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Investigation of teacher candidates' teaching motivation in terms of various variables*

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Abstract

The study aimed to examine the teaching motivation of teacher candidates in terms of various variables, such as gender, department, graduated type of university, order of university preference, general academic average, eagerness to do another profession other than teaching, and liking the program they are studying. The study was conducted via the relational survey model. The participants were selected using purposive sampling method, and were composed of 205 volunteer teacher candidates in the fourth year of the Departments of Science, Mathematics, Elementary School, English, and Social Studies Teaching in a public university in the spring term of 2019-2020 academic year. The data were collected using a Personal Information Form developed by the researchers, and the Teaching Motivation Scale (TMS), developed by Kauffman, Yılmaz-Soylu and Duke (2011. TMS was devised to measure the internal and external motivations of prospective teachers. As a result of the study, it was determined that the teacher motivation of the teacher candidates was generally at a medium level and the intrinsic motivation of the teacher candidates was higher than their extrinsic motivation. On the other hand, it was found that teacher candidates' teaching motivation did not differ significantly according to gender, high school type, university preference variables; It was determined that there was a significant difference according to the variables of department, academic achievement, eagerness to do another profession other than teaching and liking the program they studied.

Keywords: Motivation, Teaching Motivation, Intrinsic Motivation, Extrinsic Motivation, Teacher Candidate

1. Introduction

Motivation can be characterized as dynamically changing cumulative arousal and action, in which wishes and desires in an individual are put in order, operationalized, cognitive and motor processes are started, coordinated, facilitated, strengthened, ended, and assessed (Dörnyei & Ushioda, 2013). In other words, motivation is a theoretical

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structure trying to explain the beginning, direction, severity, and continuation of the behavior. Moreover, motivation involves the desire and energy to learn, and the drive to work effectively and reach out to one's own potential (Sinclair, 2008). Accordingly, motivation determines why individuals choose to do something, how willing individuals are to proceed with the activity, and how much they will push the action (Han & Yin, 2016). In short, according to Dörnyei and Ushioda (2013), selecting an activity, being insistent on doing it, and putting effort do it are the results of motivation.

Motivation can be classified as Intrinsic motivation and extrinsic motivation by its nature. Intrinsic motivation, which refers to doing something because it is interesting or enjoyable by its nature, is defined as doing an action for inner fulfillment. When the individual is motivated internally, he/she takes action not because of external impulses, pressures or rewards, but for the fun or challenge that the behavior involves. In other words, the reason for the behavior is the individual's own wishes and demands. Motivation stems from the needs of the individual. Interest, ability, and curiosity are the foremost significant ones of these resources. When people are Intrinsically motivated by their interests, talents, and curiosities, they engage in activities that interest them and do so freely with a sense of will and without financial rewards or restrictions. Therefore, numerous studies revealed that a high level of Intrinsic motivation is directly proportional to achievement (Deci & Ryan, 1985; Yazıcı, 2009). Extrinsic motivation contrasts with Intrinsic motivation, which refers to doing an activity just to enjoy the activity itself. If the causality of the behavior is shaped by environmental elements rather than the Intrinsic desires of the individual, it can be said that motivation occurred extrinsically (Ryan & Deci, 2000). The main difference between Intrinsic and extrinsic motivation is related to what the cause of the behavior focuses on. In Intrinsic motivation, the control is within the individuals, whereas in external motivation the control is in the environment. Developed in relation to the social and cultural environment and learning experiences, motivation may be affected by cultural differences and even by changes within the same culture. Furthermore, different types of personality traits, environmental factors, previous life experiences, self-concept, physical wellness all are related to motivation (Yazıcı, 2009). In short, Intrinsic motivation is the motivation when the task is in itself enjoyable or satisfying, whereas extrinsic motivation is the motivation caused by rewards or punishments based on success or failure in the task (Lin, McKeachie, & Kim, 2003).

Motivation, which is very important in both aspects of educational environments, is an important motivation that teachers should have in this process. Teachers' motivation is extremely important both for the motivation of students in the classroom and for educational reforms that may take place at the advanced level. Motivated teachers have a very important function in the realization of reforms in education, in the implementation of the changes that occur, and in bringing success and satisfaction. The teachers who cannot achieve success and satisfaction due to their low motivation will have high-stress levels (Jesus & Conboy, 2001, as cited in Yazıcı, 2009). Similar to Jesus and Conboy (2001)'s statements, a report published by OECD (2005) stated that all countries are attempting to improve their schools and try to respond better to higher social and economic expectations and that teachers being the most important resources in schools are at the center of the effort to improve schools. Increasing the productivity and equality of education depends substantially_on competent willing_people wanting to be teachers, teachers having high-quality education and students having access to high-quality teaching. For this reason, teacher motivation, one of the most important ways of

providing students with good quality education, is one of the most issues in the field of education because teaching motivation of teachers, which is as important as their teaching abilities, is closely related to their professional development (Watt & Richardson, 2007).

