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# Investigation of the Attitudes and Competencies of Teachers in Project Schools Towards Scientific Research in a Developing Country

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**Abstract**
The debate on education both in Turkey and in the world continues for many years. Particularly after the 2000s, the functions of schools, compulsory education, qualified schools and localization at all levels of government have been discussed frequently. Practitioners classified secondary education institutions according to their qualifications; Science high schools, Anatolian high schools, Super high schools, Curriculum Laboratory Schools (MLO), Social Sciences high schools and so on. The final form of qualified school trials is the project schools, which still suffer from qualitative problems in terms of legal and equipment related to institutionalization. The aim of this study is to determine the attitudes and competence levels of the teachers in the project schools that are expected to be qualified for scientific research and to develop suggestions for the training of qualified school teachers. A total of 336 project school teachers participated in this descriptive study which was conducted with the survey model. Descriptive statistics were used in the analysis of the data obtained in the study, in addition t-test and variance analysis were used for independent samples in the difference tests. At the end of the research, it is observed that the attitudes of the teachers towards scientific researches are not at the expected level, the low level of attitudes and interest indicate that the competences related to scientific thinking processes cannot reach the expected level. Although teachers find themselves highly competent in terms of their scientific research competencies, current studies show that this level is insufficient. In this study, negative correlation between teachers' negative attitudes towards scientific research and scientific research competencies was determined. In addition, a positive relationship was found between teachers' positive attitudes towards scientific research and their competences for scientific research.

**Key Words:** Project schools, qualified schools, research competence, scientific attitude, school selection

## Introduction

The debates on education continue for many years both in Turkey and in the world. The school selection movement, which began in countries such as the United States, Canada, the Netherlands and Australia, has given great impetus to the basic strategies for school reforms (Aydın, 2015, p. 19). Particularly after the 2000s, the functions of schools, compulsory education, qualified schools and localization at all levels of management have been discussed frequently. In this context, compulsory education in Turkey has been increased to 12 years. (Resmi Gazete, 2019). Thus, compulsory education was included in secondary education and the types of schools were tried

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to be increased. With this implementation, there has been a significant increase in the schooling rate (MEB, 2017), but problems such as student attendance, drop-out and crowded classrooms are not over. Until 1974, applications such as baccalaureate and graduation exams were made in secondary education and the exam period in secondary education has started since the establishment of Center for Evaluation, Selection and Placement. It can be said that acceptance students of higher education by exam brings this practice. These practices over the years have raised an unacceptable problem that has no scientific basis such as raising test children. Practitioners also classified secondary education institutions according to their qualifications.; Science High Schools, Anatolian High Schools, Super High School, Curriculum Laboratory Schools (CLS), Social Science High Schools etc. The final form of qualified school is the project schools, which still suffer from qualitative problems in terms of legal and equipment related to institutionalization.

The basis of the education process consists of teachers, students and educational programs. The success of the process depends on the quality and harmony of these three elements. In a system with highly qualified teachers and students, problems such as inadequacy of the education programs (not being able to respond to the conditions of the day in terms of target-content-teaching process and evaluation dimensions), not being suitable for the age, and not being able to read the future indicate that the output will be problematic. These problems brought about the concept of school diversity on the one hand and the choice of school for parents on the other. Since 1992 in the United States (US Office for Educational Research and Development Report) three different forms of school selection have been mentioned; school selection in the region, school selection within the state, and private (state-funded) school selection (Carlson, 1996). These schools are classified as restructured schools, disciplinary schools and problem-solving schools (Aydın, 2015). In parallel, Turkey is also made in a variety of schooling every day and parents make their school choices according to their own goals and the success of their children. While those with good income prefer private schools, middle- and low-income people want to send their children to qualified schools. The ratio of the number of public-school students who attend private schools in Turkey 8.7% (National Education Statistics, 2019), while this rate is quite high in developed countries (Hesapçıoğlu & Nohutçu, 1999). Project schools are also among the qualified schools affiliated to MoNE and student selection is made to these schools by exam. Since 2016, two types of students are admitted to high schools; central examination and local placement (without examination) (Milli Eğitim Bakanlığı Ortaöğretime Geçiş Yönergesi, 2019). In this respect, it can be said that the students who are a pillar of the project schools are qualified. The second important pillar of the system is the teachers. There is no provision in the regulation on the selection of teachers to the project schools or the qualifications of the appointed teachers. Regarding the assignment of teachers to the project schools, only the time spent by the teacher is

taken into consideration in the regulation, also it is stated that these teachers can work for 4 + 4 total eight years (Mevzuat Bilgi Sistemi, 2019). It is reported that graduate education can be considered a reason for preference only for managers to be appointed to project schools. However, it should not be forgotten that it is the teacher who is going to gain the target behaviors specified in the curriculum and who is going to be alone with the students.

In order to include a school within the scope of a qualified school, the sixth article of the regulation stipulates a number of conditions like physical infrastructure, human resources, proving the success of the school, making protocols with commercial or educational institutions on different subjects (Mevzuat Bilgi Sistemi, 2019). In order to provide a more qualified education to the students attending qualified schools, these schools are expected to be sufficient in terms of both equipment and teacher qualifications. It is seen that the regulation is arranged as sensitive as possible in school preference. However, it should be remembered that it can only be possible with teachers who have these skills that they can gain high level skills such as critical thinking and problem solving, reflective thinking, creativity and renewal, access to information and analyzing information, which are common among 21st century skills. Having these skills can only be possible with the importance given to science by teachers, having the competence of conducting scientific research and demonstrating scientific knowledge in both professional life and behavior. The researcher characteristics of teachers, the competencies they should have in terms of basic research methods and techniques (MEB, Öğretmenlik Mesleği Genel Yeterlikleri, 2017), the duties of raising researchers and free individuals are frequently emphasized especially in the curricula and related regulations of the education system, but they are not sufficient in terms of both content and method in practice (Saracaloğlu, 2008). In particular, providing research education to teachers, to creating research awareness and gaining research competence mean raising awareness of the whole community, creating a research culture in society, gaining scientific attitudes and behaviors to individuals.

Scientific research concept in the literature is defined as; the process of perceiving a problem as a problem and finding a solution to this problem systematically (Üstdal, Vullaume, Gülbahar, & Gülbahar, 2004), collecting data for certain purposes and systematic processes and analyzing the collected data (Balcı, 2009) or systematic, planned and sometimes controlled work process to produce scientific knowledge (Ekiz, 2017). Scientific research can be perceived as an art about how to make a work rather than an academic work (Taşdemir & Taşdemir, 2011). Consequently, it is possible to perform art only by accumulation. Conducting research can be the product of an accumulation and experience that can be gained through educational and teaching methods. Being able to do research starts with wanting it and developing a positive attitude towards scientific studies. Scientific research competence can be defined as an individual's belief in conducting a research (Bard, Bieschke, Herbert, & Eberz, 2000). There are

research results showing that the research and culture needs of the teachers in our education system are underdeveloped and the ways of accessing scientific knowledge are limited to the media, as well as the research results showing that the pre-service teachers' self-efficacy beliefs are moderate (İpek, Tekbıyık, & Ursavaş, 2010). In the literature, no study was conducted on the scientific research attitudes and self-efficacy of teachers working in qualified schools.

The aim of this study is to determine the attitudes and competence levels of the teachers working in the project schools towards scientific research and to develop suggestions for the training of qualified school teachers. For this purpose, the following questions were sought.

