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DETERMINATION OF THE KNOWLEDGE LEVEL OF THE TECHNICAL STAFF ABOUT ARBITRATION

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Abstract: Türkiye has become one of the world's leading countries in the construction sector in the international arena. Today, the use of FIDIC and similar standard contracts is increasing in Turkish contractor companies. In parallel with this situation, it also becomes more common to prefer arbitration in the settlement of disputes in the international construction sector. In the literature, there is no actual publication about the knowledge level of technical staff on arbitration. By taking this deficiency into consideration, the purpose of this study is to measure the awareness of the groups working in the construction sector about the possibility of applying to arbitration as a result of the disputes that they encounter, by measuring the arbitration knowledge level of the technical staff. Accordingly, an empirical field work was conducted with a total of 100 (one hundred) technical staff working in the public and private sector transportation projects in Istanbul. The data collection tool that was used in the research is a questionnaire developed by the researchers and consisting of 25 questions. In the survey analysis, the data were analyzed with the SPSS 28 package program. In the study, a reliability test was conducted for each statement and the Mann-Whitney U test was used. As a result of the analysis, it has been determined that 84.4% of the participants do not follow up the actual developments in the field of arbitration in the world and in Türkiye, and do not have sufficient knowledge about arbitration. However, it has been determined that the arbitration knowledge level of the participants, who follow up the actual developments in the world and in Türkiye and have sufficient knowledge about arbitration, is high. In addition, it has been determined that 93.8% of the participants would like to participate an information training to be held on arbitration. To increase awareness about arbitration, it is necessary to introduce undergraduate-level arbitration courses for technical staff in engineering and architecture faculties at universities, and to organize periodic in-service training programs by the arbitration centers in our country.

Keywords: Arbitration, Construction law, Alternative dispute resolution ways, Knowledge level, Contract management

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1. Introduction

Türkiye is ranked Number Two after China in the list of the world's top 250 international contractors that has been published in 2022 by the "Engineering News Record" Magazine, which is recognized and approved by all authorities in the world. This situation demonstrates the active involvement of Turkish contractors in the construction sector in many countries around the world. During the implementation of construction projects, managing time, cost, and quality is crucial. Due to the complexity and scale of construction projects, disputes often arise among the parties involved in the management of these elements. Hence, the importance of choosing the right method for resolving disputes becomes evident in both domestic and international construction projects.

The disputes in the construction sector are one of the constant components of projects. The tools selected in the resolution process and the dispute resolution method can lead a successful project to failure and even change the fate of a project. When literature research is conducted in this field, we conclude that there are many dispute resolution methods. By considering that the key to achieving easy and accurate results in the resolution of disputes is selection of the right solution, it can be stated that it is important for the parties to be aware of various dispute resolution methods and make a relevant assessment and take a decision accordingly.

Arbitration, as discussed and analyzed in this article, refers to the resolution of a dispute between two or more parties as a result of a legal process where an independent and impartial board considers the dispute and makes a binding decision accepted by all parties (Ossman et al., 2010). Pürselim (2021) defines arbitration as an agreement between the parties for the final and binding settlement of disputes that have arisen or may arise between two or more persons within the scope of the matters permitted by law to be resolved by arbitration, through independent persons called arbitrators instead of courts. Pekcanıtez et al. (2017)

defines it as resolving disputes through a judicial process through impartial and independent arbitrators. The term Arbitration, as discussed in the field of private law, is commonly used in the construction sector and is defined as a dispute resolution method in international construction contracts. Arbitration currently represents a significant part of the dispute resolution dynamic of the construction sector. The increasing use of arbitration in the construction sector increases the necessity of this research. At this point, the important point is the ability to answer the question on the awareness of the managers, architects and engineers working in the sector at all levels of these opportunities and developments. Müngen and Kuruoğlu (2000) have emphasized in their study that technical staff are generally directed towards design and construction, but employers should now have knowledge in law and economics as well as their knowledge in architecture and engineering. In this article, which particularly deals with the Arbitration of Construction Disputes, it is aimed to measure the awareness of the groups working in the construction sector about the possibilities of making an application to Arbitration as a result of the disputes that they encounter in the sector.