Dörnyei and Ushioda (2011) identified the two dimensions of teacher motivation as teaching motivation and motivation to stay in the profession. According to Han and Yin (2016), teacher motivation has four basic components. These are Intrinsic motivation, which is closely related to teaching being Intrinsic, social contextual effects impacts, which are related to the effect of external conditions and restrictions, temporal dimension, which is related to lifelong continuity, and factors that are caused by negative effects and decrease motivation.

In parallel with the basic components of Han and Yin (2016), the teaching profession involves strong subject knowledge, pedagogical skills, working effectively with a wide range of students and colleagues, contributing to the school and the profession, and continuing development. This teacher profile may refer to different levels of performance appropriate for beginners, experienced, or for those who have higher responsibilities. A clear, well-structured, and widely-supported teacher profile may be a powerful mechanism for organizing the elements involved in improving teachers' knowledge and skills and providing a tool for assessing whether teacher development programs make a difference (OECD, 2005). In order to operate this mechanism in the most correct way, the subject of teaching motivation should be well researched. Based on this, it is clear that teacher motivation studiess is a very important factor closely related to a number of variables such as student motivation, education reform, teaching practice, and teachers' psychological satisfaction and well-being. Therefore, the studies collecting data that will help administrators determine how to attract potential teachers and how to make them stay in teaching are important (Han & Yin, 2016).

In line with the foregoing, a review of the literature on teacher candidates' motivation to teach will enrich the understanding of teacher candidates' views on the profession and shed light on future research in different contexts (Han & Yin, 2016). Sinclair (2008) emphasized the importance of such research on motivational in terms of teaching and teacher training in determining what attracts individuals to teach, how long they stay in initial teacher training courses and then in the teaching profession, and to what extent they concentrate on their courses and professions. It is believed that determining the teaching motivation of teacher candidates is beneficial in terms of increasing professional job satisfaction in terms of the teaching profession, taking measures for teachers to work efficiently in their profession, and making improvements. As a matter of fact, a study conducted by Sinclair (2008) determined that the teacher's preparation for the profession (including practice) affects one's commitment to teaching. The commitment study conducted by focusing on the training of qualified teachers revealed that the commitment of teacher candidates to the profession is affected by personal and student factors, working conditions, and teacher preparation. Tulyakul et al. (2019) stated that a teacher with high motivation continues to teach his/her students in his/her free time and tries to engage in other activities related to the profession. In other words, a teacher with high motivation tries to himself/herself. However, they also stated teachers with low motivation negatively affect teaching. Therefore, they emphasized that it is very important to examine teachers' teaching motivations.

In our country, there are a limited number of studies examining the teaching motivations of teachers and teacher candidates. In addition, these studies examined the issue according to their departments or the examined variables were narrow-scoped (sex, year level, etc.) (Yenilmez et al., 2018; Argon & Cicioğlu, 2017; İşigüzel, 2013; Recepoğlu & İbret, 2019; Hamurcu et al. , 2018, İşigüzel, 2013; Ayık & Ataş, 2014; Watt & Richardson 2007; Gök et al., 2019; Uyulgan & Akkuzu, 2014; Acat & Demiral, 2002; Erdem & Gözel, 2014; Recepoğlu & İbret, 2019; Spittle, Jackson & Casey, 2009; Hegarty, 2010; Gençay & Gençay, 2007). It is believed that the present study will contribute to the literature since it compares the teaching motivations of teacher candidates studying in different departments and assesses the teaching motivation of teacher candidates according to many variables (sex, department, the type of high school graduated from, and the order of university preference, eagerness to do another profession other than teaching, being pleased with their department, and grade point average) in detail.

Within this context, the purpose of this study was to analyze the teacher candidates' teaching motivations according to different variables (sex, department, the type of high school graduated from, the order of university preference, grade point average, eagerness to do another profession other than teaching, and being pleased with their department. For this purpose, the study sought to answer the following questions:

1. What are the Intrinsic and extrinsic teaching motivation levels of teacher candidates majoring in Science Education, Math Education, Elementary Education, Social Studies Education, and English Language Teaching?

2. Does teacher candidates' Intrinsic and extrinsic teaching motivation differ according to the variables of sex, department, the type of high school graduated from, the order of university preference, grade point average, eagerness to do another profession other than teaching, and being pleased with their department?

2. Method

2.1. Research Design

This study was conducted with a cross-sectional survey design. In the cross-sectional study design, the researcher collects data about attitudes or views at a single point in time. This design is advantageous in measuring current attitudes or practices, and data collection takes a short time frame (Creswell, 2017).

2.2. Participants and procedure

The convenience sampling method, one of the purposive sampling methods, was used in this study. In the sampling method, the most accessible case with maximum savings is examined in order to prevent loss of time, money, and labor (Cohen & Manion, 1998). The study was conducted with 205 4th year teacher candidates studying Science Education, Math Education, Social Studies Education, Elementary Education, and English Language Teaching at a public university during the Spring semester of the 2018-2019 academic year. The demographic information about the participants is presented in Table 1.

