



THE RELATIONSHIP BETWEEN PEDAGOGICAL FORMATION TRAINING CERTIFICATE PROGRAM PROSPECTIVE TEACHERS' CRITICAL THINKING ATTITUDES AND THEIR PERCEPTIONS ON PROFESSIONAL ETHICAL PRINCIPLESⁱ

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Abstract:

This research aims to analyze the relationship between pedagogical formation training certificate program prospective teachers' critical thinking attitudes and their perceptions on professional ethical principles. The study used relational screening model and convenience sampling method which is one of the purposeful sampling methods. The participants consisted of 393 prospective teachers from different majors such as mathematics, physics, chemistry, health, biology, philosophy, religious culture, Turkish language and literature, music, painting and ceramics. The study deployed two data collection tools and personal information form. "Critical Thinking Attitude Scale" and "Code of Professional Ethics Scale". Descriptive statistics, Pearson product-moment correlation, multivariate variance analysis were used during the data analysis. Research results have indicated a medium level of relationship between the critical thinking attitude of prospective teachers and their professional ethical principles. Also, the dimensions of critical thinking attitudes such as willingness to collect information, self-regulation, inference, evidence-based decision making and openness to seek reasons dimensions were found to have a significant relationship with the professional ethical principles, and the five variables account for about 13% of the professional ethical principles. Taking the significance tests of the regression coefficients into consideration, the dimensions of willingness to collect information, self-regulation and openness to seek reasons are regarded as the significant predictors of the professional ethical

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principles. Based upon the research findings, the following recommendations are provided: The availability of critical thinking and democratic education courses within the teaching certificate program or the inclusion of critical thinking and professional ethical principles in the pedagogical formation courses based on the subject will provide prospective teachers to have positive critical thinking attitudes and professional ethical principles. As a result, they will ensure students to gain critical thinking skills during the teaching process, and they are to show ethical behaviors towards their profession. Critical thinking and professional ethical principles can be examined via experimental and qualitative researches and different measurement tools.

Keywords: ethics, professional ethics, thinking, critical thinking, prospective teachers

1. Introduction

The word "ethics" is a widely used concept in our everyday lives. In the western world, ethical issues have been examined in various fields of activity in recent years, and attitudes and behaviors in these fields have been discussed in terms of ethical values. Numerous studies have been conducted related to ethics in Turkey (Aydin, 2012: 13). The concept of ethics derives from the word "ethos" which means "character", "tradition" or "method" in Greek. Ethics-derived "ethics" concept also emerges as a result of examining moral rules and values referring to ideal and abstract (Aydemir, 2012: 8). It is defined as a philosophical domain that investigates moral aspects such as values, norms, rules, good-bad, right-wrong that form the basis of individual and social relations (Arga, 2012). Ethics is basically the effect of individual behavior on others (Zhu, May & Avolio, 2004: 17). Frankena (2007: 20) described ethics as a branch of ethical philosophy; moral philosophy, or a philosophical thought about morals, moral problems and moral judgments.

One of the issues that have been mostly emphasized in recent years is the ethics of profession. Professional ethics is a type of ethics that regulates the relationships of individuals with themselves and society (Kolcak, 2013: 44). In other words, professional ethics is the whole of professional ethics principles that are formed and protected by a certain profession group, that commands the members of the profession, forces them to behave in a certain way, restricts personal tendencies, excludes inadequate and unprincipled members from the profession, regulates intra-professional competition, and aims to preserve service ideals (Aydin, 2012: 4). Various ethical principles related to many professions are determined and professional members are expected to comply with these principles. The ethical principles of the teaching profession are also defined. Ethics in teaching profession is the complement of the responsibilities that must be

fulfilled in relation to the students, society and colleagues while performing the teaching profession as well as the rules and principles (Erdem & Simsek, 2013).

Critical thinking is defined in different ways by different researchers. Known for his studies related to critical thinking, Richard Paul (1991) defined critical thinking as achieving results based on observation and knowledge. Chun (2010) identified critical thinking as a type of reliable thinking that often involves analysis of facts and problem solving despite numerous conceptual definitions. The fact that individuals have critical thinking skills is not sufficient for them to be defined as critical thinkers. It is also of paramount significance to utilize operational skills. On this point, the concepts of attitudes and tendencies that are thought to guide individuals' behaviors emerge (Ozelci, 2012). Attitude is the pre-tendency of a mental, emotional, and behavioral response that an individual organizes depending on experience, knowledge, feelings and motives towards any object, social subject, or event (Inceoglu, 2010).

