



## Educational Process: International Journal

ISSN 2147– 0901 (Print) Journal homepage: [www.edupij.com](http://www.edupij.com)

### **EDUCATIONAL PROCESS: INTERNATIONAL JOURNAL EDUPIJ / VOLUME 3 / ISSUE 1-2 / SPRING-SUMMER~FALL-WINTER / 2014**

**Comparison of the Effects of Gender Variable on Attitudes Towards the Teaching Profession by Random and Fixed Effects Model: Meta-Analysis**

**Milan Kubiатko and R. Serkan Arik**

**To cite this article:** Kubiатko, M., & Arik, R. S. (2014). Comparison of the Effects of Gender Variable on Attitudes Towards the Teaching Profession by Random and Fixed Effects Model: Meta-Analysis. *Educational Process: International Journal*, 3 (1-2), 52-64.

**Milan Kubiатko**, University of Zilina, Slovakia. (e-mail: [mkubiатko@gmail.com](mailto:mkubiатko@gmail.com))

**R. Serkan Arik**, Dumlupinar University, Turkey. (e-mail: [rserkan.arik@dpu.edu.tr](mailto:rserkan.arik@dpu.edu.tr))

## **Comparison of the Effects of Gender Variable on Attitudes Towards the Teaching Profession by Random and Fixed Effects Model: Meta-Analysis**

MILAN KUBIATKO and R. SERKAN ARIK

### **Abstract**

Attitude is a dual-poled essence: possessing positive thoughts on a course or subject, liking a course or exhibiting positive affective nature in relation with it, or having negative thoughts on a course or subject, disliking it or exhibiting negative affective features in relation with it (Bloom, 1979). Attitudes are different from opinions, values and beliefs. Attitudes and opinions resemble each other, but they differ from attitudes in terms of degree of generalizability and the measuring technique. Opinions are personal reactions to specific occurrences and conditions. But attitudes should be taken in a more general sense, as they influence people's reactions against sets of events and groups of people, in a more broad sense. The teaching profession has been mentioned among the favorite occupations, and researchers wanted to know if attitudes have anything to do with this tendency. It has been a subject for many researches that attitudes towards teaching profession differ by gender (Cook & Medley, 1954; Capri & Celikkaleli, 2008; Cetin, 2003; Dogan & Coban, 2009). The aim of this research is to determine the impact of gender variable on the teaching profession via meta-analysis method. Effect models specified for meta-analysis have been compared. This research covers the results of meta-analysis combining 27 researches determined useful by master's theses and doctorate dissertations which take gender as the variable. Effect size of the gender in relation with the attitude towards the teaching profession is found to be 0.301 for the fixed effect model, and 0.304 for the random effect model. When a frequency table for directions of effect sizes is created, 20 researches (74%) showed a positive effect size. Together with this result, 74% of the researches explain that females have more positive attitudes over males. Absence of any 0 effect size in this research explain that there has been no research indicating that attitudes towards the teaching profession do not differ between males and females. It has been concluded that medium differences exist according to Cohen's classification, and small differences exist according to Thalheimer's classification. It has been inferred from these findings that gender is an important variable in terms of attitudes towards the teaching profession, and that the medium effect it possesses over attitude should be examined.

**Keywords:** teaching profession, attitude, gender, meta-analysis.

## Introduction

Being a field of study of social psychology, the concept of attitude does not have a single definition. Concept of attitude, which is a subject of emotional development, means covert tendencies of cognitive, affective, conative nature that individuals show. According to Smith (1968), attitude is a tendency that is attributed to the individual and regularly forms his/her opinions, emotions and behaviors related with a psychological object. Attitude is the cognitive condition, behavior pattern, which is preselected under specific circumstances (Gagne, 1985). As attitudes are generated out of experiences extended over a particular time period, they contain affective, behavioral and cognitive consistency and integrity. So they are considered measurable (Tavsancil, 2002). Anything may be a psychological object for a person such as liked/disliked persons, a profession, occupation, leftism and rightism, residence, nationalism, family planning, rapid population growth, colleagues, music instruments etc. A person may have attitudes in relation with these and many other things (Kagitcibasi, 2005). From an educational perspective, attitude is a dual-poled essence: possessing positive thoughts on a course or subject, liking a course or exhibiting positive affective nature in relation with it, or having negative thoughts on a course or subject, disliking it or exhibiting negative affective features in relation with it (Bloom, 1979). Attitudes are different from ideas, values and beliefs. Attitudes and opinions resemble each other, but they differ from attitudes in terms of degree of generalizability and the measuring technique. Opinions are personal reactions to specific occurrences and conditions. But attitudes should be taken in a more general sense, as they influence people's reactions against sets of events and groups of people, in a more broad sense. People are aware of their opinions, yet they may not necessarily have a full comprehension of them (Tezbasaran, 1997).