1. How are teachers' perceptions of attitude towards scientific research?
2. Do the attitude scores of the teachers towards scientific research differ according to their (a) gender, (b) seniority, (c) education levels and (d) type of schools they work?
3. What is the level of teachers' perception of proficiency in scientific research?
4. Do the levels of teachers' perception of proficiency in scientific research differ according to their (a) gender, (b) seniority, (c) education levels and (d) t ype of schools they work
5. Is there a relationship between teachers' scientific research attitudes and their competences?

## Method

### Research Model

In this study, the current scientific research attitudes and competences of teachers are tried to be described, it is a research conducted in the survey model. Survey research is a survey model that is conducted on a whole population, or a group of population or a sample in order to make a general judgment about the population in a population consisting of many elements. In survey studies, all variables belonging to the situation or unit such as an individual, group, subject or substance are described separately (Karasar, 2015).

### Population and Sample

The population of the research consists of teachers of 21 project schools (high schools) in Kayseri. Data were collected from 6 of the 21 schools. A project secondary school was also included in the scope of the research. In the selection of high schools which accept students by exam, the diversity of the school type is taken into consideration and the schools are grouped within themselves (Science High School, Anatolian High School, Social Science High School etc.). In this research, schools were determined by using stratified sampling method which is one of the random sampling

methods. A total of 336 project school teachers participated in the study on a volunteer basis. Table 1 shows the distribution of the sample group according to the type of school teachers serve.

Table1.
*Distribution of sample group according to school types*

| School Types | f | % |
|---|---|---|
| Anatolian High School | 80 | 23,8 |
| Science High School | 40 | 11,9 |
| Religious Vocational Anatolian High School | 110 | 32,7 |
| Social Science High School | 74 | 22,0 |
| Secondary School | 32 | 9,5 |
| *Total* | *336* | *100,0* |

As seen in Table 1, the highest attendance was from Religious Vocational Anatolian High School. Since the girls and boys were in separate schools in Religious Vocational Anatolian High School, two schools from this group were included in the study.

**Data Collection and Data Analysis**

Three types of data collection tools were used in the research; personal information form, scientific research attitude scale and scientific research competence scale. The questions in the personal information form contain the independent variables of the research.

**Scientific Research Attitude Scale**

In this research in order to determine the teachers' attitudes towards scientific research, Scientific Research Attitude Scale developed by Korkmaz, Şahin and Yeşil (2011) was used. The scale consists of four sub-dimensions; Reluctance to Help Researchers (8 items), Negative Attitude Towards Researches (9 items), Positive Attitude Towards Researches (7 items), and Positive Attitude Towards Researchers (6 items). The first two dimensions include negative attitudes and the second two dimensions show behaviors that show positive attitudes. All items in the scale were rated as (1) strongly disagree - (5) strongly agree - 5 Likert type. The high score obtained from each sub-dimension (positive-negative) indicates an increase in attitude. Total score of the scale cannot be calculated because each sub-dimension shows positive or negative attitude. The validity of the scale was tested both by factor analysis and by examining the differential features. For the internal consistency of the scale; Spearman Brown reliability coefficients, Guttmann Split-Half values and Cronbach alpha reliability coefficients were examined. According to the obtained values, it can be said that the scale can make reliable measurements for both factors and overall (Korkmaz, Şahin,

& Yeşil, 2011). The reliability co-efficient of the scale was 0.70 and above.

**Scientific Research Competence Scale**

The second data collection tool used in the research is the "Research Competence Scale" which was developed by Büyüköztürk (1996) and consisted of 43 items. Alpha reliability co-efficient of the scale is .96 in total and sub-dimensions defined by factor analysis ranged from .87 to .92. The scale consists of five sub-dimensions, namely problem definition (6 items), literature review (5 items), method (9 items), findings and interpretation (6 items) and reporting (7 items). Teachers were asked to express the level of competencies in question as full (3), slightly (2) and none (1), that is to say triple rating was used in the scale.

The average score calculated for a competence statement was between 1.00-1.66 and it was interpreted as not having competence, it was between 1.67-2.33 and it was interpreted as partly but not sufficiently, it was between 2.34-3.00 and it was interpreted as having the qualification completely.

In the analysis of the research data, measures of central tendency-change measures were used for descriptive purposes and techniques such as frequency, percentage and arithmetic mean were used in this context. T-test and analysis of variance techniques were used to determine the differences of teachers' scientific research competencies and attitudes according to independent variables. In order to determine the source of the difference between the groups, Tukey test, one of the post-hoc tests, was used when necessary.

**Findings**

In this section, the findings obtained from the research data are presented within the framework of the sub-problems of the study. The first sub-problem of the study is to reveal the level of attitudes of teachers towards conducting scientific research.

Table 2.
*Levels of teachers' attitude towards scientific research*

| Attitudes towards scientific research | n | Min | Max | Sd | $\bar{X}$ |
|---|---|---|---|---|---|
| Reluctance to Help Researchers | 336 | 8,0 | 39,0 | 7,72 | 17,75 |
| Negative Attitude Towards Researches | 336 | 9,0 | 39,0 | 7,24 | 17,15 |
| *Total Negative Attitude* | *336* | *17* | *75* | *13,92* | *34,90* |
| Positive Attitude Towards Researches | 336 | 8,0 | 35 | 6,17 | 27,49 |
| Positive Attitude Towards Researchers | 336 | 12,0 | 30 | 4,09 | 26,46 |
| *Total Positive Attitude* | *336* | *26,0* | *65,0* | *9,09* | *53,96* |

Findings presented in Table 2 show that, the mean level of negative attitude towards scientific research of teachers ($\bar{X}$=34,90) was found to be moderate. In other words, teachers in the project schools stated that they rarely developed negative at-

titudes towards scientific research. It is seen that the attitude towards the behaviors in the negative attitudes sub-dimensions of both the assisting researchers ($\bar{X}$=17,75) and the researches ($\bar{X}$=17,15) within the scope of negative attitude behaviors remained at the same level. On the other hand, the teachers stated that I agree with the behaviors which are in the sub-dimensions of positive attitude towards the scientific researches ($\bar{X}$=27,49) and the researchers ($\bar{X}$=26,46). In other words, they stated that their attitudes towards positive scientific research were positive. When the average of both dimensions is examined, it is seen that teachers' attitude towards scientific research ($\bar{X}$=53,96) is high. The minimum score obtained from this section is 26 and the maximum score is 65.

Secondly, it was aimed to determine whether teachers' attitudes towards scientific research differed according to their gender. Table 3 shows the t-test findings showing the differences between teachers' attitude scores towards scientific research according to their gender.