Table 1. Participants' Demographic Data

		Frequency (f)	*Percentage (%)*
Sex	Female	161	78,5
	Male	44	21,5
Department	Science Education	37	18,0
	Math Education	59	28,8
	Elementary Education	37	18,0
	Social Studies Education	38	18,5
	English Language Teaching	34	16,6
Type of High School Graduated From	Anatolian High School	106	51,7
	Anatolian Teacher High School	46	22,4
	Public High School	38	18,5
	Vocational High School	5	2,4
	Religious Vocational High School	3	1,5
	The Open Education High School	2	1,0
	Art High School	2	1,0
	Private High School	1	0,5
The Order of University Preference	1.-3. place	82	40,0
	4.-6. place	49	23,9
	7.-9. place	31	15,1
	10. place and above	42	20,5
Eagerness to Do Another Profession Other Than Teaching	Yes	83	40,5
	No	78	38,0
	Undecided	44	21,5
Being Pleased with their Department	Yes	144	70,2
	No	27	13,2
	Undecided	34	16,6
Grade Point Average	Between 2.00-2.50	43	21,0
	Between 2.51-3.00	73	35,6
	Between 3.01-3.50	74	36,1
	Between 3.51-4.00	5	2,4

According to Table 1, the majority of the participants were female. The distribution of students' departments was approximately homogeneous. 51,7% of the participants graduated from Anatolian high schools, and 40% of them were placed in their first three university choices. In addition, in terms of eagerness to do another profession other than teaching, the numbers were very close. 40,5% of the teacher candidates said yes and 38% of them said no. Furthermore, a majority of the teacher candidates (70,2%) were pleased with their departments. The teacher candidates were also asked about their grade point averages (GPA). Their GPAs varied between 2.0-4.0. For the study, a GPA between 2.00-2.50 was considered a low academic achievement, a GPA between 2.51-3.00 was considered a medium academic achievement, a GPA between 3.01-3.50 was considered a good academic achievement, and a GPA between 3.51-4.00 was considered a high

academic achievement. In this context, the majority of the participating teacher candidates' GPAs were at the medium level (35.6%) and good level (36.1%).

2.3. Data Collection Tools

The data were collected using a "Personal Information Form" developed by the researchers, and the "Teaching Motivation Scale (TMS)" developed by Kauffman, Yılmaz-Soylu, and Duke (2011) to measure the Intrinsic and extrinsic motivations of teacher candidates. The Personal Information Form consisted of questions about participants' sex, their departments, the type of high school they graduated from, the order of their university preference, their grade point averages, their eagerness to do another profession other than teaching, and whether or not they were pleased with their departments.

Comprised of five-point Likert type items, TMS has a response format ranging as strongly disagree (1 point), partially agree (2 points), moderately agree (3 points), mostly agree (4 points), and strongly agree (5 points). Thescale's original form has 12 items about Intrinsic motivation and extrinsic motivation and two subdimensions. Validity and reliability works of the TMS were done by Ayık, Ataş Akdemir, and Seçer (2015). The internal consistency coefficients for the Intrinsic motivation and extrinsic motivation subdimensions and the total scale were found as .70, .76, and .84, respectively. The scale's split-half reliability coefficients done two weeks apart were calculated as .72, .78, and .82 for the Intrinsic motivation subdimension, the extrinsic motivation subdimension, and the total scale, respectively. In addition, the test-retest reliability coefficient was found .71 for the Intrinsic motivation subdimension, .70 for the extrinsic motivation subdimension, and .92 for the total scale. For scale development and adaptation, scales with a reliability coefficient of .70 and above are considered reliable (Fraenkel, Wallend, & Hyun, 2012; Pallant, 2016). Considering the calculated reliability coefficients of the TMS, it can be stated that the scale is reliable. In the present study, the internal consistency coefficient of the TMS scale was recalculated, and the value was found as .74 for Intrinsic motivation subdimension, .72 for extrinsic motivation subdimension, and .83 for the total scale.

2.4. Analysis of Data

Descriptive measurements, multivariate analysis of variance (MANOVA) and Tukey's Post hoc-test, one of the multiple comparison tests, were used for data analyses. (MANOVA compares the groups and provides information about whether the mean differences between groups are by chance on the combination of dependent variables (Pallant, 2016). The purpose of MANOVA is to determine whether the differences in the behaviors reflected by the dependent variable are caused by the independent variable or the chance factor. MANOVA is the generalized version of analysis of variance ANOVA for situations with more than one dependent variable (Tabachnick & Fidell, 2015). One of the reasons for preferring MANOVA in this study was that MANOVA shows the differences that cannot be determined if ANOVA is done separately for each dependent variable (Tabachnick & Fidell, 2015). The other reason why MANOVA was preferred was to provide control against the risk of Type 1. According to Pallant (2016), the more analyses are conducted, the more likely it is to find significant results, even if there is no significant difference between the groups. Therefore, MANOVA was preferred in the analysis of the study data.