As per the definitions made, attitude has three major features (Arslanturk & Amman, 2000):

- Attitude belongs to the relevant person;
- Attitude is a tendency. It is not a feature imputed to and directly observable from the person, but is a tendency that may be indirectly assumed from the person's observable behaviors and is preliminary to the behavior;
- Attitude is related to a psychological object. So a psychological object is an object known by and meaningful to the person. Something that is an attitude object for one person, may not be an attitude object for another.

### *Components of Attitude*

Formation of attitude is in parallel with the formation of behavior. Components of attitude may be categorized under three main topics:

*Affective:* This represents our thoughts about a case or an object. Physiological reactions like increase in one's heart throbbing, sweating, and verbal reactions of all kinds are related with this component (Arslanturk & Amman, 2000). This component is more basic over the cognitive; it is a predisposition to positive or negative reactions. If affective component of an attitude overrides, it becomes difficult for an attitude to change (Inceoglu, 2000).

*Cognitive:* This component deals with a person's beliefs on the object relevant to the attitude. It stems from the epistemic revolution of each person (Silah, 2000). If there is a negative attitude towards something, negative belief(s) shall be expected. Beliefs are verbal

expressions accompanying the affective sides of the attitudes (Morgan, 1998). Cognitive components of attitudes bear knowledge and beliefs that are based on stimulant-oriented realities. These components cover the knowledge and experiences received by the individuals on stimulants in the environment. Attitude-related knowledge is acquired when a person has an experience on a topic or sets of topics. Attitude-related information may be permanent or temporary, depending on its degree of realism.

*Conative:* This covers being prepared for all sorts of behaviors related with the attitude, and behaviors observable against the attitude object. An individual having a positive attitude against an object will tend to help, possess, carefully protect or reward (Arslaturk & Amman, 2000). A person's judgment originating from his/her beliefs and knowledge, makes that person inclined to a positive or negative action against an object (Silah, 2000).

#### *Attitude Towards Teaching Profession*

Prospective teachers are expected to demonstrate behavioral change appropriate for their profession in terms of cognitive, affective and psycho-motor, as a result of the education they receive. They should have effective teaching skills, and knowledge of how and when to teach what. McKeachie (1997) explains that knowing does not mean doing. For success in the teaching profession, cognitive development is not solely enough, but having the passion to perform this profession is also of vital importance. It is clear that if prospective teachers develop a positive attitude towards their profession, they will completely fulfill their liabilities, promote inquisitive and creative actions, motivate students more easily, accordantly communicate their verbal and non-verbal messages to the students, make effective use of their time, and be open to innovations (Celikoz & Cetin, 2004). Prospective teachers' attitudes towards their profession is an issue that cannot be overemphasized, because teachers are intricately involved with people and their behaviors. Not every graduate may succeed in the teaching profession as it mandates major responsibilities (Semerci & Semerci, 2004). Personal and professional qualities play an important role for teachers. Personal qualities of the teacher impacts students' attitudes towards school and course. Most of the time, students are interested in the teacher's approach to an issue, and the way in which they interpret things rather than what is being thought (Varis, 1988). For this reason, it is possible to say that the variable mostly influencing teachers to fulfill their roles is to enjoy teaching, respect it and adopt it (Pehlivan, 2008). Considering all of these, attitudes of teachers and prospective teachers towards the teaching profession deserve to be studied by educational researchers.

Meta-analysis can be briefly described as analysis of analyses. It consistently and consonantly combines results of other researches (Cohen, 1988, as cited in Ozcan, 2008). The requirement for combining different research results was suggested for the first time by Light and Smith (1971). Glass (1976) called this type of research 'Meta-Analysis'. Lexical meaning of meta is 'after' and 'beyond'. Meta-analysis is a new broad and detailed study discipline (Yildiz, 2002). Meta-analytical studies are the most flexible and widespread study alternatives to the conventional review papers and publications referring to the literature. However, there is one more difference between them. Literature reviews are qualitative studies, while meta-analysis provides quantitative techniques combining results of various types of researches i.e. opinion surveys, relational studies, experimental studies, semi-experimental studies and regression analyses. Individual studies are analyzed and systematically combined to achieve comprehensive and detailed results (Sahin, 2005). Abramson (1994), explaining the advantages of combining independent findings of many

researches on a specific subject, says (Akgoz, Ercan, & Kan, 2004): Individual studies with similar findings will cement the validity of the results. Individual studies may have a small-sized sample to provide statistical significance, but meta-analysis may combine findings of the studies, overcoming this demerit. Just like experimental studies, meta-analysis depends on certain standards and formulations. In this respect, meta-analysis demonstrate valid and reliable results (Yildiz, 2002).

