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**Scientific research and publication ethics:  
Kocaeli University sample**

*By* Leyla ŞENOL <sup>†</sup>

**Abstract.** Today, as a big problem, it is very important to follow the ethical rules and to increase the awareness in order to prevent ethical violations and to provide ethical education in all levels of education and teaching. The first aim of this study is to create awareness among students who have higher education in the field of ethics and ethical violations. Another aim is to investigate whether there is any difference in attitude between undergraduate students and graduate students about scientific research, scientific publication, scientific ethics and ethical violation. According to the results of research analysis; based on the answers of the students to the scale,  $H_0$  hypotheses related to the research variables could not be rejected, and it has been realized that the attitude in the research variables of undergraduate and graduate students are similar.


**Keywords.** Science, Research, Publication, Ethics, Violation.


**JEL.** A14, A20.

## 1. Introduction

Compliance with international ethical rules is a requirement for the universality of scientific research. There is a need for determination to prevent violations by knowing or not knowing. It may not be expected that traditional attitudes will change rapidly for years, but it is a fact that every sector should do its part. The main reasons of unethical behaviours are incompatibility, ambition, economic reasons etc. Recognition of unethical behaviour may be in the process of publication. Therefore, before being shared with the society in the determination of scientific misconduct, the editorial boards and managers have great responsibilities towards the whole society. A scientific study must understand the universe correctly, follow a scientific path, take science as its foundation and the information should be beneficial for the humanity. In order for a study to reach a good result, scientific knowledge should be based on scientific evidence. It is very important for the individuals who deal with science not to give false and misleading information to the people. One of the most important issues in this context is the subject of ethical principles. Deception in science, fraud etc. must be concepts that would never come to mind. In most of the researches, the problem of plagiarism is encountered in each field of activity. Unethical behaviours are encountered in scientific processes for different reasons. In Higher Education Institutions Scientific Research and Publication Ethics Directive, the ethical rules that must be followed in publications and activities, duty, authorization and responsibilities of institutions of scientific research and publication ethics and working methods and principles have been

<sup>†</sup> Kocaeli University, Kocaeli Turkey.

 +90 (262) 351 34 82

 .leyla.senol@kocaeli.edu.tr

determined. The aim of this study is to determine the opinions of graduate students about unethical behaviours in scientific research. According to the results of the research, it was determined that unethical ownership in scientific researches, making scientific researches to others, not investigating the accuracy of the information, and deviating the data were exhibited. The reason for these behaviours is the factor such as avoidance of work load, lack of time, academic career, lack of knowledge and laziness Günbayı, et al. Article, one of the original scientific studies, must be compatible with original, valid and scientific values and it must be written in accordance with ethical principles (Canda, 1996). Adhering to the rules of ethics is important for the development of science, and the development of science has a significant impact on the development of societies. In this study, which tries to determine unethical behaviours in academic knowledge production, the importance of avoiding unethical behaviours especially of the academicians is emphasized. Awareness should be raised on this issue and even individuals should be educated by the trainings given at a young age. Even though there is not law, regulations and rules, it will be enough if individuals behave in an ethical way and comply with the ethical principles (İnci, 2009). In this study, which analysed if there is a relationship between the level of predisposition to ethical values of vocational school students and the income level of the parents, their education level and the place of residence, it has been found out that there is not a meaningful relationship with the factors except the students' gender and mother's education level (Üzüm & Sivrikaya, 2018).

Ethical violations in scientific studies undermine trust in science and affect the whole society. All individuals have a duty to respect ethical rules. In the study which examined the relationship between the perceptions of internet ethics of teacher candidates and perceptions of locus of control, a low level of significant relationship was found between pre-service teachers' perceptions of internet and locus of control (Tosun *et al.*, 2016). In the study conducted using the Structural Equation Model to determine the unethical behaviours encountered in the use of ICT, it has been determined that accuracy, social effects of information and communication technologies, copyright, and security were determined to be related to four sub-dimensions (Tosun, 2014). The importance and place of communication in the process of informing the society of the scientific research, unethical behaviours seen in ethical subject and scientific studies, and especially in terms of plagiarism education and library science (Uçak & Birinci, 2008).