The study data were analyzed using the SPSS 23.0 computer package program. In order to perform MANOVA, some assumptions must be met. Pallant (2016) summarized the MANOVA assumptions as having sufficient sample size, examining single and multivariate outliers and normality, meeting linearity, meeting homogeneity of variance-covariance matrices, and controlling multicollinearity and singularity. The absence of univariate and multivariate outliers and meeting univariate and multivariate normality are also among the assumptions of MANOVA analysis (Pallant, 2016).

Boxplots were examined in the analysis of univariate outliers in the study. According to Pallant (2016), Mean and 5% Trimmed Value should not be much different from each other in the analysis of outliers. Accordingly, in the examination of outliers in the study, Mean and 5% Trimmed Value were very close to each other. According to the result of the examination of the Mean and 5% Trimmed Value of the boxplots, the outliers were at acceptable levels. In the examination of univariate normality, skewness and kurtosis coefficients and graphs were examined, and the data showed a normal distribution. In the examination of multivariate extreme values and normality, Mahalanobis distance values were calculated. According to Pallant (2016), if the Mahalanobis distance value is less than the critical value, it can be assumed that there are no important multivariate outliers and multivariate normality is met. Based on the result of the examinations, the data of five participants whose Mahalanobis distance value was greater than the critical value were not included in the analyses, and the study continued with the data of 205 participants. Another assumption of MANOVA analysis is to meet the linearity between each pair of variables, separately for each group (Pallant, 2016). MANOVA accepts that all dependent variable pairs, all covariant pairs, and all dependent variable-covariant pairs are linear (Tabachnick & Fidell, 2015). Accordingly, linearity was met between the dependent variables and each group of independent variables. Another assumption to perform MANOVA is not to have multicollinearity (dependent variables being in high correlation with each other). MANOVA works best when there is a moderate correlation between dependent variables (Pallant, 2016; Tabachnick & Fidell, 2015). In the study, the relationship between dependent variables was calculated, and this relationship was found at a moderate level. The last assumption of MANOVA is to ensure the homogeneity of variance-covariance matrices (Pallant, 2016; Tabachnick & Fidell, 2015). For this, Box's M Test of Equality of Covariance Matrices test was performed, and the Sig value was calculated greater than .001. The fact that the Sig value is greater than .001 indicates that the homogeneity of variance-covariance matrices was met (Pallant, 2016). In addition, the Levene test was used to examine the equality of variances, and the Sig value was calculated higher than .05 in all the variables except for the "Eagerness to do another profession other than teaching" variable, the variances were found equal, and Tukey's test was used as the posthoc test. Tamhane's T2 test was used as the posthoc test since the variances were not evenly distributed in the analysis regarding the variable of "Eagerness to do another profession other than teaching".

In data analyses, before the MANOVA was performed, whether or not MANOVA assumptions were met was checked, and the effect sizes of the analyses done in the study are presented in the relevant tables. According to Cohen (1998), the effect size value ($\eta 2$) .01 is considered as small, .06 as medium, and .14 as large.

3.Findings

The study findings are explained below based on the research problems.

3.1. What are the Intrinsic and extrinsic teaching motivation levels of teacher candidates majoring in Science Education, Math Education, Elementary Education, Social Studies Education, and English Language Teaching?

In order to determine the teaching motivation of the teacher candidates in general, the arithmetic mean, standard deviation, minimum and greatest values regarding the factor total scores and scale total scores were calculated, and the results are presented in Table 2.

Table 2. General analysis of teacher candidates' teaching motivation

Factor	*Minimum*	*Maximum*	$\bar{x}$	*SS*
Intrinsic Motivation	6,00	30,00	19,23	4,89
Extrinsic Motivation	6,00	30,00	16,52	4,86
Total	12,00	60,00	35,79	8,80

According to Table 2, the Intrinsic motivation ($\bar{x}$ = 19.23), extrinsic motivation ($\bar{x}$ = 16.52) and general teaching motivation ($\bar{x}$ = 35.79) of teacher candidates (Science Education, Mathematics Teaching, Elementary Education, Social Studies Teaching, and English Language Teaching) were at a medium level. Furthermore, the Intrinsic motivation of teacher candidates was higher than their extrinsic motivation.

3.2. Does teacher candidates' Intrinsic and extrinsic teaching motivation differ according to the variables of sex, department, the type of high school graduated from, the order of university preference, grade point average, eagerness to do another profession other than teaching, and being pleased with their departments?

The results of the analysis regarding whether the teacher candidates' Intrinsic and extrinsic teaching motivation differ according to the variables of sex, department, the type of high school graduated from, the order of university preference, grade point average, eagerness to do another profession other than teaching, and being pleased with their department are presented below under separate headings for each variable.

