

Examination of Occupational Anxiety Levels and Academic Self-efficacy of Physical Education Teacher Candidates

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Abstract This study aims at determining the occupational anxiety level of pre-service physical education teachers according to variables, and revealing the correlation between occupational anxiety and academic self-efficacy. Study group consists of 586 pre-service teachers from 10 different universities in Turkey. Data is collected by “*Occupational Anxiety Scale for Pre-Service Teachers (OAS)*” and “*Academic Self-Efficacy Scale (ASES)*”. T-test and One-Way ANOVA are used for data analysis, and Levene test is conducted for variance equality. Confidence interval is .95. For gender variables, the results reveal that women’s occupational anxiety is significantly higher than men’s in the dimensions of OAS “total occupational anxiety”, “socio-economic anxiety” and “school management anxiety” ($p < .05$). According to grade levels, there is significant differentiation in the dimension of OAS “total occupational anxiety”, “job-oriented anxiety”, “socio-economic anxiety”, “interaction with students’ anxiety”, “colleagues and students’ parents anxiety” ($p < .05$). For variables of participation in socio-cultural and sportive activities and in “socio-economic” dimension, the participants, who never participate in any activities, have significantly higher level of occupational anxiety than those who regularly participate in activities ($p < .05$). There is also a negative correlation between OAS and ASES ($p < .01$).

Keywords Pre-service, Physical Education Teacher, Occupational Anxiety, Academic Self-efficacy

1. Introduction

1.1. Occupational Anxiety

In philosophical thought, the concept of “anxiety” means that an individual does not consider him/herself worthy of existing before God [1], yet in psychological sciences,

anxiety means a dominant psychological state of worry, nervousness or unease about a fear or something bad to happen [2]. Anxiety is also defined as emotional state of uneasiness, uncertainty, fear, concern, distress and loss of control felt by a person facing a threatening situation [3] and as an uncertain fear with no object [4]. Having conflict between one’s motives to meet the basic needs may lead to develop anxiety and frustration feelings [5]. In order to mitigate anxiety and cope with conflicts, a person can develop certain behaviors such as forgetting, distorting motives, accusing others, making up excuses, taking out on somebody, developing fantasy, identification, puerility and sublimation [4]. The severity of anxiety can vary from a slight mood of unease and discomfort to a severe level of panic, and occurs in any situation that threatens the integrity of the personality. If the strategies used by a person to cope with anxiety are not effective, anxiety can cause psychoneurosis disorders [1].

Fuller [6] identifies three groups of teaching profession anxiety: egocentric anxiety, job-oriented anxiety and student-oriented anxiety. Teacher candidates are in the center of egocentric anxiety, questioning whether teaching is an appropriate profession for them. While job-oriented anxiety represents the anxiety of a teacher candidate about whether s/he can successfully carry on the education period, student-oriented anxiety reflects the anxieties of a teacher candidate about whether s/he can successfully plan a lasting teaching activity that responds to the needs and expectations of his/her students [7-10]. The anxieties of novice physical education teachers are examined under the categories of teacher’s self-concerns, students, classroom management, procedures and safety; and it is indicated that as a result of an increase in the number of students in the classroom of the novice teachers, they started to experience an uneasiness about having a difficulty in teaching-learning process, a concern about giving poor education, and they felt anxious about their occupational inability and personal development. The occupational anxieties of teacher candidates focus on

certain points within a certain period of time [9]. In particular, these anxieties peak up when it is time for the Public Personnel Selection Examination (KPSS), which is centrally organized by the government so that teacher candidates can be appointed to the profession [11, 12].

Additionally, the studies showed that teacher candidates had economic and social anxieties and concerns about effective communication, adaptation to school and school environment, being neglected, lacking support and getting along with school management [10, 13]. It was observed that the novice physical education teachers had more safety concerns related to possible fractures (arm, leg, finger and nose), bleedings, bruises and contusions in physical education classes; it was also reported that the candidates were concerned about how to follow a procedure, the lack of equipment and materials, weather conditions, students' locker room activities and theft [10]. The studies on the future of teaching profession revealed that teacher candidates expressed their concerns about the uncertain and unstable future of the profession due to unqualified teachers, appointment and employment, crowded classrooms, failure to succeed in profession, lack of school equipment, negligence towards physical education lessons, inadequate teaching hours, the lack of career opportunities and insufficient salary and benefits [12, 14]. Occupational anxiety is also one of the reasons why teachers leave their jobs. Gray and Taie reported in a longitudinal study (conducted between 2007-2012) that 17% of teachers quit within the first 5 years.

It was observed that the previous studies on the occupational anxieties of teacher candidates targeted form teachers as well as science, math, physical education and pedagogical formation teachers as well as teachers for the mentally handicapped; and these studies focused on the impact of independent variables such as gender, employment, class level, academic success, parental attitude, economic situation, type of high school and being a licensed athlete and on the dependent variables such as occupational anxiety, occupational attitudes, self-efficacy and academic self-efficacy [16-22].