#### *Statistical Models in Meta-Analysis*

Subjects of the meta-analysis study are determined and a qualitative analysis performed, and then the results are statistically combined. Statistical model to be selected will have influence while combining results, so the model shall be selected according to the results of the research (Yildiz, 2002). There are two statistical models are used in meta-analysis: fixed effects model and random effects model.

#### *Fixed Effects Model*

Fixed effects model is based on the assumption that the combined studies will suggest the same effect (Kucukonder, Efe, Sahin, & Uckardes, 1999). Making inferences in this model depends solely on study conditions. Even if measurements are accurate for different studies, it is difficult to assume that each research provides completely similar results. This assumption shall be verified using homogeneity test (Camnalbur, 2008). According to the fixed effects model, variance in study conditions stems from inter- and intra-related data. If fixed effects model is ineffective, random effects model that covers intra- and inter-study variance should be preferred.

#### *Random Effects Model*

In the cases where studies are not homogeneous and fixed effects model does not apply, random effects model has to be preferred (Camnalbur, 2008). In this model, inter-study component of the variance is also included, providing a broader confidence interval (Sahin, 2005). Random effects model is more preferred over the fixed effects model, because, inter- and intra-study changes are included in the meta-analyses (Yildiz, 2002).

#### *Effect Size in Meta-Analysis*

Concept of effect size is the basis of meta-analysis. Cohen (1977) who had developed this concept explained 'effect size' as the occurrence frequency of a case among a community (as cited in Ozdemirli Capar, 2011). Effect size may be defined as the index of the difference between the experimental group and the control group. Effect size depends on averages if numerical, rates if nominal, and correlation if the results indicate a link (Yildiz, 2002).

Existence or absence of an issue requires a value special for that population parameter. If there is no relationship between attitude and gender, the absence hypothesis in the research is formulated as 'no relationship', or 'gender is not effective on attitude'. If the absence hypothesis is rejected, the relevant population parameter will have any value but zero. In this case, the effect size is the degree of presence of a condition in a broad population, or the absence hypothesis does not apply, or the effect size is a non-zero specific value for the population (Yildiz, 2002).

It is possible to see how the effect sizes pass from one study to another via 'homogeneity test'. This analysis aims to identify differences of the variance within the effect sizes from the expected sampling error.

#### *Process Steps in Meta-Analysis*

Steps required for the meta-analysis study may be listed as follows:

#### *Definition of the Study Problem*

A hypothesis should be formulated as a basis to the study problem. Following elements shall be taken into consideration during formulation phase of the hypothesis (Cepni, 2007):

- Adequate amount of studies on the relevant hypothesis should exist in the literature;
- The hypothesis should not require an excessive amount of studies;
- Meta-analysis should have a purpose and the selected subject should relate with the other individuals;
- For a meta-analytic summary, identification of existence of the effect and its size will be deemed sufficient. The first step towards determining a study problem is to decide on which theoretical or psychological structures shall be the independent and dependent variables. The next step is to decide on the type of effect size to be applied. Then, the following step is to create a study environment, and then continue with the literature review.

It is suggested that several literature review methods are exploited collectively while pulling together the publications relevant to the subject (Akgoz, Ercan, & Kan, 2004). Search engines on the Internet, Online libraries, paper and data resources, direct contact with researchers, universities and their libraries should be checked as sources for a comprehensive literature review. In order to ensure a robust effect size estimation, unpublished research studies must also be included as part of the research as much as possible (Cepni, 2007).

#### *Study Codification*

Studies included in the meta-analysis in conformity with the criteria should be codified following the literature review. During the codification of the studies, it is important to choose the right features to codify, and that it is done in a clear and detailed way. There are several methods that can be utilized for the codification. The important thing is to make use of an exclusive codification system that is sufficiently extensive enough to cover all the data within the research, and that demonstrates the unique characteristics of each study (Camnalbur, 2008).

#### *Effect Size Estimation*

Studies that are subjects for the research are different from each other, revealing measures and measurements that differ from one study to another (Camnalbur, 2008). For this reason, estimation of the effect size is crucial in order to acquire standard values, obtaining accurate findings and to be able to interpret them. In meta-analysis, different effect size indexes may be applied depending on the type and characteristics of the analysis.