Table 3.
*The results of t-test showing the differences of teachers' attitude scores towards scientific research according to their gender*

| Attitudes towards scientific research | Gender | N | $\bar{X}$ | Sd | t | df | p |
|---|---|---|---|---|---|---|---|
| Reluctance to Help Researchers | Female | 156 | 14,45 | 7,52 | -7,95 | 334 | ,000 |
| | Male | 180 | 20,61 | 6,69 | | | |
| Negative Attitude Towards Researches | Female | 156 | 13,59 | 5,13 | -9,42 | 334 | ,000 |
| | Male | 180 | 20,23 | 7,40 | | | |
| *Total Negative Attitude* | *Female* | *156* | *28,04* | *11,92* | *-9,45* | *334* | *,000* |
| | *Male* | *180* | *40,84* | *12,77* | | | |
| Positive Attitude Towards Researches | Female | 156 | 29,53 | 6,07 | 5,89 | 334 | ,000 |
| | Male | 180 | 25,73 | 5,72 | | | |
| Positive Attitude Towards Researchers | Female | 156 | 27,27 | 4,37 | 3,41 | 334 | ,000 |
| | Male | 180 | 25,77 | 3,71 | | | |
| *Total Positive Attitude* | *Female* | *156* | *56,79* | *9,79* | *5,56* | *334* | *,000* |
| | *Male* | *180* | *51,50* | *7,66* | | | |

When Table 3 is examined, it is seen that the levels of attitudes towards scientific research show behaviors in both positive and negative dimensions vary according to the gender of teachers. Regarding negative attitude, it is observed that female teachers ($\bar{X}$=28,04) displayed lower negative attitudes -t(334)=-9,45; p<,01- than male teachers ($\bar{X}$=40,84). On the other hand, a significant difference was found between male and female teachers in developing positive attitudes towards scientific research

-t(334)=5,56; p<,01-. When the means were examined, it was found that female teachers ($\bar{X}$=59,79) developed higher positive attitudes than male teachers ($\bar{X}$=51,50).

The third sub-problem of the research is to determine how the attitude scores towards scientific research are distributed according to the seniority of the teachers. Table 4 shows the results of the ANOVA test regarding the distribution of the attitude scores towards scientific research according to the seniority of the teachers.

Table 4.
*ANOVA results regarding the distribution of attitude scores towards scientific research according to seniority of teachers*

| Attitude-Sub-dimension – Seniority | | N | $\bar{X}$ | Sd | | df | F | p | Difference |
|---|---|---|---|---|---|---|---|---|---|
| Reluctance to Help Researchers | (1) 0-5 Years | 44 | 9,73 | 4,69 | Between groups | 4 | 16,41 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 18,15 | 6,67 | | | | | 1 |
| | (3) 11-15 Years | 38 | 18,82 | 7,00 | Within groups | 331 | | | 1 |
| | (4) 16-20 Years | 95 | 19,19 | 7,58 | | | | | 1 |
| | (5) 21 Years and more | 107 | 19,20 | 7,67 | | | | | 1 |
| | Total | 336 | 17,75 | 7,72 | Total | 335 | | | |
| Negative Attitude Towards Researches | (1) 0-5 Years | 44 | 11,86 | 5,25 | Between groups | 4 | 9,20 | ,000 | 2,4,5 |
| | (2) 6-10 Years | 52 | 18,48 | 6,45 | | | | | 1 |
| | (3) 11-15 Years | 38 | 15,47 | 7,38 | Within groups | 331 | | | |
| | (4) 16-20 Years | 95 | 17,62 | 6,83 | | | | | 1 |
| | (5) 21 Years and more | 107 | 18,85 | 7,60 | | | | | 1 |
| | Total | 336 | 17,15 | 7,24 | Total | 335 | | | |
| Total Negative Attitude | (1) 0-5 Years | 44 | 21,59 | 9,85 | Between groups | 4 | 13,95 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 36,63 | 11,69 | | | | | 1 |
| | (3) 11-15 Years | 38 | 34,29 | 13,35 | Within groups | 331 | | | 1 |
| | (4) 16-20 Years | 95 | 36,81 | 12,95 | | | | | 1 |
| | (5) 21 Years and more | 107 | 38,05 | 14,43 | | | | | 1 |
| | Total | 336 | 34,90 | 13,92 | Total | 335 | | | |
| Positive Attitude Towards Researches | (1) 0-5 Years | 44 | 33,80 | 3,63 | Between groups | 4 | 15,91 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 27,40 | 6,40 | | | | | 1 |
| | (3) 11-15 Years | 38 | 26,42 | 4,77 | Within groups | 331 | | | 1 |
| | (4) 16-20 Years | 95 | 26,39 | 6,07 | | | | | 1 |
| | (5) 21 Years and more | 107 | 26,31 | 5,94 | | | | | 1 |
| | Total | 336 | 27,49 | 6,17 | Total | 335 | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Positive Attitude Towards Researchers | (1) 0-5 Years | 44 | 29,57 | 1,72 | Between groups | 4 | 10,76 | ,000 | 3,4,5 |
| | (2) 6-10 Years | 52 | 27,40 | 3,81 | | | | | |
| | (3) 11-15 Years | 38 | 24,84 | 3,55 | Within groups | 331 | | | 1,2 |
| | (4) 16-20 Years | 95 | 25,88 | 3,33 | | | | | 1 |
| | (5) 21 Years and more | 107 | 25,82 | 4,94 | | | | | 1 |
| | Total | 336 | 26,46 | 4,09 | Total | 335 | | | |
| Total Positive Attitude | (1) 0-5 Years | 44 | 63,36 | 5,05 | Between groups | 4 | 17,48 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 54,81 | 8,58 | | | | | 1 |
| | (3) 11-15 Years | 38 | 51,26 | 8,03 | Within groups | 331 | | | 1 |
| | (4) 16-20 Years | 95 | 52,27 | 7,98 | | | | | 1 |
| | (5) 21 Years and more | 107 | 52,13 | 9,54 | | | | | 1 |
| | Total | 336 | 53,96 | 9,09 | Total | 335 | | | |

According to the results of the ANOVA test for seniority, it is seen that the attitude points differ according to the seniority of the teachers in both positive -F(4, 331)=17,48, p<,01- and negative -F(4, 331)=13,95, p<,01- dimensions. When the sub-dimensions were examined separately; in the sub-dimension "Reluctance to Help Researchers" a statistically significant difference -F(4, 331)=16,41, p<,01- was found between the new teachers (1-5 years) group ($\bar{X}$=9,73) and the other groups ($\bar{X}$=18,15-19,20). In the sub-dimension "Negative Attitude Towards Researchers" similar results were obtained. Significant differences -F(4, 331)=9,20, p<,01- were found in favor of the new teachers group between the negative attitudes towards the scientific researches of the new teachers group and the teachers who have seniority of 6-10, 16-20 years or more. Negative attitudes towards scientific research were lower in teachers who has 1-5 years seniority ($\bar{X}$=11,86) and teachers with 11-15 years seniority ($\bar{X}$=15,47) when compared to other groups ($\bar{X}$=17,62-18,48).

When Table 4 is examined in terms of positive attitude scores towards the research, a similar appearance has been observed. Significant differences - F(4, 331) =17,48, p<,01-. were found between teachers with 0-5 years seniority ($\bar{X}$=63,36) and other groups ($\bar{X}$=51,26-54,81). The same case applies to the sub-dimensions. Statistically significant differences were found between teachers with 0-5 years seniority ($\bar{X}$=33,80) and other groups ($\bar{X}$=26,31-27,40) in the sub-dimension "Positive Attitude Towards Researches" and significant differences were found between teachers with 0-5 years seniority ($\bar{X}$=29,57) and the teachers who have 11-15 years seniority, 16-20 years seniority and 21 years and more seniority in the sub-dimension "Positive Attitude Towards Researchers" -F(4, 331)=10,76, p<,01-.

The fourth sub-problem of the study is to determine the differences in the attitude scores of the teachers towards scientific research according to their education levels.

Table 5 shows the t-test results regarding the attitude scores of the teachers towards the scientific research according to their educational levels.