Ennis describes attitudes towards critical thinking as follows (Akt. Doganay, 2010):

1. Searching for clarification of a thesis or a problem;
2. Seeking for a reason;
3. Being acquainted with knowledge;
4. Using and telling reliable sources of information;
5. Taking the whole into account;
6. Depending upon the main point;
7. Keeping the main or original topic in mind;
8. Being open-minded;
9. Expressing opinion when the evidence and reasons are sufficient;
10. Being sensitive to the level of knowledge and feelings of others,
11. Searching for certainty that the subject allows;
12. Considering complex parts of a whole in an orderly and neatly way;
13. Being capable of using critical thinking skills.

When the literature was examined on this issue in Turkey, no study has been found that examines the relationship between the critical thinking attitudes of pedagogical formation education certificate program prospective teachers and their professional ethic principles. That is the main reason for conducting such a study. Aybek and Sakar (2015) conducted a study that analyzes the relationship between prospective teachers' critical thinking attitudes and their professional ethics principles. Different from that, the present study was carried out with prospective teachers who are from different majors and who receive pedagogical formation education certificate program; furthermore, it has been also determined as to whether prospective teachers'

critical thinking attitudes predict professional ethical principles. This study is thought to have a great contribution to the literature.

1.1. Purpose

This research aims to analyze the relationship between pedagogical formation training certificate program prospective teachers' critical thinking attitudes and their perceptions on professional ethical principles. In accordance with the main objective, the following questions are provided:

1. Is there a significant relationship between pedagogical formation training certificate program prospective teachers' critical thinking attitudes and their perceptions on professional ethical principles?
2. Is there a predictive relationship between pedagogical formation training certificate program prospective teachers' critical thinking attitudes and their perceptions on professional ethical principles?

2. Method

2.1. Research design

The research used relational screening method. Karakaya (2012: 68) defines relational models as *"research models that aim to describe the relationships between variables and analyze the relationships in depth"*. Hence, the relational screening model was used in the present study in order to determine pedagogical formation training certificate program prospective teachers' critical thinking attitudes and their perceptions on professional ethical principles.

2.2. Participants

The research was carried out with prospective teachers who attend pedagogical formation training certificate program at Cukurova University and who were selected by the convenience sampling method which is amongst the purposeful sampling methods. The participants consisted of 393 prospective teachers from different majors such as mathematics, physics, chemistry, health, biology, philosophy, religious culture, Turkish language and literature, music, painting and ceramics.

Convenience sampling method is a method that takes time, money and loss of work as the main purpose. The researcher works on a case or example that will provide the most attainable and maximum savings until reaching a large scale group (Berg, 2001, Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2010, Gurbuz & Sahin, 2015). The reason for choosing the convenience sampling method in the research is that the sample is chosen from easily accessible and practicable units due to the limitations

of time, money and labor. Among the prospective teachers, 247 were women and 146 were men.

2.3. Data collection tools

The study deployed two data collection tools: These are:

Critical Thinking Attitude Scale: This research has employed "Critical Thinking Attitude Scale" (CTAS) developed by Ozelci (2012). Exploratory factor analysis has been conducted. It has been determined that the scale contains 5 dimensions and 19 items in total. 4 of the items are related to willingness to collect information, 5 are self-regulation, 3 are inference, 3 are evidence-based decision making and 4 are openness to seek reason. Items 1, 3, 5, 7, 11, 14, 16, 17 of the scale are reversed. It is a 5-point Likert type scale. The maximum score to be taken from the scale is 95 while the minimum score is 19. The factor loadings for the 19 items range between .536 and .744. The Cronbach Alpha coefficients for the dimensions of the scale vary between .52 and .70. Confirmatory factor analysis of the scale was also performed and the five-factor structure of the scale was verified (Ozelci, 2012).

