5	14,1	46,1	25

		questions about the topics.					
	16	After the migration, I have more established the relationship between multiple representations of concepts.	2,3	14,1	25	38,3	20,3
	17	After the migration, I associated the concepts more with daily life.	3,1	7,8	13,3	45,3	30,5
	18	After the migration, I associated the concepts more with different courses.	2,3	16,4	21,9	35,9	23,4
	19	After the migration, I made more connections between concepts and processes.	1,6	13,3	15,6	46,1	23,4
	20	After the migration, I made more connections between different mathematical concepts.	2,3	17,2	19,5	38,3	22,7
	21	After the migration I used different sources.	1,6	25	14,1	32,8	26,6
Governance (3 items)	22	After the migration, I had difficulties in classroom management.	17,2	37,5	14,8	23,4	7
	23	I did not have any difficulty in adapting the students who came with immigration to the lesson.	7,8	25,8	21,9	30,5	14,1
	24	After the migration, my in-class communication with the students in the class decreased.	2,8	54,7	8,6	9,4	1,6
	25	After the migration, I had problems in managing the flow of the course content.	19,5	42,2	21,1	14,1	3,1
Evaluation	26	I had problems with assessment and	14,1	32	23,4	22,7	7,8

		evaluation after the migration.				
27	After the migration, I evaluated myself in which aspects I was deficient in the teaching process.	3,9	14,1	10,2	49,2	22,7
28	I easily applied the measurement tools I had used before the migration.	3,1	20,3	27,3	28,9	20,3
29	I diversified the measurement tools I had used before the migration.	3,1	18,8	17,2	34,4	26,6
30	After the migration, I prepared easier questions for assessment and evaluation.	3,1	16,4	16,4	45,3	18,8

There are 5 negative items among 30 items. These items are 12th, 22nd, 24th, 25th and 26th items. The first two items (items 1 and 2) are related to the lesson plan and teachers generally responded positively to these items. 50% of the teachers responded positively to item 1 and 47.8% to item 2. It can be said that most of the teachers do not have problems in lesson planning.

Items 3 to 7 are the items related to the introduction to the lesson. Teachers gave positive answers in all of the items. 54,7% of the teachers responded positively to item 3, 46,1% to item 4, 68% to item 5, 75% to item 6 and 73,4% to item 7. The item with the least positive response, item 4, is related to students' motivation for the lesson. However, it can be inferred that teachers generally do not have problems in the introduction to the lesson.

Items 8 to 21 are items related to the content of the course. Of these items, only item 23 is a negative item. For item 9, most of the teachers gave negative answers. For item 14, most of the teachers gave mixed answers, although most of them were positive (58,8% for item 8, 68,8% for item 10, 67,9% for item 11, 60,4% for item 12, 60,2% for item 13, 47,7% for item 14, 47,7% for item 15). item 47,7%, 15. item 71,1%, 16. item 58,6%, 17. item 75,8%, 18. item 59,3%, 19. item 69,5%, 20. item 61% and 21. item 59,4%). In this respect, it can be said that most of the teachers did not have any problems related to the content. Apart from this, the majority of the teachers responded positively to the remaining items. In the 9th item, "I easily applied the teaching methods/techniques I used before migration", most of the teachers stated that the students who came with migration did not communicate with the teachers. In the 12th item, there is a negative meaning about time management. Most of the teachers stated that they had problems in making time. The 14th item is actually related to time management in a sense. Some of the teachers stated that they returned to traditional teaching.

Items 22 to 25 are related to the method. All items except item 23 are negative items. It is seen that teachers gave a positive answer (44,6%) only in the 23rd item. In this respect, it can be concluded that teachers do not have any problems related to the teaching method.

Items 26 to 30 are related to the evaluation dimension. Item 26 is a negative item. However, when the items were analysed, it was observed that most of the teachers gave positive answers

(26th item 46,1%, 27th item 71,9%, 28th item 48,9%, 29th item 61%, 30th item 64,1%). In addition, teachers had to diversify the measurement tools after migration. This was observed in item 29. In item 28, the statement "I easily applied the measurement tools I used before migration." is included. It was observed that the rate of positive responses to this item was lower than the other items. From this point of view, it can be concluded that the teachers changed the measurement tools.

Table 5. *Analysing the questionnaire according to gender*

Survey item	$X2$	Df	P
I1	5,791	4	,220
I2	7,125	4	,130
I3	,844	4	,936
I4	,867	4	,934
I5	,721	4	,947
I6*	**,770**		**,958**
I7*	**1,996**		**,770**
I8	5,229	4	,273
I9*	**7,026**		**,128**
I10	1,065	4	,916
I11	3,827	4	,441
I12	3,021	4	,566
I13	4,355	4	,373
I14	2,409	4	,704
I15	4,406	4	,370
I16	3,172	4	,548
I17*	**3,876**		**,428**
I18	2,435	4	,680
I19	1,084	4	,898
I20	5,709	4	,227
I21	11,727	4	,014
I22	5,861	4	,213
I23	3,917	4	,424
I24*	**,814**		**,973**
I25	4,548	4	,346
I26	7,406	4	,116
I27	5,990	4	,201
I28	4,332	4	,374
I29	1,545	4	,826
I30	3,869	4	,441

Since items S6, S7, S9, S17, S24 did not fulfill the chi-square validity, Fisher's Exact Test was applied. When Table 5 is analysed, it is seen that the P value of all items is greater than 0.05. Therefore, there is no significant difference in terms of gender difference in the effect of migration caused by earthquake on teachers' teaching.