Table 5.
*The results of the t-test regarding the attitude scores of the teachers according to their educational level*

| Attitude Towards Scientific Research | Education Level | N | $\overline{X}$ | Sd | t | df |
|---|---|---|---|---|---|---|
| Reluctance to Help Researchers | Bachelor | 226 | 19,22 | 7,77 | 5,20 | 334 |
| | Master | 110 | 14,73 | 6,69 | | |
| Negative Attitude Towards Researches | Bachelor | 226 | 17,38 | 7,55 | ,84 | 334 |
| | Master | 110 | 16,67 | 6,57 | | |
| Total Negative Attitude | Bachelor | 226 | 36,60 | 14,33 | 3,26 | 334 |
| | Master | 110 | 31,40 | 12,39 | | |
| Positive Attitude Towards Researches | Bachelor | 226 | 25,76 | 6,16 | -8,05 | 334 |
| | Master | 110 | 31,05 | 4,44 | | |
| Positive Attitude Towards Researchers | Bachelor | 226 | 25,81 | 4,41 | -4,34 | 334 |
| | Master | 110 | 27,82 | 2,94 | | |
| Total Positive Attitude | Bachelor | 226 | 51,57 | 9,02 | -7,45 | 334 |
| | Master | 110 | 58,87 | 7,08 | | |

When Table 5 is examined, it is seen that 226 (%67,3) of the teachers working in the project schools held bachelor degrees, and 110 (% 32,7) held master degrees. According to the findings in Table 5, there was a significant difference between teachers' education levels and negative attitude scores in the sub-dimension "Reluctance to Help Researchers" -t(334)=5,20; p<,01-. It was found that the scores of negative attitudes towards researchers of teachers with bachelor degrees ($\overline{X}$=19,22) were higher than those of teachers with master degrees ($\overline{X}$=14,73). There was no significant difference between the opinions of teachers with bachelor degrees ($\overline{X}$=17,38) and teachers with master degrees ($\overline{X}$=16,67) in the sub-dimension "Negative Attitude Towards Researches" -t(334)=3,26; p<,01-. When the total scores of both dimensions were taken; there was a significant difference between the scores of the attitude of teachers with bachelor degrees ($\overline{X}$=36,60) and those with master degrees ($\overline{X}$=31,40).

When the scores of positive attitude towards scientific research in Table 5 are examined; in terms of total positive attitude scores, there was a significant difference between the opinions of teachers with bachelor degrees ($\overline{X}$=51,57) and those with master

degrees ($\bar{X}$=58,87) teachers-t(334)=-7,45; p<,01-. There was a significant difference between opinions of bachelor ($\bar{X}$=25,76) teachers and master ($\bar{X}$=31,87) teachers in the sub-dimension "Positive Attitude Towards Researches"-t(334)=-8,05; p<,01-. In other words, it is seen that the attitude towards researches of the bachelor teachers is higher than the master teachers. Similar situation is observed in the sub-dimension "Positive Attitude Towards Researchers".

The fifth sub-problem of the research aimed to determine the scores of the attitude towards researches of teachers according to the type of schools they work. Table 6 shows the results of the ANOVA test regarding the differences between the attitudes of teachers towards scientific research according to the type of schools they worked at.

Table 6.

*The results of the ANOVA test regarding differences of the attitudes of the teachers towards scientific research according to the type of schools*

| Attitude – Sub-dimension – Type of Schools | | N | $\bar{X}$ | Sd | | df | F | p | Difference |
|---|---|---|---|---|---|---|---|---|---|
| Reluctance to Help Researchers | 1. Secondary School | 32 | 9,38 | 1,48 | Between groups | 4 | | | 2,3,4,5 |
| | 2. Anatolian High School | 80 | 16,78 | 7,81 | | | | | 1,3 |
| | 3. Social Science High School | 74 | 20,51 | 8,26 | | | | | 1,2 |
| | 4. Religious Vocational Anatolian High School | 109 | 18,11 | 6,76 | Within groups | 331 | 15,53 | ,000 | 1 |
| | 5. Science High School | 41 | 20,24 | 7,10 | | | | | 1 |
| | Total | 336 | 17,75 | 7,72 | Total | 335 | | | |
| Negative Attitude Towards Researches | 1. Secondary School | 32 | 11,94 | 0,25 | Between groups | 4 | | | 3,4,5 |
| | 2. Anatolian High School | 80 | 15,68 | 6,68 | | | | | 4 |
| | 3. Social Science High School | 74 | 17,62 | 7,00 | | | | | 1 |
| | 4. Religious Vocational Anatolian High School | 109 | 18,72 | 8,04 | Within groups | 331 | 7,60 | ,000 | 1,2 |
| | 5. Science High School | 41 | 19,05 | 7,10 | | | | | 1 |
| | Total | 336 | 17,15 | 7,24 | Total | 335 | | | |
| | 1. Secondary School | 32 | 21,31 | 1,23 | Between groups | 4 | | | 1,2,3,4 |
| | 2. Anatolian High School | 80 | 32,45 | 13,21 | | | | | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Total Negative Attitude | 3. Social Science High School | 74 | 38,14 | 14,37 | | | | | 1 |
| | 4. Religious Vocational Anatolian High School | 109 | 36,83 | 13,74 | Within groups | 331 | 12,23 | ,000 | 1 |
| | 5. Science High School | 41 | 39,29 | 13,51 | | | | | 1 |
| | Total | 336 | 34,90 | 13,92 | Total | 335 | | | |
| Positive Attitude Towards Researchers | 1. Secondary School | 32 | 33,38 | 2,46 | Between groups | 4 | 12,38 | ,000 | 2,3,4,5 |
| | 2. Anatolian High School | 80 | 28,73 | 6,22 | | | | | 1,3 |
| | 3. Social Science High School | 74 | 25,54 | 7,11 | | | | | 1,2 |
| | 4. Religious Vocational Anatolian High School | 109 | 26,74 | 5,50 | Within groups | 331 | | | 1 |
| | 5. Science High School | 41 | 26,02 | 4,74 | | | | | 1 |
| | Total | 336 | 27,49 | 6,17 | Total | 335 | | | |
| | 1. Secondary School | 32 | 29,56 | 1,72 | Between groups | 4 | | | 2,3,4,5 |
| | 2. Anatolian High School | 80 | 26,35 | 4,23 | | | | | 1 |
| | 3. Social Science High School | 74 | 26,65 | 4,02 | | | | | 1 |
| | 4. Religious Vocational Anatolian High School | 109 | 25,78 | 4,04 | Within groups | 331 | 6,05 | ,000 | 1 |
| | 5. Science High School | 41 | 25,76 | 4,40 | | | | | 1 |
| | Total | 336 | 26,46 | 4,09 | Total | 335 | | | |
| Total Positive Attitude | 1. Secondary School | 32 | 62,94 | 4,18 | Between groups | 4 | | | 2,3,4,5 |
| | 2. Anatolian High School | 80 | 55,08 | 9,81 | | | | | 1 |
| | 3. Social Science High School | 74 | 52,19 | 9,14 | | | | | 1 |
| | 4. Religious Vocational Anatolian High School | 109 | 52,52 | 8,45 | Within groups | 331 | 11,31 | ,000 | 1 |
| | 5. Science High School | 41 | 51,78 | 7,80 | | | | | 1 |
| | Total | 336 | 53,96 | 9,09 | Total | 335 | | | |