Code of Professional Ethics Scale: This research has also deployed Code of Professional Ethics Scale (CPES) developed by Manolova (2011). Being a 5-point Likert type scale, the tool consists of 6 dimensions which are professional ethical principles for society, professional ethical principles for school, professional ethical principles for occupation, professional ethical principles for colleagues, professional ethical principles for students and professional ethical principles for parents. The scale also has 71 items. The scale was applied to the teachers working at the public primary schools in the districts of the province of Ankara and Kishinev affiliated to the Ministry of Education and Youth of Moldova. The study hosts a total of 737 teachers, 381 of whom work at 80 public primary schools in the provincial centers of Ankara, and 356 of them are those who work in 24 public schools from the provincial centers of Kishinev. Factor loadings of the scale were found to be .30 and above. The Cronbach Alpha coefficient was calculated for each dimension to determine the reliability of the scale. The Cronbach Alpha coefficient of the tool and its dimensions was determined to range between .76 and .95. The lowest score that can be obtained from the scale is 71 while the highest score is 355.

After getting the required permission, both scales were used in the study. The Cronbach Alpha coefficients of the scales were reexamined. The research analysis has shown that Cronbach Alpha coefficient of the Critical Thinking Attitude scale was .56, while that of the scale for Professional ethical principles was found to be .97. On this basis, this reveals both scales are reliable (Ozdamar, 2013).

2.4. Data analysis

The research data were analyzed through use of the statistical package program. First, the study confirmed whether data provided the general requirements of the parametric tests. Besides, the Kolomogrov Smirnov test assessed whether the data were distributed normally. Accordingly, the data regarding critical thinking attitude and professional ethical principles do not demonstrate normal distribution. The skewness and kurtosis coefficients of the data were examined in order to give a final decision o (Ho, 2006; Secer, 2015). As a result of the analyses, the data were determined to demonstrate a normal distribution.

The relation between prospective teachers' critical thinking attitudes and their professional ethical principles was tested by performing *Pearson product-moment correlation*. Green and Salkind (2013) noted that normal distribution should be ensured for the correlation analysis, that the data pairs should be randomly selected and that the variables forming the data pairs should be independent of each other. Therefore, this study used Pearson product moment correlation analysis as normal distribution was ensured and continuous variables independent from each other were used. In addition, *Multiple Linear Regression Analysis* (MLRA) was also used in the study. It has been examined whether some assumptions are met and whether sample number is sufficient for performing MLRA.

Pallant (2005) reported that there must be at least 40 participants for each predictive variable to be able to perform MLRA. The study includes more than 40 people in each of the dimensions of the Critical Thinking Attitude scale. There is no need for multiple linear relationships for MLRA (Field, 2009). It was determined a medium level of relationship between the critical thinking attitude and professional ethical principle scales. It has also been noted that normality must be provided for MLRA and there should be no extreme values (Secer, 2015). Single variant normality has been achieved in the study. Mahalanobis has examined whether multivariate normality assumption is met via distance values (Pallant, 2005). In this study, Mahalanobis values were examined and no extreme values were found above the value given.

3. Findings

This part presents findings as to whether there is a relationship between prospective teachers' critical thinking attitudes and their professional ethical principles, and whether the dimensions of critical thinking attitudes predict professional ethical principles. Table 1 depicts the relationship between prospective teachers' critical thinking attitudes and their professional ethical principles.

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Table 1: The distribution of the relationship between prospective teachers' critical thinking attitudes and their professional ethical principles

Variables	Professional Ethical Principles	Critical Thinking Attitude
Professional Ethical Principles	1	-
Critical Thinking Attitude	.316*	1

N=393, *p<.01

The Pearson correlation analysis conducted to determine whether there is a significant relationship between prospective teachers' critical thinking attitudes and their professional ethical principles (Tuna, 2016) has pointed a positive and medium level of significant relationship ($r=.316$, $p <.01$) between critical thinking attitudes and their professional ethical principles. Thus, it is wise to emphasize that prospective teachers' professional ethical principle scores will increase as their critical thinking attitude scores increase.

Table 2 displays the summary as to whether the dimensions of critical thinking attitude such as willingness to collect information, self-regulation, inference, evidence-based decision making and openness to seek reasons predict prospective teachers' professional ethical principles.