Studies on scientific research and publication ethics are insufficient. Every study on this subject will contribute greatly to raising awareness. It is not possible for small steps taken to change the attitudes and behaviours that have become habitual for many years. In this study, it is aimed to create awareness among students who have higher education in the field of ethical and ethical violations and to investigate whether there is any difference between the undergraduate students and graduate students in terms of scientific research, scientific publication, scientific ethics and ethical violation.

## 2. Scientific researches

In a developing and changing world, science is essential in order for people to live easily, to survive and to progress. The theories and hypotheses are used to understand the universe. Science is a process that starts with problem detection and it is researched, analysed, evaluated and reported by international scientific methods. At this point, it is important to comply with the ethical principles. The basic principles that must be followed during the scientific research process are the principles of honesty and reliability. Scientific work must be in accordance with research methodology and research ethics. The data must be correct, the correct data

must be generated and the data belonging to someone else must be used with permission. All methods and resources used must be specified in the study. Otherwise, there will be an ethical violation. It is revealed that students do not have enough knowledge about the ethical rules applied in scientific research but they want to improve themselves (Özden & Ergin, 2013).

### 2. 1. Scientific publication

The accuracy of a scientific publication and its basis of research concern the whole society. Inaccurate publications affect not only the scientific community but the whole society. The purpose of scientific publication is to enable the use and development of science for the benefit of humanity through the sharing of knowledge. As stated in the Principles of Ethical Conduct of Higher Education Institutions, it should not be forgotten that the contents of the publication should be complete and accurate, it should be conformed with the principles of scientific ethics, it should not be under the influence of anything other than scientific facts and accuracy, the sources used should be stated in a complete way, and those who contributed should be acknowledged. While science can be defined as gaining reliable knowledge or fund of knowledge, research can be defined as finding the truth. When it comes to scientific research, data collection, analysis, and interpretation of results within the framework of certain rules come to mind. In this context, the researcher is the person who conducts the research, who rearranges the information he / she obtained and makes the information meaningful. The scientist is responsible for informing the society of what he/she produces. The way to do this is to share what has been produced with the world of science through books or articles. The scientific publication is carried out by publishing an original study in a peer-reviewed and scientific journal. In this context, the article should cover the following steps:

- Purpose of the research,
- Method of research,
- Application (if applicable),
- Discussion and conclusion (necessarily the innovation introduced by the research should be explained),
- References (Bulbul, 2004).

The importance of adhering to the ethical principles in scientific publications and taking measures to prevent any ethical violation and mentioning the issue in relevant environments are increasing day by day Özenç & Gülşen (2008). It is seen that scientific publications have increased in terms of ethical violations by using them as a criterion in academic development processes. It should be noted that this condition which is effective in academic career is not the only factor. The most important scientific violation is the violation of the principles of untrue, distortion, fabrication, fraud and forgery (Unal *et al.*, 2012). In the qualitative study which was conducted for the academic self-efficacy of the students according to their graduate educations in Turkish educational programs, it has been understood that even though the students have the knowledge over the subject, they are incapable of preparing a project and executing it. It was determined that the students did not know anything about science and research ethics during the thesis writing Aslan (2010). In the study conducted for determining the thoughts of graduate students about ethical rules applied in scientific researches, it has been revealed that students do not have enough knowledge about the ethical rules applied in scientific research but they want to improve themselves (Özden & Ergin, 2013). Everyone has to do their part to create opportunities for self-development and to prevent or reduce unintentional ethical violations. In the studies conducted, it is seen that the university students do not have

enough knowledge about the principles that they should follow about scientific research and publication. This raises the need for individuals to receive ethics training before starting their higher education. Efforts to develop individual awareness of responsibility should be increased.