#### *Implementation of the Analysis*

In meta-analysis, identification and codification of the studies that will form the subjects of the research are of vital importance. Equally important is that performance of the analysis

is completed in an appropriate manner, depending on the aim of the study. The type of meta-analysis to be performed will define how the statistical analysis will be conducted and how the results will be interpreted. Commonly used meta-analysis processes include: homogeneity tests, study weight changes, and systemic reviews of sources of heterogeneity (Sahin, 2005).

### *Results and Reporting*

Findings from the research have to be correctly and perceptibly reported and interpreted. In order to fulfill its purpose, a research has to be conducted in an objective and scientific framework, has to meet its target results, and has to correctly convey the results. Results of the meta-analysis have to be disclosed in order to guide future individual studies, and they must ensure include criticism for both negative and positive aspects in order that previous studies can light the way for future research.

In this respect, attitudes of teachers and prospective teachers towards the teaching profession continue to be in the wild for the researchers. It is therefore crucial to provide a shared result for all of the studies up until this point. In this research, master's theses and doctoral dissertations conducted in Turkey that deal with attitudes towards the teaching profession were combined, aiming to reach a statistically common result in order to determine gender's effect in general. There are various researches that aim to determine attitudes towards the teaching profession in Turkey, however there are no meta-analysis studies that examine the effectiveness of the gender variable. The aim of this research is to interpret the statistical findings of research into attitudes towards the teaching profession by the gender variable, comparing values of different meta-analysis models.

### **Methodology**

In this research, meta-analysis of theses and dissertations from Turkey about attitudes towards the teaching profession has been conducted in order to determine the effect of the gender variable on teachers' attitudes towards the teaching profession.

Master's theses, doctoral dissertations, and the academic paper database of the Council of Higher Education (Turkey) has been reviewed in order to reach studies examining the effect of THE gender variable on attitudes towards the teaching profession. Theses and dissertations identified from the database of the Council of Higher Education through findings detailed in their abstract sections, but are unavailable to be viewed online, were excluded from this research.

Included studies were searched for using different keyword combinations of 'teaching profession', 'attitude', 'teacher', and 'prospective teachers'.

According to Wilson (1999) and Wolf (1986) (both cited in Ozcan, 2008), studies that may be included in a meta-analysis study should conform to the borders of the research and have statistical data required for the analysis. In this research, studies to be referred to for meta-analysis must have been conducted between 1990 and 2013, and the study samples are within the borders of Turkey. In order to determine effect sizes in the research, studies should have descriptive numerical data for males and females, which means sample size (N), mean (M) and standard deviation (SD) should be given, categorized by gender, or should have numerable data.

While selecting the data to be used in the research, studies that do not conform to the scope of the research and do not have statistical data required for the analysis (briefly, studies that do not conform to the inclusion criteria) are excluded and not covered in this meta-analysis study.

A relevant codification method is created to ensure conformity with the meta-analysis-inclusion criteria and to allow a comparison of them.

Codification method used in this research contains three main topics: 'Study ID', 'Content of the Study' and 'Study Data'.

Effect sizes obtained from attitude analyses created according to the measures, dimensions and questions used in the studies that are to be included in the meta-analysis will be taken as dependent variables.

Study characteristics in the meta-analysis shall be called independent variables. These independent variables are registered on the codification form, as they define the relationships between effect sizes. The study characteristics (independent variables) are listed as follows:

- Year of the study;
- Where the study was conducted;
- Sample content of the study;
- Amount of the samples in the study;
- Mean values of the samples in the study;
- Standard deviation of the samples in the study.

There are various methods to combine data in the meta-analysis method. The study model is selected considering the statistical structure of the data and the nature of the findings. Since there is a difference between the measures and samples used in the studies included in this research, regulated standardized effect size is taken into consideration (Ozcan, 2008). Effect size category based on arithmetic averages developed by Cohen, and effect size categories developed by Thalheimer and Cook, (2002) are used in order to interpret the calculated effect sizes.

Study effect meta-analysis is used in this research for data analysis. When arithmetic averages of the dependent variables in each study included in the meta-analysis are received from different measures this method is used (Camnalbur, 2008). According to this method, 'Cohen's d' (effect size) is calculated by  $d=(X_e-X_c)/SD$  formulation in the studies included in the research.  $X_e$  and  $X_c$  respectively means the averages of the experimental and control groups, while  $SD$  is the standard deviation (Sahin, 2005). In addition to this, CMA is used to calculate Hedge's g effect size values. Comprehensive Meta-Analysis software is used for calculations, tables and graphics that are used in the findings and interpretation section of this research.