Table 2: Multiple Linear Regression Analysis Results on How the Dimensions of Critical Thinking Attitudes Predict Professional Ethical Principles

Predicted Variable	Predicting Variables	B	Standard error	β	t	p	Two-way r	Partial r
Professional Ethical Principles	Stable	3,008	,205		14,710	,00		
	Willingness to collect information	,168	,043	,222	3,909	,00	,305	,195
	Self-regulation	,102	,044	,127	2,305	,02	,258	,116
	Inference	-,003	,032	-,005	-,099	,92	,103	-,005
	Evidence-based decision making	-6,129	,025	,000	,000	1,00	,127	,000
	Openness to seek reason	,082	,031	,151	2,647	,00	,196	,133
R= ,360 R²= ,130		F₍₅₋₃₈₇₎= 11,538		p= ,00				

Multiple linear regression analysis has been conducted to determine how the dimensions of critical thinking attitude- willingness to collect information, self-regulation, inference, evidence-based decision making and openness to seek reasons predict prospective teachers' professional ethical principles. In this respect, willingness to collect information, self-regulation, inference, evidence-based decision making and openness to seek reasons dimensions were found to have a significant relationship with the professional ethical principles ($R=.360$ $R^2= ,130$), ($F_{(5-387)}=11,538$ $p<.05$). The five

variables account for about 13% of the professional ethical principles. With respect to the standardized regression coefficients, the order of significance of the predictive variables related to the professional ethical principles are as follows: willingness to collect information ($\beta=,222$), openness to seek reasons ($\beta=,151$), self-regulation ($\beta=,127$), evidence-based decision making ($\beta=,000$) and inference ($\beta=,005$). Taking the significance tests of the regression coefficients into consideration, the dimensions of willingness to collect information, self-regulation and openness to seek reasons are regarded as the significant predictors of the professional ethical principles.

4. Discussion, results and recommendations

This research aims to analyze the relationship between pedagogical formation training certificate program prospective teachers' critical thinking attitudes and their perceptions on professional ethical principles. A significant relationship has been noted between prospective teachers' critical thinking attitudes and their professional ethical principles; furthermore, it has also been determined that prospective teachers' professional ethical principle scores will increase as their critical thinking attitude scores increase. This result is significant for revealing a relationship between critical thinking and professional ethics. When prospective teachers have critical thinking skills, they will also have professional ethics principles. In his study "*Using Case Studies to Develop Critical Thinking in Ethics Courses*", Card (2002) reported that ethical thinking that derives from its critical reflective ethics structure is a process of thinking; besides, the promotion of the development of critical thinking skills helps people think much more ethically. In their study called "*Ethical Student: Ethical Teaching for Critical Thinking in the Undergraduate Program*", Healey, Ribchester and Ross (2011) also emphasized that ethical considerations will develop critical thinking skills. Similar results emerged in the study conducted by Aybek and Sakar (2015). A low level of significant relation exists between the critical thinking attitudes of the prospective teachers and their professional ethical principles.

This research has also analyzed how the dimensions of critical thinking attitude-willingness to collect information, self-regulation, inference, evidence-based decision making and openness to seek reasons predict pedagogical formation training certificate program prospective teachers' professional ethical principles. The five dimensions account for 13% of the perceived professional ethics principles. Research results illustrate that willingness to collect information has the pillar of effect on professional ethical principles. This is followed by openness to seek reasons, self-regulation, evidence-based decision making and inference. In addition, the dimensions of willingness to collect information, self-regulation and openness to seek reasons have been identified to be the significant predictors of the professional ethical principles.

That pedagogical formation training certificate program prospective teachers gather information about the opposite opinion, that they inquire the reliability of information and to know that everything is not as what it seems to may be said to increase their professional ethical principles. (Manolova, 2011)

Based upon the research findings, the following recommendations are provided:

1. The availability of critical thinking and democratic education courses within the teaching certificate program or the inclusion of critical thinking and professional ethical principles in the pedagogical formation courses based on the subject will provide prospective teachers to have positive critical thinking attitudes and professional ethical principles. As a result, they will ensure students to gain critical thinking skills during the teaching process, and they are to show ethical behaviors towards their profession.
2. Critical thinking and professional ethical principles can be examined via experimental and qualitative researches and different measurement tools.

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