3.2.1. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the Sex Variable

Whether the teacher candidates' teaching motivations differed according to the sex variable was examined by MANOVA. The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .974, p> .001), and the Levene Test showed that intrinsic motivation (p = .92, p> .05) and extrinsic motivation (p = .77, p> .05) scores were equal for the error variances. The MANOVA results are given in Table 3.

Table 3. Results of MANOVA Regarding the "Sex" Variable

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2(eta)*
Sex	Intrinsic Motivation Extrinsic Motivation	Wilks' Lambda (λ)	0,97	2,61	2,0	191,0	0,076	,03

According to Table 3, no statistically significant difference was found between men and women in the context of combined dependent variables (intrinsic and extrinsic teaching motivation), F (2,191) = 2.61, p = .076; Wilks' Lambda (λ) = .97; partial eta squared = .03.

3.2.2. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the High School Type Graduated from Variable

Whether the teacher candidates' teaching motivations differed according to the variable of the type of high school graduated from (Anatolian High School, Anatolian Teacher High School, Public High School, Vocational High School, Religious Vocational High School, Open Education High School, Arts High School, Private High School) was examined by MANOVA. The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .798, p> .001). The Levene Test showed that intrinsic motivation (p = .81, p> .05) and extrinsic motivation (p = .36, p> .05) scores were equal for the error variances. The MANOVA results are given in Table 4.

Table 4. Results of MANOVA Regarding the "The Type of High School Graduated from" Variable

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2 (eta)*
High School Type	Intrinsic Motivation Extrinsic Motivation	Wilks' Lambda (λ)	0,93	1,03	14,0	366,0	0,426	,04

According to Table 4, teacher candidates' teaching motivations (intrinsic and extrinsic teaching motivation) did not differ significantly according to the type of high school they graduated from, F (14,366) = 1.03, p = .426, Wilks' Lambda (λ) = .93, partial eta squared = .04. Therefore, it can be stated that the type of high school graduated from variable did not affect teacher candidates' teaching motivation.

3.2.3. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the Order of Their University Preference Variable

Whether the teacher candidates' teaching motivations significantly differed according to the order of university preference variable was analyzed by MANOVA. The teacher candidates' university preference orders were divided into four groups (Group 1: 1st-3rd place, Group 2: 4th-6th place, Group 3: 7th-9th place, Group 4: 10th place and above). The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .515, p> .001). The Levene Test showed that intrinsic motivation (p = .41 p> .05) and extrinsic motivation (p = .91, p> .05) scores were equal for the error variances. The MANOVA results are given in Table 5.

Table 5. Results of MANOVA Regarding the "Order of University Preference" Variable

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2 (eta)*
University Preference Order	Intrinsic Motivation Extrinsic Motivation	Wilks' Lambda (λ)	0,97	1,06	6,0	376,0	0,384	,02

According to Table 5, teacher candidates' teaching motivations (intrinsic and extrinsic teaching motivation) do not differ significantly according to their order of university preference for the program they are studying, F (6.376) = 1.06, p = .384; Wilks' Lambda (λ) = .97, partial eta squared = .02. Accordingly, it is reported that the order of preference variable does not make a significant difference on teacher candidates' teaching motivation.

3.2.4. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the Grade Point Average Variable

Teacher candidates are divided into four groups based on their academic achievement (Group 1: GPA between 2.00-2.50, Group 2: GPA between 2.51-3.00, Group 3: GPA between 3.01-3.50, Group 4: GPA above 3.51). Whether the teacher candidates' teaching motivations significantly differed according to the grade point average variable was analyzed by MANOVA. The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .689, p> .001). The Levene Test showed that intrinsic motivation (p = .64 p> .05) and extrinsic motivation (p = .18, p> .05) scores were equal for the error variances. The MANOVA results are given in Table 6.

Table 6. Results of MANOVA Regarding the "Grade Point Average" Variable

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2 (eta)*
Grade Point Average	Intrinsic Motivation Extrinsic Motivation	Wilks' Lambda (λ)	0,91	2,82	6,0	358,0	,011	,04

According to Table 6, teacher candidates' teaching motivations (intrinsic and extrinsic teaching motivation) significantly differed according to their academic achievement (grade point averages), F (6, 358) = 2.82, p = .011, Wilks' Lambda (λ) = .91, partial eta squared = .04. Therefore, the grade point average variable had a significant difference on teacher candidates' teaching motivation.

When the results of the dependent variables were addressed separately, the only difference having a statistical significance was found as intrinsic motivation using a Bonferroni adjusted alpha level of .025, F (3,180) = 4.34, p = .006, partial eta squared =. 07. When the partial eta square value of .07 was interpreted according to the values stated by Cohen (1998), grade point averages had a medium effect on intrinsic

motivation. According to the value obtained, it can be stated that grade point average explained 7% of the variance in teacher candidates' intrinsic motivation scores.

According to results of Tukey's Test for post-hoc, the intrinsic teaching motivation of the teacher candidates whose GPAs were between 3.01-3.50 was significantly higher than the teacher candidates whose GPAs were between 2-2.50 and 3.51-4.00.