There are many reasons for the parties to choose arbitration. Arbitration is faster than courts because the backlog in courts is very high. The arbitrators selected by the parties in arbitration are experts who know the subject of the dispute well. Arbitration awards are binding and enforceable. In addition, trade secrets are kept confidential in arbitration (Gürbüz, 2023).

Although mediation and arbitration, one of the Alternative Dispute Resolution Methods, are similar in appointing a neutral third party, in arbitration, the arbitrator makes a binding decision due to the judgment, while in mediation, the dispute is resolved without a judgment.

Arbitration is a commonly-used method for fast, impartial and reliable decisions on dispute resolution in many countries around the world. Today, arbitration centers are founded in every country in the world so that disputes can be resolved and decided in their own country (Akıncı, 2013). There are more than 200 arbitration centers in the world, and the number of the arbitration centers is increasing. The remarkable arbitration centers are the International Chamber of Commerce (ICC), the International Center for Settlement of Investment Disputes (ICSID), the Arbitration Institute of the Stockholm Chamber of Commerce (SCC), the World Intellectual Property Organization's Arbitration Court (WIPO), the United Nations Commission on International Trade Law (UNCITRAL) and the London Court of International Arbitration (LCIA), etc.

The arbitration centers in Türkiye are the Istanbul Arbitration Center (ISTAC), Union of Chambers and Commodity Exchanges of Türkiye (TOBB) Arbitration Court, Istanbul Chamber of Commerce Arbitration and Mediation Center (ITOTAM), Energy Disputes Arbitration Center (EDAC) and Organization of Islamic Cooperation (OIC) Arbitration Center. When the data of the International Chamber of Commerce (ICC) are reviewed today, approximately 25.000 cases have been heard since its foundation. The disputes in approximately 20 fields such as construction, mining, energy, transportation, production, telecommunications, finance, manufacturing and sports have been resolved through arbitration. According to the 2019 data, construction and energy sectors account for 40% of the total number of arbitration cases, with 210 cases in construction sector and 140 cases in energy sector, and this ratio is increasing progressively (ICC, 2020).

An arbitration agreement must be prepared before the dispute arises between the parties. This agreement should include headings such as the number of arbitrators, how they will be appointed and their qualifications, the place of arbitration, the remedies to be applied before arbitration, arbitrator fee, arbitration costs, provisional legal protection measures, confidentiality, and the duration of arbitration. The proceedings start with the application of one of the parties. The selected arbitrators request a reply from the parties, and a decision is rendered after a hearing or a review of the file (Pekcanıtez et al., 2017).

From 2019 to 2020, the average value of disputes worldwide has increased significantly to approximately 54.26 million USD, while the overall number of disputes has remained relatively same (Arcadis, 2022). The interests of the parties in the construction sector cause conflicts of interest and disagreements (Çevikbaş and Köksal, 2018). Thus, the construction sector is the leader in terms of the number of disputes (Gebken et al., 2005). Pekcanitez (2010) has emphasized in his study that there is a lack of information about arbitration in the public and that Arbitration is misunderstood. Alpkökin (2017), as a result of a survey conducted among 11 contractor and consultant company officials, found that the satisfaction level of the companies knowing arbitration was high. Dalmaz (2012) emphasized that the level of knowledge of construction companies that are members of the Turkish Contractors Association on arbitration should be determined.

When we today look at the reasons for preferring Arbitration in the world, these reasons are that disputes are resolved faster than the state jurisdiction and there is no publicity. Currently, the number of applications to arbitration is progressively increasing in the international arena due to its more positive aspects (Pekcanitez et al., 2017). In addition, the ability of the parties to determine the arbitration procedure within the framework of freedom of will in the dispute resolution process, to choose the place, language, applicable law, arbitrators, and arbitrators appointment procedure, and to complete the arbitration proceedings within the specified period make arbitration even more critical (Yılmazsoy, 2020).

2. Materials and Methods

The prepared survey form was designed to measure the level of knowledge among technical staff working in the construction sector transportation projects regarding their opportunities to resort to arbitration in case of disputes. A total of 100 technical staff (including civil engineers, architects, and other engineers) working in public and private sector transportation projects in Istanbul constitute the sample of the research. The sample size was confirmed to be sufficient by employing the Kirsh sampling formula (Kirsh, 1965). The reason for selecting technical staff in transportation projects is the longer duration and higher cost required for the construction of these projects.