### 2. 2. Scientific ethics

Scientific ethics is the findings to be obtained during the scientific research process and the rules to be followed during their publication. It is a requirement that guides researchers and places responsibility on them. Researchers have great responsibility for gaining the confidence of public and making academic life more reliable in terms of scientific research. Therefore, ethical principles and values must be complied with during the preparation process of the publication. It is vital for scientific studies not to include false and misleading information. One of the most important issues encountered in this context is undoubtedly the subject of ethical principles. The aim in science is to reach the right information and to use this information for all mankind. In other words, it is as vital as applying the right treatment. Hence, such concepts as deceit, fraud, etc. should never come to mind. Academic ethics is consisted of the processes of research, production of knowledge and transforming it into technology. In this context, it is very important that academic ethics cover all stakeholders (Büken, 2006). Especially in academic studies, ethical violations are tried to be reduced by laws and regulations. In some areas, the data should be analyzed and evaluated with statistical methods in order to make the research valid and reliable. Neutrality is essential in the process of obtaining and evaluating the results. The researcher should not make any changes in the data obtained according to his / her own request. As a result of searching and analyzing the assumed truth, the study comes to the publishing stage. In other words, it is made available to other researchers to study. Some of the ethical issues encountered in the writing of scientific publications are as follows:

- The method is not explicitly stated,
- The authors are not ranked according to the contribution,
- Not to thank the relevant places and people,
- Not showing the resources Ethics and Problems in Scientific Research, (2002).

Scientific research aims to find reliable solutions to a meaningful and important problem for science. For this purpose, planned, regular and scientific data are analyzed and results are interpreted. The qualifications required for scientific research are as follows; doing a neutral and systematic study in certain stages for solving the desired problem, testing the accuracy, adding new information to the literature by using the previous information in a planned and systematic way. The variables determined by scientific research should be measurable, observable and also be analysed and replicable by other statistical methods. The criteria on which scientific research is based should be scientific criteria and personal thoughts and approaches should be avoided. They should be neutral and open to criticism and should be given and interpreted in a systematic way (Scientific research). Compliance with the rules in the conversion of scientific research, consideration of scientific principles, respect for labour constitute the basis of scientific ethics issues (Hamutoğlu *et al.*, 2016).

### 2. 3. Ethical violation

Ethical violations in scientific studies shake the trust in science and affect the whole society. All individuals have a duty to respect ethical rules. As a big problem, it is very important to raise awareness in order to prevent ethical violations that are still ahead of us. Unethical behavior types include: non-undisciplined research,

repeated publication, publication of the same scientific research in more than one journal, forgery, fabrication, transgression, unfair use Ethics and Issues in Scientific Research, (2002). In other words, it can also be referred to as having its own name, plagiarism, plundering and piracy. Namely, it is the publication of research data belonging to others, without showing the source and showing them as one's own. In the Council of Higher Education (YÖK) Scientific Research and Publication Ethics Directive, unethical behaviours are specified as plagiarism, forgery, distortion, republishing, slicing and unfair writing. Tübitak Research and Publication Ethics Board Regulation and behaviours that will be deemed to be against ethics are as follows: fabrication, distortion, plagiary, re-release, slicing etc. It is significant to note that the basic values of the concepts of trust and honesty that form the basis of scientific research are the biggest obstacle to address unethical behaviours. The scientist has the ultimate responsibility for protecting and ensuring the sustainability of these values (Pearl, 2015). Trust and honesty are sustainable concepts that are given to individuals first in pre-school family environment and then in educational institutions.

### 3. Analysis of research

#### 3. 1. Problem Phrases and Hypotheses of Research

What are the attitudes of undergraduate and graduate students in relation to scientific research variables?

1. What are the attitudes of undergraduate and graduate students towards research?
2. What are the attitudes of undergraduate and graduate students towards the publication?
3. What are the attitudes of undergraduate and graduate students towards ethics?
4. What are the attitudes of undergraduate and graduate students in relation to violation?