When Table 6 is examined, it is seen that the attitudes towards research of secondary school teachers and teachers in other school types differ significantly. When the sub-dimensions are considered, there is a significant difference between the negative attitudes towards research of secondary school teachers and high school teachers-F(4, 331)=12,23; p<,01-. According to the findings in the table, it was observed that the scores of negative attitudes towards researches of secondary school teachers ($\bar{X}$=23,31) were lower than Anatolian High School ($\bar{X}$=32,45), Social Science High School ($\bar{X}$=38,14), Religious Vocational Anatolian High School ($\bar{X}$=18,72) and Science High School ($\bar{X}$=19,05) teachers. This result is similar to sub-dimensions "Reluctance to Help Researchers" and "Negative Attitude Towards Researches". In terms of the sub-dimension "Reluctance to Help Researchers", there was a difference between secondary school teachers and high school teachers and there was a difference between Anatolian High School teachers and Social Science High School teachers -F(4, 331)=15,53; p<,01-. In the sub-dimension "Negative Attitude Towards Researches" there was a significant difference between secondary school ($\bar{X}$=11,94) teachers and Social Science High School ($\bar{X}$=17,62) teachers, Religious Vocational Anatolian High School ($\bar{X}$=18,72) teachers and Science High School ($\bar{X}$=19,05) teachers -F(4, 331)=7,60; p<,01-.

When the scores of positive attitude towards research are examined, the situation is the same again, there is a significant difference between the scores of positive attitude towards scientific research of teachers in secondary schools and teachers in high schools -F(4, 331)=11,31; p<,01-. It was observed that the scores of positive attitude scores towards scientific research of teachers in secondary schools ($\bar{X}$=62,94) were higher than Anatolian ($\bar{X}$=55,08), Social Sciences ($\bar{X}$=52,19), Religious Vocational Anatolian ($\bar{X}$=52,52) and Science High School ($\bar{X}$=51,78) teachers. In terms of sub-dimensions, the situation is similar. Significant differences were found between secondary school teachers and high school teachers in terms of the Positive Attitude towards Research sub-dimension -F(4, 331)=12,38; p<,01-.Also, there were statistically differences between the opinions of Anatolian High School ($\bar{X}$=28,73) teachers and Social Sciences High School ($\bar{X}$=25,54) teachers.

In the research, the second research variable was determined as proficiency level of scientific research of teachers working in project schools. The first sub-problem of the research related to this section is related to the teachers' level of proficiency in scientific research. Table 7 shows the results of the perceived scientific research competence levels of the teachers working in the project schools.

Table 7.
*Teachers perceived proficiency levels of scientific research*

| Proficiency Levels of Scientific Research | n | Min | Max | SS | $\bar{X}$ |
|---|---|---|---|---|---|
| Identifying the problem | 336 | 1,50 | 3,00 | ,39 | 2,50 |
| Literature Review | 336 | 1,40 | 3,00 | ,45 | 2,54 |
| Method | 336 | 1,00 | 3,00 | ,42 | 2,30 |
| Findings and Interpretation | 336 | 1,00 | 3,00 | ,44 | 2,40 |
| Reporting | 336 | 1,33 | 300 | ,44 | 2,51 |
| Proficiency Level of Scientific Research | 336 | 1,35 | 3,00 | ,37 | 2,45 |

When the findings in Table 7 are examined, teachers find themselves most competent in the "Literature review" and "Reporting" sections of the scientific research process. The section which they found themselves least sufficient was the "Method" section. However, teachers stated that they found themselves completely competent at all levels of competence. In this section, averages between 2,34-3,00 points indicate that the proficiency level is complete.

The second sub-problem of research competencies is to determine the differences between teachers' perceptions of proficiency according to their gender. Table 8 shows the results of t-test related to the differences of teachers' perceived scientific research competence levels according to their gender.

Table 8.
*The results of the t-test related to the differences of teachers' perceived scientific research competency levels according to their gender When the Table 8 is exam-*

| Proficiency Levels of Scientific Research | Gender | N | $\bar{X}$ | SS | t | sd | p |
|---|---|---|---|---|---|---|---|
| Identifying the Problem | Female | 156 | 2,54 | 0,36 | 1,79 | 334 | ,075 |
| | Male | 180 | 2,46 | 0,41 | | | |
| Literature Review | Female | 156 | 2,67 | 0,43 | 5,29 | 334 | ,000 |
| | Male | 180 | 2,42 | 0,43 | | | |
| Method | Female | 156 | 2,27 | 0,46 | -1,365 | 334 | ,173 |
| | Male | 180 | 2,33 | 0,38 | | | |
| Finding and Interpretations | Female | 156 | 2,41 | 0,50 | ,228 | 334 | ,820 |
| | Male | 180 | 2,39 | 0,43 | | | |
| Reporting | Female | 156 | 2,51 | 0,46 | -,047 | 334 | ,963 |
| | Male | 180 | 2,51 | 0,42 | | | |
| Proficiency Level of Scientific Research | Female | 156 | 2,48 | 0,38 | 1,349 | 334 | ,178 |
| | Male | 180 | 2,43 | 0,35 | | | |

ined, it is observed that teachers' perceived scientific research competency levels did not differ according to gender -t(334)=1,349; p>,05-. Considering the findings obtained in terms of competencies related to the sub-dimensions of the scientific research process; it is observed that there is a difference-t(334)=5,29; p<,01- between the competence scores of female teachers ($\bar{X}$=2,67) and male teachers ($\bar{X}$=2,42) only in the "Literature review" sub-dimension. Female teachers stated that they found themselves more competent in the process of literature review than male teachers. In addition, no significant difference was found between the competences of both teachers' groups in the process of "identifying the problem, method, findings and interpretations"

The third sub-problem of the scientific research competencies section includes the results of the ANOVA test related to the differentiation of the proficiency levels of scientific research according to the seniority of the teachers.

Table 9.

*ANOVA test results related to differentiation of proficiency levels of scientific research according to seniority of teachers*