3.2.5. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the Department Variable

Whether the teacher candidates' teaching motivations differed significantly according to the department variable was examined with MANOVA. For this, teacher candidates were divided into five groups according to their departments (Group 1: Science Education, Group 2: Math Education, Group 3: Elementary Education, Group 4: Social Studies Education, Group 5: English Language Teaching). The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .380, p> .001). The Levene Test showed that intrinsic motivation (p = .97 p> .05) and extrinsic motivation (p = .97, p> .05) scores were equal for the error variances. The MANOVA results are given in Table 7.

Table 7. Results of MANOVA Regarding the "Department" Variable

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2 (eta)*
Department	Intrinsic Motivation Extrinsic Motivation	Wilks' Lambda (λ)	0,91	2,27	8,0	376,0	,022	,05

According to Table 7, teacher candidates' teaching motivations (intrinsic and extrinsic teaching motivation) differed significantly according to their departments (Science Education, Mathematics Education, Elementary Education, Social Studies Education, and English Language Teaching), F (8.376) = 2.27, p = .022, Wilks' Lambda (λ) = . 91, partial eta squared = .05. Accordingly, the department variable had a significant difference on teacher candidates' teaching motivations.

When the results of the dependent variables were addressed separately, the only difference having a statistical significance was found as extrinsic motivation using a Bonferroni adjusted alpha level of .025, F (4,189) = 4.02, p = .004, partial eta squared =. 08. When the partial eta square value of .08 was interpreted according to the values stated by Cohen (1998), the department variable had a medium effect on extrinsic motivation. According to the value obtained, it can be stated that teacher candidates' departments explained 8% of the variance in teacher candidates' extrinsic motivation scores.

According to the results of Tukey's Test for post-hoc, the extrinsic teaching motivation of the teacher candidates studying Math Education was significantly higher than the teacher candidates studying Social Studies Education. Furthermore, the extrinsic teaching motivation of the teacher candidates studying Engish Language Teaching was significantly higher than the teacher candidates studying Social Studies Education.

3.2.6. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the "Eagerness to Do Another Profession Other Than Teaching" Variable

Whether the teacher candidates' teaching motivations differed significantly according to the "eagerness to do another profession other than teaching" variable was examined by MANOVA. For this, teacher candidates were divided into three groups according to their eagerness to do another profession other than teaching (Group 1: Yes, I want to do another profession, Group 2: No, I do not want to do another profession, Group 3: I am undecided). The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .166, p> .001). The Levene Test showed that extrinsic motivation (p = .91 p> .05) scores were equal for the error variances, whereas intrinsic motivation (p = .03, p> .05) scores were not equal for the error variances. The MANOVA results are given in Table 8.

Table 8. Results of MANOVA Regarding the "Eagerness to do Another Profession other than Teaching" Variable

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2 (eta)*
Eagerness to do another profession other than teaching	Intrinsic Motivation	Wilks' Lambda (λ)	0,77	13,42	4,0	380,0	,000	,12
	Extrinsic Motivation							

According to Table 8, teacher candidates' teaching motivations (intrinsic and extrinsic teaching motivation) differed significantly according to their eagerness to do a profession other than teaching, F (4,380) =13.42, p= .000, Wilks' Lambda(λ)= .77, partial eta square= .12. Accordingly, the variable of eagerness to do another profession other than teaching had a significant difference on the teacher candidates' teaching motivation.

When the results of the dependent variables addressed separately, the variable of eagerness to do another profession other than teaching showed a significant difference on intrinsic motivation by using a Bonferroni adjusted alpha level of .025 [F (2,191) = 28.39, p = .000, partial eta square = .23] and on extrinsic motivation [F (2,191) = 6.45, p = .002, partial eta square = .06]. When the partial eta square values were interpreted according to the values stated by Cohen (1998), the variable of eagerness to do another profession other than teaching had a large effect on intrinsic motivation, and a medium effect on extrinsic motivation. According to the obtained values, the eagerness of teacher candidates to do another profession other than teaching explained 23% of the variance in their intrinsic motivation scores and 6% of the variance in extrinsic motivation scores.

While Tukey test was used for post-hoc test for extrinsic motivation as error variances were equal, Tamhane's T2 test was used for intrinsic motivation because error variances were not equal. According to Tukey's test results, the extrinsic teaching motivation of the teacher candidates who were not eager to do another profession other than teaching was significantly higher than the teacher candidates who were eager to do another profession other than teaching. According to Tamhane's T2 test results, the intrinsic motivation of teacher candidates who were not eager to do another profession other than teaching was significantly higher than those who were eager to do another profession other than teaching and who were undecided.

Based on the data, it can be stated that the intrinsic and extrinsic motivations of the teacher candidates who were not eager to do another profession other than teaching were higher than the teacher candidates who were eager to do another profession other than teaching.