Before the survey questions were prepared, a detailed literature review was conducted on Arbitration, and a questionnaire form with 25 questions was prepared according to the purpose of this study. Expert opinions were utilized for the scope validity of the survey, and the comprehensibility of the survey questions was assessed by academic professionals working in the field of arbitration, evaluating the measurement properties of each question. Experts rated the questions as 'appropriate, should be revised, and inappropriate,' thereby assigning a scoring to each question. Consequently, the calculated Content Validity Index (CVI) value was found to be above 0.80 for all items. This determined value was deemed suitable for content validity (Polit et al., 2007; Delgado Rico et al., 2012).

The questionnaire that was used as a data collection tool consists of 3 sections. The first section consists of optional questions asked to determine the demographic information of the participants. The second section was prepared based on a 3-point Likert scale (True, False, I do not know) to measure the arbitration knowledge level of the participants. The last section consists of 'Yes' and 'No' questions intended to enable the participants to determine the situation. Accordingly, the first 6 questions were created to obtain information about the demographic characteristics of the participants. The following 14 questions aim to measure the level of arbitration knowledge. The 5 questions in the last section aim to determine the relationship and status of technical staff with arbitration. In the second section which consists of 14 questions to determine the level of knowledge, each correct answer was accepted as 1 point, and a knowledge score of 0 to 14 was created for each participant of the survey. The knowledge levels of the participants were classified in five categories as 'Very Low', 'Low', 'Medium', 'Good' and 'Very Good' according to their answers. The calculated score ranges were obtained by dividing the total score by five. The answer of the participants, who marked the option "I do not know", was accepted as "Wrong".

The data regarding the knowledge level assessment criteria are provided in the Table 1. The questionnaire was applied to 100 technical staff completely optionally in face-to-face interviews and remotely. As 4 of the participants filled the questions uniformly, they were not included into the analysis.

Table 1. Knowledge level assessment criteria

Factor Assessed	Score Range	Assessment Criteria
Arbitration Knowledge Level	$0 \leq x \leq 2$	Very Low
	$3 \leq x \leq 5$	Low
	$6 \leq x \leq 8$	Medium
	$9 \leq x \leq 11$	Good
	$12 \leq x \leq 14$	Very Good

Assessment of the data obtained in the research: The data obtained from the participants, who filled in the survey, were collected at the Web Page of the survey website, and when the survey application was completed, such data were transferred to the Statistical Package for The Social Sciences (SPSS) 28.0 package program, and the analyzes were continued through this program. To select the right statistical analysis and achieve consistent results in the research data, it was first tested whether the questions included into the questionnaire form were normally distributed. The kurtosis and skew values were examined for the normality distribution, and it was determined that the data groups in the study were not normally distributed, because the value indicated by George and Mallery (2019) was not between +2 and -2. However, Kolmogorov-Smirnov test is used if the sample size is equal to and above 29, and Shapiro-Wilk test is used if it is less than 29 (Kalaycı, 2006). For this reason, the significance value of the Kolmogorov-Smirnov test conducted in the research data group was tested as less than 0.05 ($0.00<0.05$), and it was determined that the research data groups were not normally distributed. Due to the abnormal distribution of the research data groups, the Mann-Whitney U test, which is known as the strongest test among the non-parametric tests (Baştürk, 2010), was applied in this study. The Mann Whitney U test assesses whether the rank is different between the two groups by comparing the medians of the two groups (Karagöz, 2016).

Before starting the survey application, a pilot study was conducted on a group of 25 individuals to test whether the survey items were understood correctly. Following the feedback from the group members and expert opinion; the survey study was finalized. Besides, reliability test was applied for each question included into the questionnaire form. The reliability test is defined as the consistency between the answers given to the survey questions by the participants. In other words, it demonstrates how accurately the questionnaire measures the answers. As a result of the reliability analysis, the Cronbach's Alpha (α) value was determined as 0.817. A value of $0.80<\alpha<1.00$ shows that the survey is highly reliable (Karagöz, 2016).

3. Results

The information about the demographic characteristics of the technical staff participating in the research is provided in the Table 2.