| Sub-dimensions of Competence – Seniority | | N | $\bar{X}$ | SS | | sd | F | p | Difference |
|---|---|---|---|---|---|---|---|---|---|
| Identifying the Problem | (1) 0-5 Years | 44 | 2,70 | 0,28 | Between Groups | 4 | | | 3,4,5 |
| | (2) 6-10 Years | 52 | 2,52 | 0,29 | | | | | |
| | (3) 11-15 Years | 38 | 2,40 | 0,38 | Within Groups | 331 | 4,030 | ,003 | 1 |
| | (4) 16-20 Years | 95 | 2,48 | 0,41 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,46 | 0,43 | | | | | 1 |
| | Total | 336 | 2,50 | 0,39 | Total | 335 | | | |
| Literature Review | (1) 0-5 Years | 44 | 2,93 | 0,28 | Between Groups | 4 | | | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 2,42 | 0,40 | | | | | 1 |
| | (3) 11-15 Years | 38 | 2,43 | 0,48 | Within Groups | 331 | 11,453 | ,000 | 1 |
| | (4) 16-20 Years | 95 | 2,52 | 0,37 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,49 | 0,49 | | | | | 1 |
| Method | (1) 0-5 Years | 44 | 2,62 | 0,34 | Between Groups | 4 | | | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 2,23 | 0,16 | | | | | 1 |
| | (3) 11-15 Years | 38 | 2,09 | 0,55 | Within Groups | 331 | 11,493 | ,000 | 1,5 |
| | (4) 16-20 Years | 95 | 2,21 | 0,42 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,35 | 0,42 | | | | | 1,3 |
| | Total | 336 | 2,30 | 0,42 | Total | 335 | | | |
| | (1) 0-5 Years | 44 | 2,69 | 0,29 | Between Groups | 4 | | | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 2,28 | 0,26 | | | | | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Method | (3) 11-15 Years | 38 | 2,09 | 0,55 | Within Groups | 331 | 11,493 | ,000 | 1,5 |
| | (4) 16-20 Years | 95 | 2,21 | 0,42 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,35 | 0,42 | | | | | 1,3 |
| | Total | 336 | 2,30 | 0,42 | Total | 335 | | | |
| Findings and Interpretations | (1) 0-5 Years | 44 | 2,69 | 0,29 | Between Groups | 4 | 7,807 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 2,28 | 0,26 | | | | | 1 |
| | (3) 11-15 Years | 38 | 2,26 | 0,61 | Within Groups | 331 | | | 1 |
| | (4) 16-20 Years | 95 | 2,32 | 0,47 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,45 | 0,47 | | | | | 1 |
| | Total | 336 | 2,40 | 0,46 | Total | 335 | | | |
| Reporting | (1) 0-5 Years | 44 | 2,78 | 0,23 | Between Groups | 4 | 8,545 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 2,48 | 0,32 | | | | | 1 |
| | (3) 11-15 Years | 38 | 2,27 | 0,57 | Within Groups | 331 | | | 1,5 |
| | (4) 16-20 Years | 95 | 2,45 | 0,46 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,56 | 0,44 | | | | | 1,3 |
| | Total | 336 | 2,51 | 0,44 | Total | 335 | | | |
| Proficiency Level of Scientific Research | (1) 0-5 Years | 44 | 2,74 | 0,25 | Between Groups | 4 | 11,008 | ,000 | 2,3,4,5 |
| | (2) 6-10 Years | 52 | 2,39 | 0,20 | | | | | 1 |
| | (3) 11-15 Years | 38 | 2,29 | 0,45 | Within Groups | 331 | | | 1 |
| | (4) 16-20 Years | 95 | 2,40 | 0,36 | | | | | 1 |
| | (5) 21 Years and over | 107 | 2,46 | 0,38 | | | | | 1 |
| | Total | 336 | 2,45 | 0,37 | Total | 335 | | | |

According to the findings in Table 9, it is seen that the total scientific research competency levels perceived by teachers according to their seniority differ significantly -F(4, 331)=11,008; p<,01-.In the Tukey test to determine the source of the difference, it is observed that it is between those who started teaching who had 0-5 years seniority and other groups. When examined in terms of sub-dimensions; A significant difference was found between the proficiency scores of the teachers who had 0-5 years seniority ($\bar{X}$=2,70) and those who have 11-15 ($\bar{X}$=2,40), 16-20 ($\bar{X}$=2,48), 21 years and over seniority ($\bar{X}$=2,46) in the process of "Identifying the Problem"-F(4, 331)=4,030; p<,01-. In terms of the competences in the literature review process, there was a difference between the competence scores of the new teachers (0-5 years) and the teachers in other seniority -F(4, 331)=11,453; p<,01-. Considering the competences in the method section; It is seen that there is a significant difference between the proficiency scores of teachers who have seniority of 0-5 years ($\bar{X}$=2,62) and teachers with seniority of 6-10 years ($\bar{X}$=2,23), 11-15 years ($\bar{X}$=2,09), 16-20 years ($\bar{X}$=2,21),

21 years and over ($\bar{X}$=2,35). In the findings and interpretation process, when the table is examined in terms of the competences suggested for teachers; Similar to the above, there is a significant difference between the perceived proficiency scores of teachers with 0-5 years seniority and teachers in the other group -F(4, 331)=7,807; p<,01-. In the reporting section, it is seen that there is a significant difference between the proficiency scores of teachers with seniority of 0-5 years ($\bar{X}$=2,78) and teachers with seniority of 6-10 years ($\bar{X}$=2,48), 11-15 years ($\bar{X}$=2,27), 16-20 years ($\bar{X}$=2,45), 21 years and over ($\bar{X}$=2,56). In this section, it is observed that there is a difference between the proficiency scores of teachers with 11-15 years and 21 years of seniority. In all sub-dimensions, it is determined that teachers who are new in the profession, that is 0-5 years' seniority, consider themselves more competent in terms of their scientific research competencies than teachers in other groups.

The fourth sub-problem of research competencies is to determine the level of scientific research competence perceived by teachers according to their educational levels. Table 10 shows the results of the t-test for the differentiation of the levels of scientific research competence perceived by teachers according to their education levels.

Table 10.
*The results of the t-test related to the differentiation of the proficiency levels of scientific research perceived by the teachers' education levels*

| Proficiency Levels of Scientific Research | Education Level | N | $\bar{X}$ | SS | t | sd | p |
|---|---|---|---|---|---|---|---|
| Identifying the Problem | Bachelor | 226 | 2,47 | 0,40 | -1,800 | 334 | ,073 |
| | Master | 110 | 2,55 | 0,37 | | | |
| Literature Review | Bachelor | 226 | 2,43 | 0,46 | -6,749 | 334 | ,000 |
| | Master | 110 | 2,76 | 0,32 | | | |
| Method | Bachelor | 226 | 2,22 | 0,44 | -5,348 | 334 | ,000 |
| | Master | 110 | 2,47 | 0,34 | | | |
| Finding and Interpretations | Bachelor | 226 | 2,35 | 0,49 | -2,718 | 334 | ,007 |
| | Master | 110 | 2,50 | 0,38 | | | |
| Reporting | Bachelor | 226 | 2,41 | 0,48 | -6,191 | 334 | ,000 |
| | Master | 110 | 2,72 | 0,27 | | | |
| Proficiency Level of Scientific Research | Bachelor | 226 | 2,38 | 0,38 | -5,424 | 334 | ,000 |
| | Master | 110 | 2,60 | 0,27 | | | |

When the findings in Table 10 are examined; it is seen that there is no difference in terms of the competencies in the sub-dimension of defining the problem according to the education level of the teachers, but in all other sub-dimensions there is a difference according to the education level of the teachers. In the literature review -t(334)=-6,749;

p<,01-, method -t(334)=-5,348; p<,01-, findings and interpretations-t(334)=-2,718; p<,01- and reporting-t(334)=-6,191; p<,01- sub-dimensions; it is found out that the master students find themselves more competent than the bachelor students. When all sub-dimensions are considered; In terms of proficiency levels of scientific research, a significant difference is found between the proficiency scores of bachelor teachers ($\bar{X}$ = 2.38) and master teachers ($\bar{X}$ = 2.60) -t (334) = - 5,424; p <, 01.

The fifth and last sub-problem of the competences section of the scientific research process is to determine the level of competence of teachers according to the type of school they work. Table 11 shows the results of the ANOVA test on the extent to which teachers' competencies differ according to the type of school they work.