Table 6. *Analysing the questionnaire according to professional experience*

Survey item	$X2$	Df	P
S1	16,979		,025
S2	10,195		,250
S3	3,601		,913
S4	6,044		,652
S5	6,346		,616
S6	5,058		,769
S7	4,705		,815
S8	5,124		,761
S9*	4,788		,801
S10	9,815		,256
S11	9,171		,308
S12	9,073		,322
S13*	10,392	8	,240
S14	5,453		,721
S15	9,387		,274
S16	10,302		,208
S17	5,981		,657
S18	6,358		,605
S19	5,606		,702
S20	3,341		,937
S21	7,508		,457
S22	5,092		,762
S23	6,161		,639
S24	12,564		,085
S25	8,164		,399
S26	7,919		,441
S27	11,424		,153
S28	2,110		,989
S29*	6,645	8	,591
S30	12,433		,106

Chi-square test was applied to items S13 and S29. Fisher's Exact Test was applied for the remaining questionnaire items. When all questionnaire items were analysed, it was observed that the P value was greater than 0.05. Therefore, it can be stated that professional experience does not make a significant difference in the questionnaire questions. In addition, the regions where the teachers were located were not analysed. This is because the sample numbers in these variables are not close to each other.

4. Conclusion, Discussion and Recommendations

When the results obtained from the research are considered in general, it can be stated that mathematics teachers working at the secondary school level do not have problems in planning the lesson, attracting attention and content, while there are returns to traditional teaching in the teaching process, they have problems in classroom management and mathematics teachers have difficulties in assessment and evaluation.

When analysing the research results, it was found that most of the teachers participating in the study were female (57%). It is noteworthy that most teachers had 11-20 years of professional experience (41.4%) and 35.2% had 1-10 years of professional experience. At least 2.3% of teachers with more than 30 years of professional experience were included in the study group. For this reason, it can be said that the teachers participating in the survey are young but have a certain experience. As a matter of fact, in general, there were no major problems in terms of adaptation in the education process in the provinces receiving immigration.

The data of the study were collected in 7 regions of Turkey. For this reason, it can be said that this research can provide a certain level of framework for the effectiveness of mathematics teaching in the provinces that received immigration after the earthquake in Turkey. Most of the data were collected in Marmara region (32%). Then, data were collected from Eastern Anatolia (21.9%) and the Mediterranean region (10.9%). The data collected from 30 different provinces of Turkey were mostly from Istanbul. This was followed by Elazığ, Gaziantep and Hatay.

The questionnaire consists of 30 items. These items were divided into 5 categories: Lesson Planning, Introduction to Teaching, Presentation of the Content of Teaching, Management, and Evaluation. Teachers generally responded positively to the lesson planning questions (1-2). It can be said that most teachers have no problems with lesson planning. Almost all of the questions regarding introduction to teaching (3-7) were answered positively by the teachers. This shows that teachers generally do not have problems with lesson introduction. Teachers should prefer content such as videos, animations, etc. to attract students' attention (Özbay, 2015). The item that received the least number of positive responses is related to students' motivation for the lesson.

The items related to the content of the course are (8-21). In this regard, it can be said that most of the teachers have no problems with the content and teaching method. However, it was found that some of the teachers return to traditional teaching. This situation is in contrast with the research on distance education that was used during the pandemic period. Aydın (2002) stated that in the distance education process, teachers are the ones who lead the learning process and guide the students. In this study, it was found that teachers returned to traditional teaching.

It was found that gender did not cause a statistically significant difference in the effect of earthquake-induced migration on teaching. On the other hand, in the management dimension (22-25), most teachers reported that students who came with migration did not communicate with teachers and had problems with time management. Similarly, according to Nar (2008), students in schools that receive immigration experience adaptation problems and as a result they show aggressive and introverted behaviors. It was found that teachers did not have problems with teaching method, but there were teachers who had problems with measurement

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and assessment (26-30), and teachers had to diversify measurement tools after migration. Akkoç et al. (2009) found that not enough is learned about measurement and assessment in teacher education and that prospective teachers' knowledge and skills about measurement and assessment are insufficient in their professional lives. When all survey items were analysed, it was found that the P value was greater than 0.05. Therefore, it can be said that work experience does not cause a statistically significant difference in the survey questions. However, the influence of the variables by region was not analysed. This is due to the fact that the sample numbers for these variables are not close.

This study was conducted to obtain detailed information about the difficulties of mathematics teachers in the provinces that migrated to our country after the earthquake, as well as the management of mathematics courses and the effectiveness of teaching. It is recommended that the study be conducted in different subjects and at different teaching levels. Moreover, this situation can be investigated in future studies using this questionnaire for any mathematics subject or concept. It is also considered that in-service education could be important in this regard. When the distance education process started due to the pandemic, the importance of in-service education was emphasised by researchers (Bozkurt et al., 2020; König, Jaeger-Biela & Glutsch, 2020). Therefore, in-service education programmes can be designed in this regard. In addition, as a result of the data obtained from this research, textbooks containing almost all elements of a course can be revised for such situations. For example, textbooks containing more diverse measurement and evaluation methods can be designed. Or, similarly, textbooks containing different teaching methods can be arranged.

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