Table 2. Demographic characteristics of the participants

Characteristic	Category	n	%
Profession	Civil Engineer	57	59.4
	Architect	12	12.5
	Mechanical Engineer	3	3.1
	Electrical Electronics Engineer	6	6.3
	Other	18	18.8
Education	Associate Degree	3	3.1
	Bachelor's Degree	48	50.0
	Master's Degree	33	34.4
	Doctorate	12	12.5
Position in the Company	Project Manager	39	40.6
	Engineer	27	28.1
	Chief	12	12.5
	Other	18	18.8
Experience	Less than 5 years	30	31.3
	6-10 Years	21	21.9
	11-15 Years	15	15.6
	16-20 Years	6	6.3
	More than 20 years	24	25
Field of Activity of the Company	Construction	57	59.4
	Electrics Electronics	3	3.1
	Design	9	9.4
	Cost Planning	15	15.6
	Other	12	12.5
Working Area	Private Sector	81	84.4
	Public	15	15.6

When the professional status of the participants in the research is examined, it is observed that they are mostly civil engineers (59.4%) is. In terms of education, it is concluded that the majority of the participants (50%) have a bachelor's degree. Those that have postgraduate degrees account for 46.9% of the participants. In the research, the participants mostly consist of the individuals working in the position of project managers (40.6%). The lowest ratio among the overall participants is those individuals working in the position of chief (12.5%). It was determined that the majority of the participants have worked in the sector for less than 5 years (31.3%) and more than 20 years (25%). The majority of the participants (59.4%) work in the construction sector. This field of activity is followed by cost planning (15.6%). When the working area of the participants in the research is examined, it is observed that private sector (84.4%) is approximately 5 times higher than public sector (15.6%). When the relationship between profession and field of activity is examined, all Architects, Electrical-Electronics Engineers and Mechanical Engineers work in private sector. The frequency analysis regarding the answers given to the statements in the arbitration knowledge level scale is provided in the Table 3.

When the answers given by the technical staff to the statements provided in the scale are examined to determine the arbitration knowledge level, it has been concluded that the statement *"Arbitration is generally resolved faster than public jurisdiction."* is the most correctly answered statement with a ratio of 84.4%. Among all statements, the statement with the highest number of wrong answers is *"Arbitration award is final and binding. Also, it is not subject to appeal"* with a ratio of 56.3%. The statement "*Arbitration awards taken in the arbitration proceedings held abroad are also enforced (recognized) in Türkiye."* received the highest number of I Do Not Know answers (50%).

The participants received a minimum of '0 points' and a maximum of '14 points' from the arbitration knowledge level test. 37% of the participants received a good or very good point. The knowledge level of the participants was classified as "very low", "low", "medium", "good" and "very good" according to the points that they received. The data about the knowledge level of the participants on arbitration is provided in the Figure 1.

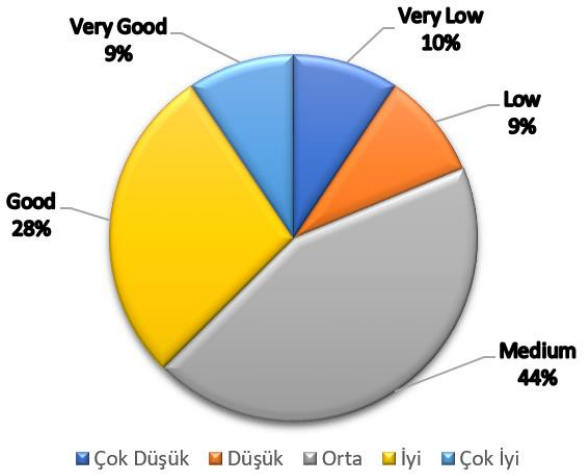

Figure 1. Arbitration knowledge level of participants.

The information about the determination of the situation by the technical staff participating in the research is provided in the Table 4.

Among the statements asked to the technical staff for the purpose of determination of the situation; the question *"Would you consider participating in an arbitration information training?"* received the highest number of Yes answers with a ratio of 93.8%. Among all statements, the highest "No" answer with a ratio of 84.4% was given for the questions *"Do you follow up the actual developments about Arbitration in the world and in Türkiye?"* and *"Do you think that you have sufficient knowledge about arbitration?"*.