#### *Hypothesis:*

It has been seen that during the writing of graduate thesis, students did not know anything about science and research ethics (Aslan, 2010). The students did not have enough knowledge about the ethical rules applied in scientific research, but they did not want to improve themselves (Özden & Ergin, 2013). In the study which investigated the research competencies of the graduate students, their academic motivation levels, their concerns and attitudes towards scientific research, it can be said that the research proficiency level of the students is quite sufficient (Saracaloğlu, 2008). In the studies conducted, it was seen that the university students did not know enough about the scientific researches and the principles that they should obey in the subjects related to publications (Büyükoztürk & Köklu, 1999). It has been determined that the students who have taken a scientific research course are more successful in research, the ones who have a previous research experience or contributed to a research have developed a more positive attitude towards scientific research (Çelik *et al.*, 2014). In this context, questions related to the scientific research variable are determined as follows:

H<sub>0</sub>: The attitudes of undergraduate and graduate students towards research are not different.

H<sub>1</sub>: The attitudes of the undergraduate and graduate students towards research are different.

Article which is a scientific research, focuses on two main ethical fields in science. Ethical principles for biomedical researches including human subjects are presented and discussed using three basic principles as guidance from the Belmont Report (autonomy, help and justice). The ethical presentation and publication of the



data has been dealt with by Roy Shephard in 2002 as an update or extended comment on the ten topics in the Journal of Exercise Science Research (Bulger, 2002). It was realized that during graduate thesis writing, students did not know anything about science and research ethics. Aslan (2010). Compliance with the rules in the conversion of scientific research, consideration of scientific principles, respect for labour constitute the basis of scientific ethics issues (Hamutoğlu *et al.*, 2016).

In this context, the hypothesis about scientific publication variable is determined as follows:

H<sub>0</sub>: The attitudes of undergraduate and graduate students towards publication are not different.

H<sub>2</sub>: The attitudes of undergraduate and graduate students towards publication are different.

Emergence of behaviours and practices in line with ethical principles in all areas of academic life, raising awareness about ethics, taking ethical education at every stage, and this education to be taken by those who prefer academics are highly important (Alev & Genç, 2015). It is necessary to raise awareness of the employees in order to be able to settle and apply the concept of ethics in institutions and increase its effectiveness. Education is the most important factor in this subject (Kaplan, 2009). In the study where academicians try to determine their opinions on research and publication ethics, it was identified that half of the participants were not aware of the laws and regulations related to research ethics and the functioning of ethics committees. Moreover, three out of four academics have never applied to any of the ethics committees and one-fifth of the academicians are of the opinion that there is no need for ethics committee approval for research or publication (Özcan & Balcı, 2016). It was stated by the lecturers that students' knowledge about Scientific Research Ethics was very low when they wrote their thesis, they had acquired through the experiences in the process and their awareness level of the importance of the subject before the thesis was very low. In the study where faculty members have expressed that there is not a directly taught course on scientific research ethics and it is only lectured in a limited way in the scientific research methods course, it has been indicated that case studies and experienced events will be effective in increasing students' awareness about scientific research ethics (Hamutoğlu *et al.*, 2016). In this context, the hypothesis about "scientific ethics" variable is determined as follows:

H<sub>0</sub>: The attitudes of undergraduate and graduate students towards ethics are not different.

H<sub>3</sub>: The attitudes of undergraduate and graduate students towards ethics are different.

In the study where the opinions of academicians are tried to be determined, unethical behaviours encountered in the university environment have been gathered under five headings: against profession, colleagues, students, university and society (Aydın *et al.*, 2014). Academic dishonesty denies and compromises university requirements. In case of deceiving the students, this undermines all the efforts expended in the process of preparation of academic courses (Denyer & Hancock, 2006).

In this context the hypothesis about "ethical violation" variable is determined as follows:

H<sub>0</sub>: The attitudes of undergraduate and graduate students towards ethical violation are not different.

H<sub>4</sub>: The attitudes of undergraduate and graduate students towards ethical violation are different.

3. 2. Main mass and sample mass

The main problem of the research is that if the university students have sufficient knowledge about scientific research, scientific publication, publication ethics, ethical violation and results? The universe of research is the students of Kocaeli University Faculty of Engineering, Faculty of Technology and Faculty of Education. Random sampling method was used in the study.