3.2.7. Analysis of Teacher Candidates' Teaching Motivations (Intrinsic and Extrinsic) according to the "Being Pleased with Their Department" Variable

Whether the teacher candidates' teaching motivations differed significantly according to the variable of "being pleased with their department" was examined by MANOVA. For this, the teacher candidates were divided into three groups according to being pleased with their department (Group 1: Yes, I like the department I am in, Group 2: No, I do not like the department I am in, Group 3: I am undecided). The Box's M Test of Equality of Covariance Matrices test showed the homogeneity of the variance-covariance matrices were met (p = .101, p> .001). The Levene Test showed that intrinsic motivation (p = .18 p> .05) scores were equal for the error variances, whereas extrinsic motivation (p = .66, p> .05) scores were not equal for the error variances. The MANOVA results are given in Table 9.

Table 9. Results of MANOVA Regarding the Variable "Being Pleased with the Department"

Effect	*Dependent Variable*	*Multivariate Test*	*Value*	*F*	*Hypothesis Sd*	*Error Sd*	*p*	*η2 (eta)*
Being pleased with the department	Intrinsic Motivation	Wilks' Lambda (λ)	0,80	10,98	4,0	380,0	,000	,10
	Extrinsic Motivation							

According to Table 9, teacher candidates' teaching motivations (intrinsic and extrinsic teaching motivation) differed significantly according to them being pleased with the department they were in, F (4,380) =10.98, p= .000, Wilks' Lambda(λ)= .80, partial eta square= .10. Accordingly, the variable of being pleased with their department had a significant difference on the teacher candidates' teaching motivation.

When the results of the dependent variables addressed separately, the variable of being pleased with their department showed a significant difference on intrinsic motivation by using a Bonferroni adjusted alpha level of .025 [F (2,191) = 22.20, p = .000, partial eta square = .19] and on extrinsic motivation [F (2,191) = 11.77, p = .000, partial eta square = .11]. When the partial eta square values were interpreted according to the values stated by Cohen (1998), the variable of being pleased with their department had a large effect on intrinsic motivation and a medium effect on extrinsic motivation. According to the obtained values, being pleased with the department explained 19% of the variance in teacher candidates' intrinsic motivation scores and 6% of the variance in their extrinsic motivation scores.

According to Tukey's test results, the intrinsic and extrinsic teaching motivations of the teacher candidates who were pleased with their departments were significantly higher than the teacher candidates who were not pleased with their departments and who were undecided.

4. Results, Discussion and Recommendations

According to the results of this study examining the teaching motivations of teacher candidates in terms of various variables (sex, department, type of high school graduated from, order of university preference, grade point average, eagerness to do another profession other than teaching, and being pleased with the department they are in), the teaching motivation of 4th year teacher candidates studying Science Education, Math Education, Social Studies Education, Elementary Education, and English Language Teaching was generally at a "medium" level. This study result is in parallel to the literature (Ayık & Ataş, 2014; Erdem & Gözel, 2014, İşigüzel, 2013, Yenilmez, Balbağ & Turgut, 2018).

The study findings revealed that the intrinsic motivation of the teacher candidates was higher than their extrinsic motivation. This result is similar to the findings in the literature (Ayık & Ataş, 2014; Watt & Richardson, 2007; Yenilmez, Balbağ & Turgut, 2018). In their study conducted with preschool teacher candidates, Dereli and Acat (2010) determined that preschool teacher candidates' intrinsic motivation was very high and their extrinsic motivation was high. Similarly, in their longitudinal studies, Malik and Monsoor (2015), Waheed, Wazir, and Rasheed (2016) and Sinclair (2008) also found that intrinsic and extrinsic motivation of teacher candidates were at a high level. The results of these three studies differed from the results of the present study. Altınkurt, Yılmaz, and Erol (2004) conducted a study on the teaching motivation of students receiving pedagogical formation training. They determined the motivation level of these candidates as high just like such as Dereli and Acat (2010) did. Gün and Turabik (2019, p.24) also put forth that teacher candidates' intrinsic motivations were high in their study. The aforementioned study interpreted the participants' answers to the scale items and stated that teacher candidates who would do their profession eagerly, willingly, and without any financial concerns will be successful teachers with high job satisfaction. In their study with physical education teachers working in Lithuania, Hungary, Estonia, and Spain, Hein et al. (2012) revealed that teachers in Spain had a high intrinsic motivation and those in Lithuania had high extrinsic motivation. According to the mean scores of five countries, the teaching motivation of the teachers was based more on extrinsic motivation. Similar results were obtained from the qualitative study conducted by Lam (2012). He stated that the work conditions of teachers teaching in the USA, the UK, and Australia are difficult. He also expressed that this differs in Hong Kong and that teachers tend to select this profession in Hong Kong due to the better work conditions for teachers compared to other sectors. Similarly, in their study with teacher candidates, Acat and Yenilmez (2004) found teacher candidates' extrinsic motivation levels higher than their intrinsic motivation levels. They attributed this to teaching being on demand at that time, the training they got, and the learning environment. The studies on the subject showed that the results of the measurements made in different countries or at different times in the same country differed. It is believed that this may be related to the socio-cultural, economic conditions, and work conditions in that country as well as issues such as teacher appointments, the content of teacher training, and teachers' salaries.