Table 3. Frequency analysis regarding the arbitration knowledge statements

	True		False		I do not know		$\bar{X}$	StdDev
	n	%	n	%	n	%		
1. Construction disputes are allowed to be resolved through arbitration by arbitrators instead of national courts.	66	68.8	3	3.1	27	28.1	1.59	0.901
2. Arbitration is generally resolved faster than public jurisdiction.	81	84.4	3	3.1	12	12.5	1.28	0.676
3. Arbitration award is final and binding. Also, it is not subject to appeal.	24	25	54	56.3	18	18.8	1.94	0.662
4. Arbitration is relatively less costly.	57	59.4	21	21.9	18	18.8	1.59	0.789
5. There is an Arbitration Center in Türkiye.	45	46.9	12	12.5	39	40.6	1.94	0.938
6. Arbitration process is confidential. (unless formal litigation is initiated in the future)	45	46.9	21	21.9	30	31.3	1.84	0.875
7. Parties may determine the process according to their own conditions.	60	62.5	6	6.3	30	31.3	1.69	0.921
8. During the arbitration process, parties may propose other solutions for settlement.	78	81.3	3	3.1	15	15.6	1.34	0.737
9. Arbitration proceedings including the hearings are not open to the public.	42	43.8	21	21.9	33	34.4	1.91	0.884
10. Personal data of the parties is protected against each other and against third parties.	75	78.1	3	3.1	18	18.8	1.41	0.789
11. Parties may select arbitrators.	42	43.8	24	25	30	31.3	1.88	0.861
12. Arbitration awards may be enforced like court orders.	66	68.8	0	0	30	31.3	1.63	0.932
13. Parties may agree on the venue of the arbitration, language of the arbitration and the arbitration rules and laws to be applied for the arbitration.	27	28.1	33	34.4	36	37.5	2.09	0.809
14. Arbitration awards taken in the arbitration proceedings held abroad are also enforced (recognized) in Türkiye.	39	40.6	9	9.4	48	50.0	2.09	0.952

Table 4. Frequency analysis of the statements about determination of the situation

	Yes		No		$\bar{X}$	StdDev
	n	%	n	%		
15. Do you follow up the actual developments about Arbitration in the world and in Türkiye?	15	15.6	81	84.4	0.16	0.365
16. Do you think that you have sufficient knowledge about arbitration?	15	15.6	81	84.4	0.16	0.365
17. Would you consider participating in an arbitration information training?	90	93.8	6	6.3	0.94	0.243
18. Would you add an arbitration clause in the contracts that you will make in your organization?	78	81.3	18	18.8	0.81	0.392
19. Did the contracts department in your company inform you about the arbitration process?	18	18.8	78	81.3	0.19	0.392

3.1. Test of the Difference in Terms of the Arbitration Knowledge Score of the Participants and the Status of Following up the Actual Developments About Arbitration

The Mann-Whitney U test results for the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement ''Do you follow up the actual developments about Arbitration in the world and in Türkiye?'' are provided in the Table 5.

H_0: There is no difference between the Arbitration Knowledge Score of the Participants and the Status of Following up the Actual Developments about Arbitration.

H_1: There is difference between the Arbitration Knowledge Score of the Participants and the Status of Following up the Actual Developments about Arbitration.

Table 5. Mann-Whitney test results between the statement S15 and the arbitration knowledge level

	Yes	No
n	15	81
Mean rank	70.70	44.39
Mean total	1060.50	3595.50
U value	274.50	
z	-3.558	
P	0.000	

Accordingly, it was determined that there is a significant difference between the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement S15 (z=-3.558, P<0.05). For this reason, the H_1 hypothesis was accepted. When the mean rank is taken into consideration, it is concluded that the participants who answered Yes to the S15 statement have a higher arbitration knowledge level than those who answered No.

3.2. Test of the Difference between the Arbitration Knowledge Level Score of the Participants and the Answer Given to the Question Do You Think That You Have Sufficient Knowledge about Arbitration?

The Mann-Whitney U test results for the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement ''Do you think that you have sufficient knowledge about arbitration?'' are provided in the Table 6.

H_0: There is no difference between the Arbitration Knowledge Level Score of the Participants and the answer given to the question Do you think that you have sufficient knowledge about arbitration?

H_2: There is difference between the Arbitration Knowledge Level Score of the Participants and the answer given to the question Do you think that you have sufficient knowledge about arbitration?