Table 11.
*The results of the ANOVA test about the level of competence of teachers according to the type of school they work*

| Sub-dimensions of Competence – Type of School | | N | $\bar{X}$ | SS | | sd | F | p | Difference |
|---|---|---|---|---|---|---|---|---|---|
| Identifying the Problem | 1. Secondary School | 32 | 2,51 | 0,04 | Between Groups | 4 | | | 4 |
| | 2. Anatolian High School | 80 | 2,58 | 0,38 | | | | | 4 |
| | 3. Social Science High School | 74 | 2,70 | 0,41 | | | | | 4,5 |
| | 4. Religious Vocational Anatolian High School | 109 | 2,30 | 0,34 | Within groups | 331 | 14,846 | ,000 | 1,2,3,5 |
| | 5. Science High School | 41 | 2,50 | 0,42 | | | | | 3,4 |
| | Total | 336 | 2,50 | 0,39 | Total | 335 | | | |
| Literature Review | 1. Secondary School | 32 | 3,00 | 0,00 | Between Groups | 4 | 22,076 | ,000 | 2,3,4,5 |
| | 2. Anatolian High School | 80 | 2,58 | 0,46 | | | | | 1,4,5 |
| | 3. Social Science High School | 74 | 2,67 | 0,38 | Within groups | 331 | | | 1,4,5 |
| Method | 4. Religious Vocational Anatolian High School | 109 | 2,16 | 0,34 | Within groups | 331 | 8,290 | ,000 | 2,3 |
| | 5. Science High School | 41 | 2,16 | 0,32 | | | | | 2,3 |
| | Total | 336 | 2,30 | 0,42 | Total | 335 | | | |
| | 1. Secondary School | 32 | 2,48 | 0,08 | Between Groups | 4 | | | 4 |
| | 2. Anatolian High School | 80 | 2,42 | 0,57 | | | | | 3,4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Findings and Interpretations | 3. Social Science High School | 74 | 2,66 | 0,43 | | | | | 2,4,5 |
| | 4. Religious Vocational Anatolian High School | 109 | 2,24 | 0,37 | Within groups | 331 | 11,885 | ,000 | 1,2,3 |
| | 5. Science High School | 41 | 2,26 | 0,44 | | | | | 3 |
| | Total | 336 | 2,40 | 0,46 | Total | 335 | | | |
| Reporting | 1. Secondary School | 32 | 2,67 | 0,00 | Between Groups | 4 | | | 4 |
| | 2. Anatolian High School | 80 | 2,54 | 0,47 | | | | | 4 |
| | 3. Social Science High School | 74 | 2,65 | 0,43 | | | | | 4 |
| | 4. Religious Vocational Anatolian High School | 109 | 2,36 | 0,47 | Within groups | 331 | 6,431 | ,000 | 1,2,3 |
| | 5. Science High School | 41 | 2,49 | 0,40 | | | | | |
| | Total | 336 | 2,51 | 0,44 | Total | 335 | | | |
| Proficiency Level of Scientific Research | 1. Secondary School | 32 | 2,60 | 0,01 | Between Groups | 4 | | | 4 |
| | 2. Anatolian High School | 80 | 2,51 | 0,41 | | | | | 4 |
| | 3. Social Science High School | 74 | 2,62 | 0,37 | | | | | 4,5 |
| | 4. Religious Vocational Anatolian High School | 109 | 2,29 | 0,31 | Within groups | 331 | 14,038 | ,000 | 1,2,3 |
| | 5. Science High School | 41 | 2,33 | 0,36 | | | | | 1,3 |
| | Total | 336 | 2,45 | 0,37 | Total | 335 | | | |

When Table 11 is examined; It is seen that teachers' perceived scientific research competency levels differ significantly according to the types of schools they work -F(4, 331)=14,038; p<,01-. In the Tukey test to determine the source of the difference, a significant difference was found between the level of scientific research competence of Religious Vocational Anatolian High School teachers ($\bar{X}$=2,29) and Secondary School ($\bar{X}$=2,60), Anatolian High School ($\bar{X}$=2,51) and Social Sciences High School ($\bar{X}$=2,2,62) teachers. In addition, it was seen that the scientific research competence scores of Social Sciences High School and Science High School, Secondary and Science High School teachers differed statistically significantly. When the table is examined in terms of the sub-dimensions of the scientific research process; In the dimension

of identifying the problem, there is a significant difference between Religious Vocational Anatolian High School ($\bar{X}$=2,30) and Secondary School ($\bar{X}$=2,51), Anatolian High School ($\bar{X}$=2,58), Social Sciences High School ($\bar{X}$=2,70) and Science High School ($\bar{X}$=2,50) teachers' competency levels related to problem recognition process -F(4, 331)=14,846; p<,01-. Religious Vocational Anatolian High School teachers stated that they had lower level of competences in the process of identifying the problem than the teachers in other groups. Regarding the competencies related to literature review process; There were significant differences between secondary school teachers and teachers in other groups, between Anatolian High School and Secondary School, Religious Vocational Anatolian High School and Science High School teachers, Social Sciences High School teachers and Religious Vocational Anatolian High School and Science High School teachers in terms of their proficiency identifying problem. When the proficiency levels of the method were examined, there was a difference between the teachers of Anatolian and Social Sciences High School and Science High School, and between the teachers of Religious Vocational Anatolian High School and Science High School and the teachers of secondary and Anatolian High Schools in terms of perceived proficiency levels. When the competencies in the findings and interpretations process are examined, there was a significant difference between Religious Vocational Anatolian High School teachers and Secondary School, Anatolian High School and Social Sciences High School teachers, and the competency levels of Anatolian and Science High School and Social Sciences High School teachers -F(4, 331)=14,885; p<,01-. Finally, when the findings in the reporting sub-dimension are examined, a significant difference was found between the proficiency levels of Religious Vocational Anatolian High School and Secondary School, Anatolian High School and Social Sciences High School teachers.

Finally, it was aimed to investigate whether there is a relationship between teachers' scientific research competency levels and their attitudes towards scientific research. Table 12 shows the results of the Pearson Correlation Test for teachers' level of competence in scientific research and their attitude towards scientific research.

Table 12.
*Pearson Correlation test results related to teachers' level of scientific research competence and attitude towards scientific research*

| N=336 | | Reluctance to Help Researchers | Negative Attitude Towards Researches | Total Negative Attitude | Positive Attitude Towards Researches | Positive Attitude Towards Researchers | Total Positive Attitude |
|---|---|---|---|---|---|---|---|
| Identifying the Problem | r | -,087 | -,192** | -,148** | ,273** | ,401** | ,366** |
| | p | ,111 | ,000 | ,000 | ,000 | ,000 | ,000 |
| Literature Review | r | -,373** | -,293** | -,359** | ,495** | ,447** | ,537 |
| | p | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 |
| Method | r | -,044 | ,004 | ,055 | ,232** | ,263** | ,276** |
| | p | ,421 | ,940 | ,315 | ,000 | ,000 | ,000 |
| Finding and Interpretations | r | -,075 | -,101 | -,114* | ,304** | ,330** | ,355** |
| | p | ,171 | ,065 | ,037 | ,000 | ,000 | ,000 |
| Reporting | r | -,177** | -,114* | -,031 | ,258** | ,329** | ,323** |
| | p | ,001 | ,037 | ,575 | ,000 | ,000 | ,000 |
| Proficiency Level of Scientific Research | r | -,181** | -,171** | -,135* | ,371** | ,417** | ,439** |
| | p | ,001 | ,002 | ,013 | ,000 | ,000 | ,000 |

When the findings in Table 12 are examined; It has been found that there is a significant relationship between teachers' scientific research competency levels and their attitudes towards scientific research in all sub-dimensions. There was an inverse relationship between teachers' total competence and total negative attitudes (r=-,135, p<,01). As teachers' negative attitude towards scientific research increases, their competence levels decrease. There was a positive relationship between the competence levels of teachers and their positive attitudes towards scientific research. In other words, as teachers' positive attitudes towards scientific research increase, their competence levels increase.