3. 3. Data collection tool

In the study, scientific research and publication ethics awareness scale was used to measure the attitudes of the students towards the variables determined. The survey was conducted with face to face interview technique. A number of respondents from the sample group were interviewed, irrelevant questions were removed from the questionnaire and proposed questions were added. Scientific Research and Publication Ethics Awareness Scale was developed by having an expert opinion. The Cronbach's alpha value is 0,8. The scale consists of 30 items. The scale was scored from lowest to highest between 1 and 5. 1 (totally disagree), 2 (disagree), 3 (undecided), 4 (Agree), 5 (totally agree) and 5-point Likert technique was used.

4. Analysis of data

SPSS 24 package program was used to analyse the sub-problems of the research. Statistical significance level was accepted to be 0.5. As a result of the reliability analysis Cronbach's Alpha value was obtained as 0.8. In this case, the scale was accepted to be reliable. Because in order for a scale to be considered reliable, Cronbach's Alpha value should be 0, 70 and higher (Sipahi *et al.*, 2010: 89). Then t-test and one-way Anova test were performed.

4 .1. Findings

The data collected by the survey method in the research were initially examined in three steps: In the first step, descriptive statistics and the degree of attitudes of undergraduate and graduate students towards the concepts of research, publication, ethics and violation were determined (Table 1-2-3-4).

Based on the answers of the students, it was observed that undergraduate and graduate students have a similar attitude towards the research variable. Both groups answered “undecided” to the first and the second questions while they gave the answer “agree” to the third (Table 1).

**Table 1.** Attitudes of undergraduate and graduate students on scientific research variable

Questions	Undergraduate		Graduate	
	Average	Std. deviation	Average	Std. deviation
1. I consider myself sufficient to to conduct research and have a publication.	3.40	1.01	3.37	1.20
2. I consider myself sufficient to determine and write a thesis topic.	3.21	1.09	3.40	1.05
3. I consider myself sufficient enough to use databases over the Internet.	3.84	1.00	3.68	1.16

Undergraduate and graduate students gave the answer “agree” to the questions 4-5-6-7-8-9-10 about the “publication” variable while they answered as “undecided” for the question 11 (Table 2).

**Table 2.** Attitudes of the undergraduate and graduate students about scientific publication variable

Questions	Undergraduate		Graduate	
	Average	Standard deviation	Average	Standard deviation
4. I definitely think that those who give more / less support in scientific study should be mentioned.	4.16	0.93	4.37	0.96
5. I think that graduate education makes a great contribution to scientific research.	3.76	1.07	3.96	1.14
6. I find myself competent in academic research techniques and methods.	3.40	0.96	3.51	1.00
7. I have enough control over the field.	3.46	0.88	3.70	0.71
8. I am confident in the use of computer package programs.	3.53	1.06	3.53	1.02
9. I consider myself sufficient to understand and write.	4.07	0.88	4.01	0.96
10. I am confident in understanding and interpreting statistical data.	3.76	0.92	3.66	1.00
11. I think that I do not have enough information about scientific research processes.	2.69	1.22	2.27	1.35

Undergraduate students gave the answer “agree” to the questions 12-15-16-17-18 about the “scientific ethics” variable while they answered nearly as “totally agree” for the questions 13-14 (Table 2). In other words, they said “I do not evade responsibility” and “I cooperate with the one who is right”.

While graduate students gave the answer “agree” to the questions 12-15-16-17-18, they gave the highest scores to the questions such as “I do not evade social responsibility”, “I cooperate with the one who is right”, and “I think scientists should be committed to ethical principles for life” (Table 3).