Table 6. Mann-Whitney test results between the statement S16 and the arbitration knowledge level

	Yes	No
n	15	81
Mean rank	74.30	43.72
Mean total	1114.50	3541.50
U value	220.50	
z	-4.136	
P	0.000	

Accordingly, it was determined that there is a significant difference between the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement S16 (z=-4.136, P<0.05). For this reason, the H_2 hypothesis was accepted. When the mean rank is taken into consideration, it is concluded that the participants who answered Yes to the S16 statement have a higher arbitration knowledge level than those who answered No.

3.3. Test of the Difference between the Arbitration Knowledge Level Scale of the Participants and Their Demands to Receive Information Training on Arbitration

The Mann-Whitney U test results for the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement ''Would you consider participating in an arbitration information training?'' are provided in the Table 7.

H_0: There is no difference between the Arbitration Knowledge Level Scale of the Participants and their Demands to Receive Information Training on Arbitration.

H_3: There is difference between the Arbitration Knowledge Level Scale of the Participants and their Demands to Receive Information Training on Arbitration.

Table 7. Mann-Whitney Test results between the statement S17 and the arbitration knowledge level

	Yes	No
n	90	6
Mean rank	47.95	56.75
Mean total	4315.50	340.50
U value	220.50	
z	-0.793	
P	0.428	

Accordingly, there is no difference between the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement S17 (z=-0.793, P>0.05). For this reason, the H_0 hypothesis was accepted.

3.4. Test of the Difference between the Arbitration Knowledge Level Scale of the Participants and Their Actions of Adding an Arbitration Clause in the Contracts

The Mann-Whitney U test results for the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement ''Would you add an arbitration clause in the contracts that you will make in your organization?'' are provided in the Table 8.

H_0: There is no difference between the Arbitration Knowledge Level Scale of the Participants and their Actions of Adding an Arbitration Clause in the Contracts.

H_4: There is difference between the Arbitration Knowledge Level Scale of the Participants and their Actions of Adding an Arbitration Clause in the Contracts.

Table 8. Mann-Whitney Test results between the statement S18 and the arbitration knowledge level

	Yes	No
n	78	18
Mean rank	50.23	41.00
Mean total	3918.00	738.00
U value	567.00	
z	-1.342	
P	0.180	

Accordingly, there is no difference between the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement S18 (z=-1.342, P>0.05). For this reason, the H_0 hypothesis was accepted.

3.5. Test of the Difference between the Arbitration Knowledge Level Scale of the Participants and the Level of Providing Information by the Contracts Department in the Organization

The Mann-Whitney U test results for the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement ''Did the contracts department in your company inform you about the arbitration process?'' are provided in the Table 9.

H_0: There is no difference between the Arbitration Knowledge Level Scale of the Participants and the Level of Providing Information by the Contracts Department in the Organization.

H_5: There is difference between the Arbitration Knowledge Level Scale of the Participants and the Level of Providing Information by the Contracts Department in the Organization.

Table 9. Mann-Whitney Test results between the statement S19 and the arbitration knowledge level

	Yes	No
n	18	78
Mean rank	68.50	43.88
Mean total	1233.00	3423
U value	342.00	
z	-3.579	
P	0.000	

Accordingly, it was determined that there is a significant difference between the points received from the arbitration knowledge level scale of the participants who answered Yes or No to the statement S19 (z=-3.579, P<0.05). For this reason, the H_5 hypothesis was accepted. When the mean rank is taken into consideration, it is concluded that the participants who answered Yes to the S19 statement have a higher arbitration knowledge level than those who answered No.

4. Discussion

The arbitration knowledge level of 63% of the technical staff participating in the research was very low, low, and medium. The main reason more than half of the participants' knowledge level was medium and below is the lack of courses such as construction law and contract management in undergraduate education at universities. Therefore, architects and engineers must include more legal courses in their education processes to raise awareness of dispute resolution methods. In addition, due to insufficient training and conferences on arbitration held by arbitration centers and professional chambers in Türkiye, the level of knowledge remains moderate and below. Similarly, Müngen and Kuruoğlu (2000) emphasized in their study that the knowledge of the technical staff is oriented towards design and construction. Still, employers should now know law, economics, architecture, and engineering.