## Findings

Meta-analytic effect analyses of the studies about gender's effect on attitude towards the teaching profession are included in this research. Effect size analysis is implemented to the research, and derived findings are shown. Together with this, comparisons between male and female groups by the fixed and random effects model are made to measure the effect of gender on attitude towards the teaching profession. An answer to "Does gender

have any effects on attitude towards the teaching profession?" is sought by making use of researches covering environments in Turkey. Statistical significance grade of the studies included in the meta-analysis are determined as .05.

*Non-Combined Findings of the Effect Size Analysis of the Included Studies*

Amount of samples in the studies included in this research, arithmetic averages and standard deviation values, individual effect sizes for each study, and non-combined findings of the effect analysis containing standard deviation and variance values are given in Table 1.

**Table 1.** Non-combined findings of the effect size analysis of the studies

Research number	Effect size hedges' g	Standard error	Variance (d)
1	0.4232	0.2062	0.0425
2	-0.2824	0.1584	0.0251
3	0.8979	0.2472	0.0611
4	-0.2914	0.1795	0.0322
5	0.2680	0.0604	0.0037
6	0.0068	0.1023	0.0105
7	0.5069	0.2897	0.0839
8	0.3679	0.1185	0.0140
9	0.1798	0.1697	0.0288
10	0.7963	0.1326	0.0176
11	-0.0286	0.1267	0.0161
12	0.7083	0.1461	0.0213
13	0.1392	0.0820	0.0067
14	0.1703	0.0876	0.0077
15	0.3387	0.1859	0.0346
16	-0.0056	0.1414	0.0200
17	0.3626	0.1169	0.0137
18	0.1509	0.0838	0.0070
19	0.2036	0.1342	0.0180
20	-0.1492	0.1386	0.0192
21	0.3589	0.1624	0.0264
22	-0.0779	0.0999	0.0100
23	0.8110	0.1211	0.0147
24	-0.2914	0.1795	0.0322
25	0.6659	0.1220	0.0149
26	0.8400	0.1066	0.0114
27	1.1759	0.1028	0.0106
<b>Fixed effect model</b>	0.2999	0.0227	0.0005
<b>Random effect model</b>	0.3028	0.0722	0.0052

The studies included in this research are combined under the common metric of effect size together with the standard deviation and variance values. These values are used as a basis for the next calculations. P value of the heterogeneity test is found more than .05, proving that allocation is homogeneous and the fixed effects model may apply. When this value falls below .05, random effects model is used. In this research, the random and fixed

effects models are taken together, and compared and contrasted. Frequency and percentage values of the effect sizes given in Table 1 are presented in Table 2.

**Table 2.** Mean effect sizes and homogeneity values by the fixed effects and random effects models

Model	Mean effect size	Df	Total homogeneity values Q	Chi square table value (.05)	Confidence interval (95%) to effect size	
					Lower limit	Upper limit
Fixed effect	0.301	26	244.506	89.366	0.256	0.345
Random effect	0.304	26	244.506	89.366	0.162	0.445

In order to test the statistical significance, z test calculations are made ( $z=13.189$ ). According to this, if  $p=0.000$ , analysis shall be deemed statistically significant. Since the fixed effects model function assumes that all studies included in the research have the same effect, homogeneity test is applied to test this assumption, and statistical Q value was calculated as  $Q=244.506$ . This value exceeds 89.366 from  $\chi^2$  table at the degree of freedom (26) with 95% significance. As a result of this comparison, it is understood that the study results analyzed according to the fixed effects model show heterogeneous characteristics. It may be understood that a change in effect sizes of the studies that show heterogeneous characteristics is larger than a change stemming from a sampling error (Ozcan, 2008).

The study will be analyzed using the random effects model, and errors caused by the heterogeneity provided by the fixed effects model will be attempted to be eliminated (Camnalbur, 2008). In the random effects model meta-analysis, standard deviation is 0.072, confidence interval is 95%, lower limit is 0.162, upper limit is 0.445, average effect size is  $ES=0.304$ ; effect of gender on attitude towards teaching profession is in support of females over males, proving a positive attitude, as it is in the fixed effects model. When we interpret the average effect size value according to Cohen's classification  $ES=0.304$  has a medium effect, and for Thalheimer's classification it has a small effect. In order to test the statistical significance, z test calculations are made ( $z=4.197$ ). According to this, if  $p=0.000$ , analysis shall be deemed statistically significant. At the end of the homogeneity test, statistics Q value is found to be 261.160. This value exceeds 90.044 from  $\chi^2$  table at the degree of freedom (26) with 95% significance. This result shows that the random effects model meta-analysis study is not homogeneous.