Although the above situation is observed throughout the table, in terms of sub-dimensions; There was a significant negative correlation (at a level of ,01) between the competence levels of teachers in the identifying the problem sub-dimension and reluctance to help researchers (r=-,087), negative attitude towards research (r=-,192) and total negative attitude (r=-,148) dimensions. On the other hand, there was a posi-

tive correlation (at a level of ,01) between the competency levels in the identifying the problem sub-dimension and the positive attitude towards research (r=,273), positive attitude towards researchers (r=,401) and total positive attitude (r=,366) sub-dimensions. The situation is similar in the literature review sub-dimension. While there was a inverse relationship between the competences and negative attitudes in the scientific research process, there was a positive relationship in terms of positive attitude. In the method process, while there was no significant relationship between scientific competence levels and negative attitudes, a positive relationship determined between positive attitude towards researchers (r =, 232), positive attitude towards research (r =, 263) and total positive attitude (r =, 276) dimensions. The findings and interpretation and reporting dimensions were similar to the method dimension. While there was no significant relationship between negative attitude dimensions and findings and interpretations of the scientific research process and competencies related to reporting process, a positive relationship was found between positive attitude dimensions.

Discussion, Conclusions and Suggestions

This study aimed to determine the scientific research competencies of teachers working in project schools and their attitudes towards scientific research. First, the teachers' attitudes towards scientific research and then the perceived proficiency levels of teachers on this subject were tried to be determined. Finally, the results of the comparison of attitude and competence levels were compared with the studies conducted in the literature. Firstly, teachers expressed their opinions about their negative attitude behaviors towards scientific research. Findings revealed that teachers had low negative attitudes towards scientific research. On the other hand, teachers' positive attitudes towards scientific researches were high. Some of the studies carried out in the literature (Polat, 2014; Çelik, Önder, Durmaz, Yurdusever & Uysal, 2014; Kürşad, 2015; Aşiroğlu, 2016) show that prospective teachers or teachers' attitudes towards scientific research are moderate or high. However, in the studies conducted by Biçer et al. (2013), Polat (2014) and Kürşad (2015), the attitudes of prospective teachers (senior students) towards scientific research were found to be quite low compared to other classes. Students regard scientific research as a waste of time. In addition, Küçükoğlu (2014) emphasized that prospective teachers do not have the role of researcher teachers and that they do not even need to do scientific research, but they think that scientific research will contribute to their professional lives. As can be seen, the results of the studies have attracted more attention because the attitude towards scientific research is not at the expected level both in prospective teachers and teachers. This could be due to a lack of lectures and activities that will enable teachers to develop a scientific attitude and develop a positive attitude. In addition, it is emphasized that the application of the courses that will improve the positive attitude of the students negatively affects the attitudes towards scientific research (Ayaydın & Kurtuldu, 2010). In the face of

the current situation, it could be useful to increase the number and duration of courses taught in universities and which affect attitudes towards scientific research. In addition, it should be remembered that the proficiencies and course processes of the faculty members who take these courses are decisive in this regard. Previously conducted trainers training programs can be revised and re-implemented, or future lecturers at doctoral level should be taught by relevant faculty members.

When the differences of the attitudes of the teachers working in the project schools towards scientific research were examined according to gender, significant differences were found between the attitudes of men and women in terms of both positive and negative attitudes. Similar results were obtained by Polat (2014) and Biçer et al. (2013). While the negative attitudes of men were found to be higher for scientific researches, it was found that the positive attitudes of women were higher. The situation was the same for all sub-dimensions, positive and negative. However, there are also studies in the literature (e.g., Çelik, Önder, Durmaz, Yurdusever & Uysal, 2014; Saracaloğlu, 2008) that show that gender is not a determinant variable in terms of attitudes towards scientific research. The reasons of the negative attitudes of students towards scientific research should be determined by qualitative researches and the problems should be tried to be solved.

When the attitudes of the teachers towards scientific research according to their seniority were examined, it was found that there were differences between the attitude levels of the teachers who had a seniority of 0-5 years and the other groups. It was observed that the new teachers developed a more positive attitude towards scientific research than the more experienced teachers. Efforts should be made to create a scientific research culture in teachers through continuous activities (through in-service trainings) that will keep and develop positive attitudes towards scientific research during their professional lives.

A similar expected situation arose in terms of teachers' level of education; It was determined that the master teachers had higher positive attitude than the bachelor teachers. When the attitude levels of the teachers were examined in terms of the types of schools, it was found that the teachers working in secondary schools were less sensitive to scientific research and their positive and negative attitudes were lower than the other groups. In addition, when the secondary school teachers were excluded from the group, a negative difference was found between the Anatolian High School teachers and the Social Sciences and Science High School teachers. While the Anatolian High School teachers exhibited lower negative attitudes towards scientific research, their positive opinions were higher than the teachers in the other two groups.

The second dependent variable of the research is to determine the proficiency level of the students. According to the findings of the research, according to the perceptions of teachers working in the project schools, it is seen that the level of scientific research is complete. Only in the competences related to the "method" section, the teachers

stated that they had intermediate level. Some studies in the literature (Büyüköztürk, 1999; Saracaloğlu, 2008; Nartgün, et al., 2008; İpek, Tekbıyık & Ursavaş, 2010; Durmuşçelebi, 2018) show parallelism with this result. However, as it is seen in the studies of Karasar (1984), Karagül (1996), Büyüköztürk and Köklü (1999), although there has not been enough progress in research education, and there is a desire for sufficient interest, the research anxiety and competence level of the students has not been developed sufficiently by using this interest and desire. It is pointed out that the study conducted by Aslan (2010) after 10 years is still not enough. In this study, master students perceive themselves as insufficient in determining and writing thesis. Studies show that students, prospective teachers and teachers do not have enough of these competences even if they find themselves sufficient. Many studies show that there are critical errors and deficiencies especially in the method process. According to both researches and observations of the researcher, faculty members have some problems during the method process. In this context, studies should be done urgently for faculty members to improve themselves on this issue.

When the proficiency levels of the teachers were examined according to their genders, no difference was found between the genders except the competences related to the process of literature review. Female teachers stated that they were more competent on literature review. Although the studies (Schwarzer, Mueller & Greenglass, 1999; Saracaloğlu, 2008; İpek, Tekbıyık ve Ursavaş, 2010) found that female and male students or teachers reported themselves as more competent in terms of sub-dimensions, gender was not seen as an influential variable in terms of scientific research competence.

When the proficiency levels of the teachers were analyzed according to their seniority, it was found that the proficiency levels of the new teachers were higher than the teachers in the other seniorities. When the teachers were examined in terms of the level of higher education they graduated, the research competency levels were found to be higher in the master teachers as expected. In all dimensions except the identifying the problem sub-dimension of the scientific research process, master teachers stated that they had more competence than the other group. Finally, when the types of schools in which teachers work were examined, differences were found between the teachers of Religious Vocational Anatolian High School and other groups. Again, when the secondary school teachers were excluded from the analysis, there was no difference in the situation and the proficiency levels of the Religious Vocational Anatolian High School teachers were lower than the teachers in the other group.

Finally, in this study, the relationship between teachers' attitudes towards scientific research and scientific research competency levels were examined. As a result of the analysis, a significant relationship was found between the perceived scientific research competence of teachers and their attitudes towards scientific research. As teachers' negative attitude towards research increases, their level of competence decreases. As

the positive attitude increased, there was an increase in perceived proficiency levels.

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