84.4% of the participants answered "No" to the questions "Do you follow the current developments in arbitration in the world and Türkiye?" and "Do you think you are sufficiently knowledgeable about arbitration?". The technical staff's score on the arbitration knowledge level supports these data. Due to the size and complexity of foreign-funded construction projects in Türkiye and the projects undertaken by Turkish contractors abroad, many disputes arise between the parties. In such comprehensive and international projects, the arbitration knowledge of technical staff comes to the fore. Technical staff who do not follow the current developments in arbitration and are not sufficiently knowledgeable in arbitration experience problems in the arbitration process due to insufficient construction law knowledge in the companies they work for. Similar to this result, Pekcanıtez (2010), Arıcı (2012), İlter and Dikbaş (2011), and Daşdelen (2006) emphasized the lack of knowledge on arbitration in their studies. In addition, Pamuklu (2015) surveyed architects, engineers, lawyers, and academic staff with arbitration experience in Türkiye and found that 46.15% of the respondents had medium and low levels of arbitration knowledge. In the same survey, it was determined that only 5.88% of the participants had a medium level of knowledge, and the rest had a high and very high level of knowledge.

It was determined that the level of arbitration knowledge of the participants who follow the current developments in arbitration in the world and Türkiye, who consider themselves sufficiently knowledgeable about arbitration, and who are informed by the contract department is high. Technical staff who attend arbitration-related training and conferences better understand legal processes and can manage arbitration processes effectively.

When the participants were asked to evaluate themselves, 84.4% thought they did not have enough information about arbitration, and 93.84% stated that they would like to participate in information training on arbitration. We observe that the participant's responses to the self-assessment question align with the survey's general score evaluation results. It has been determined that even the respondents with a 'very good' score would like to receive more training on arbitration. This study is in parallel with the finding that 90% of the company lawyers interviewed in the study Mistelis (2004) would like to receive more training although they view themselves as knowledgeable about arbitration.

A relationship could not be established between the knowledge level of the participants and the actions of adding an arbitration clause in their contracts. However, when the knowledge level of the technical staff reaches a particular level through provision of the necessary

training, it will be possible to ensure that they will add an arbitration clause in the contracts. Currently, a significant relationship could not be established due to the lack of sufficient knowledge.

5. Conclusion

This study aims to measure the level of arbitration knowledge of technical staff working in public and private sector transport projects in Istanbul. Firstly, a questionnaire consisting of 25 questions was designed by making a detailed literature review on arbitration and taking expert opinion in this field. This study applied descriptive statistics, reliability analysis, and the Mann-Whitney U test.

It was examined whether there is a difference between the questions asked to determine the situation and the arbitration knowledge level questions. As a result of this examination, the hypotheses H_1, H_2 and H_5 were accepted and the hypotheses H_3 and H_4 were rejected. The technical staff who keep up with current developments in arbitration and undergo informative training exhibit a higher level of arbitration knowledge. The majority of technical staff participating in the survey in transportation projects (63%) were classified with moderate, low, or very low levels of arbitration knowledge. In addition, 93.84% of the participants stated that they would like to attend an information training on arbitration.

Due to the limited number of studies regarding the arbitration knowledge level of the technical staff, the awareness of the technical staff working in the public and private sector transportation projects in Istanbul regarding arbitration was presented in this study, and attention was drawn to the necessity of introducing an Arbitration course at the undergraduate education level for technical staff at the engineering-architecture faculties of universities and the provision of professional trainings by the arbitration centers in our country. By increasing the awareness of technical staff in this manner regarding arbitration, it can enable the resolution of disputes in the construction sector through the mediation of arbitrators chosen by the parties involved, rather than resorting to the court, leading to a faster and more cost-effective resolution process. With the future studies, this study could be further improved by applying a questionnaire form to more participants, not only to the technical staff working in the transportation projects.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	H.B.	A.C.
C	60	40
D	60	40
S	40	60
DCP	70	30
DAI	60	40
L	60	40
W	60	40
CR	60	40
SR	100	
PM	60	40
FA	50	50

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Consideration

Ethics Committee Approval was obtained for the survey study included in this article with the decision No: 2022/193 in the session held at 13.30 on the date: 21.10.2022 of the Ethics Committee of Social Sciences and Humanities of Harran University.

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