**Table 3.** Attitudes of undergraduate and graduate students to the scientific ethical variable

Questions	Undergraduate		Graduate	
	Average	Standard deviation	Average	Standard deviation
12. I do not see it as cheating or helping cheat.	3.72	1.53	3.96	1.47
13. I will not evade social responsibility.	4.41	0.81	4.37	0.99
14. I cooperate with the one who is right.	4.43	0.82	4.31	1.00
15. I think I have enough knowledge about research ethics.	3.67	0.96	3.74	1,049
16. I have learned about ethics during undergraduate / graduate studies.	3.54	1.20	3.74	1.04
17. I think that scientists should be committed to ethical principles for life.	4.33	1.00	4.61	0.87
18. I have information about ethics committees in our university.	3.65	1.11	3.85	1.37

The answers given by the undergraduate students about the “ethical violation” variable are almost “agree”. Graduate students answered in the same way as well. Besides, they gave a close answer to “totally agree” to the questions “I think the sources used in the article should definitely be stated in the references part” and “I think I have enough knowledge about scientific researches and ethical behaviour” (Table 4).



**Table 4.** Attitudes of the undergraduate and graduate students towards ethical violation variable

Questions	Undergraduate		Graduate	
	Average	Standard deviation	Average	Standard deviation
19. I do not look positively to having my graduation thesis done or written for money.	4.34	1.12	4.42	1.19
20. I do not find asking for favouring positive.	4.53	0.90	4.61	0.83
21. I have information about the consequences of unethical behaviour.	3.91	1.14	3.74	1.23
22. I think the reason for unethical behaviour is lack of information.	3.91	1.14	3.74	1.23
23. I think that unethical behavior is based on a personal problem.	4.14	1.04	4.09	1.03
24. I think behaviours and attitudes which are not appropriate for scientific ethics should be punished.	4.14	0.94	4.27	0.89
25. I think that the main reason for unethical behaviour and the education given for these issues are not enough.	3.78	1.02	3.76	1.08
26. I have enough knowledge about plagiarism.	3.51	1.17	3.92	1.07
27. I believe that the works mentioned in the text should be shown in the sources.	4.21	0.93	4.68	0.74
28. I think that I have enough knowledge about the principles of scientific research and ethical behaviour.	3.70	0.95	4.07	0.89
29. I think that awareness of scientific research and publication ethics should be increased.	4.35	0.80	4.50	0.85

In the second step, before comparing the attitudes of undergraduate and graduate students towards the variables of research, scientific publication, scientific ethics and ethical violation, the Levene test (Homogeneity test) was used to determine if there was a difference between the variables of these factors. In order for  $H_0$  hypothesis to be rejected t-tailed sig must be  $<0,05$  (Sipahi *et al.*, 2010: 118). Research variable related sig. F values ( $0,621 > 0,05$ ) because,  $H_0$ : The hypothesis of undergraduate and graduate students is not different from the variance values related to scientific research. Publication variable P. Since the F values are ( $0,720 > 0,05$ ), second  $H_0$ : The variance values of the undergraduate and graduate students are not different from the scientific publication, the hypothesis cannot be rejected. Since the F values related to the ethical variable is ( $0,224 > 0,05$ ), third  $H_0$ : The hypothesis which says the variance values of undergraduate and graduate students about scientific ethics are not different could not be rejected. Since the F values of the violation variable is ( $0,692 > 0,05$ ), fourth  $H_0$ : The hypothesis which says the variance values of undergraduate and graduate students about ethical violation are not different, the hypothesis could not be rejected. It can be said about the fourth hypothesis is that there is no difference between undergraduate and graduate students' variances related to the factors of scientific research, scientific publication, scientific ethics, ethical violation (Table 5).