**Table 3.** Frequency and percentage table of the effect sizes

Direction of effect size	Frequency	Percentage
Negative -	7	26%
Positive +	20	74%

When the frequency table for directions of effect sizes given in Table 3 is created, 20 research studies (74%) have showed positive effect size. Positive and negative effect size values explain that the analyzed characteristic will make a difference depending on the effect size (Ozcan, 2008). While measuring effect of the gender variable on attitudes towards the teaching profession, the difference of scores from the scale of attitude of males and females are considered. Together with this result, 74% of the researches explain that females have more positive attitudes over males. In 26% of the studies, males showed a more positive attitude in terms of effect sizes. Absence of any 0 (zero) effect size in this

research explain that there has been no research indicating that attitudes towards the teaching profession do not differ between males and females.

### **Conclusion and Discussion**

This meta-analysis study covers the effect of gender on attitude towards the teaching profession. In this study, a literature review was performed to determine conformity with the inclusion criteria, and 84 studies were identified. Studies within the inclusion criteria were completed between 2001 and the research completion date. They included the required data that enabled a comparison of the attitudes of males and females towards the teaching profession, and were compiled in conformity with the purpose of the research and the codification protocol.

Of the studies examined, 27 were considered to be conforming to the inclusion criteria and have adequate amount of data for the analysis, and were combined with the meta-analysis method. In order to identify the check digit that communicates the reliability of meta-analysis, the approaches of Orwin and Rosenthal were tested. According to the Orwin's approach, the effect size will decrease to 0.001 and will change the results of the research if 5010 studies are combined with this research. Besides, according to Rosenthal's approach, 371 opposite findings should be combined with the research for invalidation. This shows that results of the meta-analysis are reliable.

Differences of males' and females' attitudes towards the teaching profession have been the subject of many studies. The general feeling within Turkey and in the wider world is in support of females in terms of positive attitudes towards the teaching profession over males. Studies in which arithmetic averages and standard deviation values of attitudes of males and females towards the teaching profession are given by the gender variable. These are combined within this research through meta-analytic effect analysis method in order to achieve a result by putting this opinion on numerically proven scientific ground. In order to measure the gender's effect on the attitude towards the teaching profession, effect sizes of 27 theses (all conducted within Turkey) were then calculated. It is understood at the end of the analysis that females demonstrate a more positive attitude over males in 20 (out of 27) of those studies (74%). Based on these effect sizes, this research is analyzed according to the fixed effects and random effects models. Although there are major differences between the values interpreted by the fixed effects model and random effects model, since homogeneity (one of the assumptions of meta-analysis) is not ensured, utilization of random effects model is found to be more appropriate. Gender that has a medium effect size ( $ES=0.303$ ) with 95% confidence interval is in support of males in terms of attitude towards the teaching profession, however the difference between attitudes is medium for Cohen, and small for Thalheimer. It is inferred from the test on the homogeneity of the results that the study exceeds critical values and has a heterogeneous structure, proving that it cannot be generalized to all of the environment. So the analysis is done via random effects model. This research aimed to determine the effect of gender on attitude towards the teaching profession in Turkey, and gave results in parallel with foreign (non-Turkish) descriptive researches. This result is supported by other research conducted on prospective teachers (Capri & Celikkaleli, 2008; Celenk, 1988; Celikoz & Cetin, 2004; Cetin, 2003; Cetinkaya, 2007; Cetinkaya, 2009; Ertok Konuk, 2011; Gurbuz & Kisoglu, 2007; Sarac, 2007).

It is concluded from the research by Capa and Cil (2000) on students studying six different teaching divisions and research by Tanriogen (1997) on students studying fifteen

different teaching divisions in the faculty of education, that there is a significant difference between male and female students' attitudes towards the teaching profession in support of females.

Strong (1943) says that some professions are associated with either males or females, depending on the culture (as cited in Cimen, 1988). According to the study by Coultas and Lewin (2002) on the demographic nature of prospective teachers in different countries, the percentage of females that prefer working increased to 38%, and this proportion of women is 42% in Malawi and 70% in Trinidad and Tobago.