In the present study, there was no significant difference between the teaching motivations of female and male teacher candidates, either based on factors or in general. This result is similar to the studies conducted by Hamurcu, Canbulat, Beyhan, and İlhan (2018) and İşigüzel (2013). On the other hand, there are studies that found the motivation of female teacher candidates towards the teaching profession higher than

male teacher candidates (Acat & Demiral, 2002; Erdem & Gözel, 2014; Recepoğlu & İbret, 2019; Spittle, Jackson & Casey, 2009; Hegarty, 2010). Gençay & Gençay (2007) revealed a significant difference in the amotivation level of female candidates compared to male candidates. In their study, the lack of motivation score was found to be higher in females. This result and the results of the aforementioned studies are striking in that the present study contradicts them. Accordingly, it can be stated that more studies are needed in order to determine the exact effect of sex on teaching and teaching motivation.

In addition, the present study determined that the intrinsic and extrinsic motivation of teacher candidates did not differ significantly according to the variables of high school type and the order of university preference. Erdem and Güzel (2014) examined only the effect of high school type on teaching motivation in their study. Similar to the present study, they put forth that the type of high school did not have a significant effect on teaching motivation. However, since their study was conducted only with elementary school teachers, it was not possible to compare this result with other subject teachers.

According to the study findings, the academic achievement (grade point average) variable had a significant difference on the intrinsic motivation of teacher candidates. In the study conducted by Uyulgan and Akkuzu (2014), the results corresponded exactly to the results of the present study, and the intrinsic motivation levels of the students with high grade point averages were also found to be high. Yenilmez, Balbağ, and Turgut (2018) concluded in their study that students with medium and high academic achievement have high extrinsic motivation and general motivation levels. Although these results do not contradict the results of the present, they are not exactly similar. On the other hand, İşigüzel (2013) did not find a significant difference between academic achievement and motivation in his study. The study revealed that as the academic achievement increases, the motivation level decreases. It is believed that participants coming from different socio-economic backgrounds, the studies being conducted at different times, and the policies regarding the teaching profession may have an effect on these results. It is also believed that more research is needed to examine the effect of academic achievement on teacher candidates' teaching motivation.

In terms of the effect of teacher candidates' departments on their teaching motivation, the study findings also put forth that the extrinsic motivation of the teacher candidates studying Social Studies Education was lower at a .05 significance level than the teacher candidates studying Mathematics Education and English Language Teaching. Recepoğlu and İbret (2019) found high levels of both types of motivation in their study with Social Studies teachers. Their results are completely different from the results of the present study. At the end of their study with English Language teacher candidates, Acat and Demiral (2002) concluded that their motivation came mostly through instrumental factors, i.e. external factors. This result is similar to the findings of the present study in terms of the teaching motivation of candidates studying English Language Teaching and Mathematics Education. On the other hand, the study results revealed no significant difference in teacher candidates' intrinsic motivation according to the department variable. It is believed that this result may be because of the fact that the teacher appointments made by the Ministry of National Education [MoNE] in recent years in our country were less in Social Studies compared to English and Mathematics.

Furthermore, the present study put forth that teacher candidates' intrinsic and extrinsic teaching motivations differed significantly according to the variables of eagerness to do another profession other than teaching and being pleased with the

department they are in. In line with this result, Gök and Atalay Kabasakal (2019) stated that teacher candidates who voluntarily registered to the department they were in and those who wanted to become a teacher after graduation had higher self-efficacy, motivation (intrinsic and extrinsic motivation), and attitudes than those who did not voluntarily register to their department. Uyulgan and Akkuzu (2014) similarly found that the intrinsic motivation of teacher candidates who wanted to become a teacher was higher than those who did not want. These results also show the association between positive attitude and motivation.

The limitations of this study and the recommendations based on the study results are as follows:

- This study is limited to teacher candidates studying Science Education, Elementary Mathematics Education, English Language Teaching, Social Studies Education and Elementary Education. By collecting data from a larger sample group with candidates from other departments, more comprehensive multiple comparisons can be made on teaching motivation.
- By using different variables that can affect teaching motivation, teaching motivation can be discussed in detail, and experimental studies can be conducted in this context. In the study conducted by Yenilmez, Balbağ, and Turgut (2018), the importance of conducting similar studies using different variables that can affect teaching motivation was emphasized.
- Orientation activities can be organized for teacher candidates for them to like their departments and to feel happy in them.
- By establishing university-Ministry of National Education cooperation between the education faculties of universities and the National Education Directorates they are affiliated with, it can be ensured that the teacher candidates are included in applied works starting from the 1st year so that they can better know their profession.
- Career activities can be organized where teacher candidates can come together with teachers from the same or different subjects.

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