**Table 5.** Levene (Homogeneity test) F values

Variables	Levene Test (Homogeneity Test) F Values
Scientific research	( $0,621 > 0,05$ ) $H_0$ could not be denied
Scientific publication	( $0,720 > 0,05$ ) $H_0$ could not be denied
Scientific Ethics	( $0,224 > 0,05$ ) $H_0$ could not be denied
Ethical Violation	( $0,692 > 0,05$ ) $H_0$ could not be denied

In the third step, it was determined by the t-test whether there was a difference between undergraduate and graduate students' attitudes towards scientific research, scientific publication, scientific ethics and ethical violation variables. In order for  $H_0$  hypothesis to be rejected, the t-tailed must be  $\text{sig} < 0.05$  (Sipahi *et al.*, 2010: 120). As the t-values related to the research variable are  $(0,996 > 0,05)$ , the first hypothesis which says  $H_0$ : The attitudes of the undergraduate and graduate students towards scientific research are not different, could not be rejected. Since the t-values related to the publication variable are  $(0,791 > 0,05)$ , the second hypothesis which says  $H_0$ : The attitudes of undergraduate and graduate students regarding scientific publication are not different, could not be rejected. Due to the fact that the t-values related to the ethical variable is  $(0,058 > 0,05)$ , the third hypothesis which says  $H_0$ : The attitudes of undergraduate and graduate students in relation to scientific ethics are not different, could not be rejected. Since the t-values related to the violation variable are  $(0,109 > 0,05)$ , the fourth hypothesis which says  $H_0$ : The attitudes of undergraduate and graduate students towards the ethical violation are not different, could not be rejected. It can be said about the fourth hypothesis that there is no difference between the attitudes of undergraduate and graduate students regarding scientific research, scientific publication, scientific ethics, ethics violation (Table 6).

Table 6. t-Test values

Variables	t-tailed sig. values
Scientific research	$(0,996 > 0,05)$ $H_0$ could not be denied
Scientific publication	$(0,791 > 0,05)$ $H_0$ could not be denied
Scientific Ethics	$(0,058 > 0,05)$ $H_0$ could not be denied
Ethical Violation	$(0,109 > 0,05)$ $H_0$ could not be denied

#### 4. Conclusion and suggestions

The aim of this study is to create awareness among students who have higher education in the area of scientific ethics and ethics violations. In addition, the study has investigated whether there is a difference in the attitudes of undergraduate and graduate students regarding scientific research, scientific publication, scientific ethics and ethical violation. The research population is comprised of students from Kocaeli University Faculty of Engineering, Faculty of Technology and Faculty of Education. Random sampling method was used in the study. In order to measure students' attitudes towards research variables, scientific research and publication ethics awareness scale was used. The survey was conducted with face to face interview technique.

In the analysis, firstly descriptive statistics and the degree of attitudes of undergraduate and graduate students towards variables were determined. It has been understood that they gave similar answers to the questions about the publication variable. According to the answers given about the ethics variable it has been seen that the attitudes of undergraduate and graduate students were found to be similar. However, it was observed that graduate students gave the highest scores for the 13,14 and 17 questions. Regarding the issue of violation, undergraduate and graduate students said "agree" to almost all of the questions. They gave the highest score to the 27<sup>th</sup> and 28<sup>th</sup> questions.

On the second stage of the data analysis, it was determined whether there is a difference between the homogeneity test and the variance of the research variables between the undergraduate and graduate students. There was no difference between the hypothesis produced for the Homogeneity test and variances of the variables of undergraduate and graduate students. Therefore,  $H_0$  hypothesis of research, publication, ethics and violation variables could not be rejected.

On the third stage, it was determined by the t-test whether there is any difference between the attitudes of undergraduate and graduate students regarding research, publication and violation variables.  $H_0$  hypotheses could not be rejected because t-test values of all research variables were greater than 0.05.

According to the research results, there was no difference between the attitudes of undergraduate and graduate students in relation to research variables. This shows us that the students of Kocaeli University have received training and knowledge during their undergraduate studies on scientific research and publication ethics. The software programs used during the applications and the courses given in the field of Scientific Research were found to be useful. This situation is reflected in the results of our study, but based on the literature research, it is understood that the studies on scientific research and publication ethics are insufficient.

Increasing the number of researches for especially undergraduate and graduate students, and examining them with different factors will make a significant contribution to create awareness in preventing scientific ethics and ethical violation in creating awareness. Because of the importance of the subject, studies should be increased in order to ensure that the students are informed before the university education and the training should be expanded.

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