When meta-analysis is considered as a summary to other analyses, it is found through this method that the concepts covered by the researches have results including a larger amount of samples within a specific confidence interval from a broader perspective. For this reason, previous studies that have data appropriate for the meta-analysis should be combined. Achieving new findings and interpreting them will be both time- and cost-effective for the researchers. There are various foreign (non-Turkish) studies and sources related with the meta-analysis method used in the research, however there are no published books in Turkey, and the amount of published papers and theses/dissertations were found to be very low. Also there are only limited meta-analysis software available. More studies related with the subject are needed. Meta-analysis is an analysis method that makes use of other studies. Other studies that are subjects for the researches should be standardized, have required data, be perceptibly reported. There should be a large number of studies, as many as possible. For this reason, researchers should publish their research studies, carefully providing keywords and abstracts for search ability by others. Groups of researchers rather than individuals should work to access meta-analysis sources and standardize them, ensuring easy and effective studies. In this meta-analysis study, researching attitudes towards the teaching profession, only the 'gender' variable is taken into consideration, excluding all other components of attitude. After all, there are various studies and papers in Turkey, and elsewhere, analyzing attitude in almost every aspect. Researchers may compile these studies for a meta-analysis on attitude towards the teaching profession.

## Notes

Corresponding author: R. SERKAN ARIK

This study is revised and developed version of the paper presented in the 4th International Conference on Measurement and Evaluation in Education and Psychology, June 9-13, 2014.

## References

- Abramson, J.H. (1994). *Making Sense of Data*. 2nd edition. New York: Oxford University Press.
- Akgoz, S., Ercan, I., & Kan, I. (2004). Meta-analizi. *Uludag Universitesi Tip Fakultesi Dergisi*, 30(2), 107-112.
- Arslanturk, Z., & Amman, M.T. (2000). *Sosyoloji: Kavramlar-kurumlar-surecler-teoriler*. (1. Basim). Istanbul: Kaknus Yayinlari.
- Bloom, B.S. (1979). *Human characteristics and school learning*. (cev. Ali Ozcelik). Ankara: Milli Egitim Basimevi.
- Cannalbur, M. (2008). *Bilgisayar destekli ogretimin etkililigi uzerine bir meta analiz calismasi*. Yayinlanmamis yuksek lisans tezi, Marmara Universitesi, Egitim Bilimleri Enstitusu.
- Capa, Y. & Cil, N. (2000). Ogretmen adaylarinin ogretmenlik meslegine yönelik tutumlarinin farkli degiskenler acisinden incelenmesi. *H.U. Egitim Fakultesi Dergisi*, 18, 69-73.
- Capri, B., & Celikkaleli, O. (2008). Ogretmen adaylarinin ogretmenlige iliskin tutum ve mesleki yeterlik inanclarinin cinsiyet, program ve fakultelerine gore incelenmesi. *Inonu Universitesi Egitim Fakultesi Dergisi*, 9(15), 33-53.
- Celenk, S. (1988). *Egitim yuksekokulu ogrencilerinin tutumlari*. Yayinlanmamis yuksek lisans tezi, Selcuk Universitesi Sosyal Bilimler Enstitusu, Konya.
- Celikoz, N., & Cetin, F. (2004). Anadolu Ogretmen Lisesi ogrencilerinin ogretmenlik meslegine yönelik tutumlarini etkileyen etmenler. *Milli Egitim Dergisi*, 162, 160-167.
- Cepni, S. (2007). *Arastirma ve proje calismalarına giris* (3. Baski), Trabzon: Celepler Matbaacilik.
- Cetin, S. (2003). *Anadolu Ogretmen Lisesi ve Duz Lise cikisli egitim fakultesi ogrencilerinin ogretmenlik meslegine yönelik tutumlarinin karsilastirilmesi*. (Yayinlanmamis Doktora Tezi). Ankara: Gazi Universitesi.
- Cetinkaya, R. (2007). *Turkce ogretmeni adaylarinin yeterlik algilari ve ogretmenlik meslegine yönelik tutumlari*. Yayinlanmamis Yuksek lisans Tezi. Selcuk Universitesi Sosyal Bilimler Enstitusu. Konya.
- Cetinkaya, Z. (2009). Turkce ogretmen adaylarinin ogretmenlik meslegine iliskin tutumlarinin belirlenmesi. *Ilkogretim Online*, 8(2), 298-305.
- Cimen, M. (1988). *Cinsiyet ve bazi sosyo-ekonomik degiskenlerin, lise ogrencilerinin mesleki ilgilerine etkisi*. Yayinlanmamis yuksek lisans tezi, Hacettepe Universitesi Sosyal Bilimler Enstitusu.
- Cook, W.W., & Medley, D.M. (1954). Proposed hostility and Pharisaic-virtue scales for the MMPI. *Journal of Applied Psychology*, 38(6), 414-418.
- Coultas, C.J., & Lewin, M.K. (2002). Who becomes a teacher? The characteristics of student teachers in four countries. *International Journal of Educational Development*, 22, 243-260.
- Dogan, T., & Coban, A.E. (2009). Egitim fakultesi ogrencilerinin ogretmenlik meslegine yönelik tutumlari ile kaygi duzeyleri arasindaki iliskinin incelenmesi. *Egitim ve Bilim*, 34(153), 157-168.
- Ertok Konuk, N. (2011). *Examination of the behavior and professional adequacy of the music teacher candidates towards preceptorship regarding several variables*, Unpublished PhD Thesis, Marmara University, Institute of Educational Sciences, Turkey.
- Gagne, R. (1985). *The conditions of learning and theory of instruction* (4th Edition). Holt, Rinehart and Winston, Inc., Florida-USA.

- Glass, G.V. (1976). Primary, secondary, and meta-analysis of research. *Educational researcher*, 3-8.
- Gurbuz, H., & Kisoglu, M. (2007) Tezsiz yuksek lisans programina devam eden fen-edebiyat fakultesi ogrencilerinin ogretmenlik meslegine yonelik tutumlari, *Erzincan Egitim Dergisi*, 9(2).
- Inceoglu, M. (2000). Tutum-aldi iletisim. (3. Baski). Ankara: Imaj Yayınevi.
- Kagıtcıbası, C. (2005). Yeni insan ve insanlar. Evrim Yayıncılık. İstanbul.
- Kucukonder, H., Efe, E., Sahin, M., & Uckardes, F. (1999). Meta analizde modeller ve kullanılan yöntemler. *Science*, 2000, 2005.
- Light, R.J., & Smith, P.V. (1971). Accumulating evidence: Procedures for resolving contradictions among different research studies. *Harvard Educational Review*, 41, 429-471.
- McKeachie, W.J. (1997). Critical elements in training university teachers. *International Journal of Academic Development*, 2(1), 67-74.
- Morgan, C.T. (1998). Psikolojiye giriş. (Cev. H. Arıcı, O. Aydın ve dig.). Ankara: Hacettepe Üniversitesi Psikoloji Bölümü Yayınları, No:1.
- Ozcan, S. (2008). *Eğitim yöneticisinin cinsiyet ve hizmetçi eğitim durumunun görevine etkisi: bir meta analitik etki analizi*. Doktora Tezi, Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü.
- Ozdemirli Capar, G. (2011). İsbirlikçi öğrenme yönteminin öğrencinin matematik başarı ve matematiğe ilişkin tutumu üzerindeki etkililiği: Bir meta-analiz çalışması. (Yayımlanmamış yüksek lisans tezi), Cukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.
- Pehlivan, K.B. (2008). Sınıf öğretmeni adaylarının sosyo-kültürel özellikleri ve öğretmenlik mesleğine yönelik tutumları üzerine bir çalışma. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 4(2), 151-168.
- Sarac, N.E. (2007). İlköğretim ve ortaöğretim matematik bölümü öğretmen adaylarının çoklu zekâ alanlarının belirlenmesi ve matematik ile öğretmenlik mesleğine karşı tutumlarının incelenmesi. Yayımlanmamış Yüksek Lisans Tezi. Balıkesir Üniversitesi Fen Bilimleri Enstitüsü, Balıkesir.
- Sahin, M.C. (2005). *İnternet tabanlı uzaktan eğitimin etkililiği: Bir meta-analiz çalışması*. Yayımlanmamış yüksek lisans tezi, Cukurova üniversitesi, Sosyal Bilimler Enstitüsü, Adana.
- Semerci, N., & Semerci, C. (2004). Türkiye’de öğretmenlik tutumları. *Firat Üniversitesi Sosyal Bilimler Dergisi*, 14(1), 137-146.
- Silah, M. (2000). Sosyal psikoloji (Davranış Bilimi). (1. Baskı). Ankara: Gazi Kitabevi.
- Smith, M.B. (1968). Attitude change. *International encyclopedia of the social sciences*. Crowell and MacMillan.
- Tanriogen, A. (1997). Buca eğitim fakültesi öğrencilerinin öğretmenlik mesleğine yönelik tutumları. *PAU Eğitim Fakültesi Dergisi*, 3, 55-67.
- Tavsancıl, E. (2002). Tutumların ölçülmesi ve SPSS ile veri analizi. Nobel Yayın Dağıtım. Ankara.
- Tezbasaran, A. (1997). Ölçek geliştirme klavuzu. Ankara: Türk Psikologlar Derneği Yayınları.
- Varis, F. (1988). Eğitimde program geliştirme. Ankara Üniversitesi Eğitim Fakültesi Yayınları. Ankara.
- Yıldız, N. (2002). *Verilerin değerlendirilmesinde meta-analizi*. Yüksek lisans tezi, Marmara Üniversitesi, Fen Bilimleri Enstitüsü, İstanbul.