Anxiety can also influence the academic performance of the learner. According to the Yerkes-Dodson Law, low and moderate level of anxiety can cause positive performance while high level of anxiety can be destructive. Therefore, severe anxiety can result in negative motivation and ultimate failure of a teacher candidate to perform his/her task. In this context, the level of anxiety can affect one's belief in his/her ability to succeed [23]. According to Spielberger (2016), individuals with lower level of anxiety are more successful than those with higher level of anxiety [2]. There is a considerably negative correlation between the perception of occupational self-efficacy and anxiety [9]. For this reason; low anxiety –thanks to its stimulant, protective and motivational features – stimulates the individual against the undesired situations and motivates them to stand up to possible failures [22].

1.2. Self-Efficacy and Academic Self-Efficacy

In the light of this information, it is possible to suggest that one of the factors elevating the anxiety level is how an individual perceives and believes in his/her self-efficacy. The reason why people are interested in the perception of self-efficacy in education process is due to its impact on motivation [23] as one's motivation and perception of self-efficacy has a strong influence on his/her success [24]. Self-efficacy is defined as the belief in the ability of a person to perform specific actions to achieve desired outcomes [24]; one's self judgment of his/her own capacity to successfully organize and implement the required activities for achieving a certain level of performance; one's self judgment and belief in how s/he can successfully overcome possible challenges in the future [25]. In other words, self-efficacy is the individuals' self-perception about their capability and capacity to cope with different situations and succeed in performing certain activities [26]. The judgments of self-efficacy are influenced by individuals' direct and indirect experiences, verbal persuasions such as encouragement, advice, and suggestions by other people and their psychological states [26].

Self-efficacy describes one's beliefs in his/her own capabilities to shape his/her life in order to work and exert effort [23]. Self-efficacy is also effective in increasing success. Individuals with low level of self-efficacy can easily fall into despair and give up whereas the ones with higher level of self-efficacy can achieve higher goals and increase their possibility to be successful [24]. Success and achievement increase the belief of efficacy yet failures show a reverse effect. Individuals with a high level of self-efficacy perception tend to improve their perceptions about their own abilities and consider the challenges they face related to the responsibilities to be achieved, thus they are more determined, more successful and less stressful [27]. On the other hand, individuals with low level of self-efficacy tend to complain about their efficacy whenever they experience any challenge [25].

One of the concepts of "self-efficacy" is academic self-efficacy. Academic self-efficacy is defined as one's self-competency and self-belief in his/her successful accomplishment of education goals and academic tasks assigned to him/her during an education period [27-33]. In an academic learning environment, students may differ in their beliefs about how skillful they are in acquiring new skills and knowledge, and managing materials. The initial belief of self-efficacy can change as a function of previous experiences and aptitudes. While students are working, their academic self-efficacy is affected by awards, teacher feedbacks and certain personal factors such as their goals and information processing [34]. When students have a perception of a good progression in learning, they work on their tasks and improve their skills; their motivation increases and they acquire a sense of self-sufficiency to have a better performance [27]. Students, lacking academic self-efficacy, exaggerate the potential challenges they face

and thus believe that they are inadequate to overcome [25, 35]. Students with academic self-efficacy show tendency to minimize the potential challenges they face while fulfilling their duty, put more effort to complete their tasks and carefully focus [23] so that they can have better stress management [29].

While giving training to pre-service teachers, it is desired that a PE teacher is competent in his/her profession and has a sense of self-sufficiency. PE teacher is also expected to successfully perform syllabus and lesson plan [36] since the quality and self-efficacy of a teacher [37] have an influence on his/her teaching program and success in teaching, thus it may lead to change student behaviors [38]. What is expected from the teachers is that they can achieve these skills successfully, which is closely related to the quality of pre-service training they have and their perception of occupational self-efficacy [39, 40].

The study conducted on the perception of academic self-efficacy revealed that the perception of academic self-efficacy did not vary by gender [41, 43], yet for university students it differed in favor of men [44]; the perception of academic self-efficacy significantly differed according to class level – the higher the class level was, the higher was the score of academic self-efficacy [45-47] – and there was a positive correlation between academic self-efficacy and success [41,47,48]. The study conducted with the university students in Romania by Catalina et. al [49] found out that there was a positive correlation between emotional intelligence and academic self-efficacy, and predicted that emotional intelligence affected the academic self-efficacy by 25.7% while academic self-efficacy affected the academic success by 47.4%. Other studies reported that the academic self-efficacy perceptions of teacher candidates significantly predicted test anxiety, tendency to academic fraud, the focus of academic control, academic success and academic motivation [42,44].

In consideration of these explanations, it is possible to keep the anxieties of teacher candidates under control and increase their academic self-efficacy through pre-service training. Therefore, the analysis of the occupational anxiety levels and academic self-efficacy perceptions of physical education teacher candidates can provide an opportunity to understand, explain, solve and improve their attitudes. Additionally, the outcome of this study can also contribute to improve teachers' training programs, intensify their efforts in education process, improve their skills to overcome challenges and increase their academic motivation and success.

The main objective of this study is to determine the occupational anxiety level and academic self-efficacy of the physical education teacher candidates, and to examine the correlation between these two variables. To this end, the main research questions are identified as below:

1. What is the occupational anxiety and academic self-efficacy level of the participants?

2. Are the occupational anxiety and academic self-efficacy levels of the participants varied by gender, class level, participation in social activities and the variables of the evaluation of subjective academic achievement?
3. Is there a correlation between the occupational anxiety levels and academic self-efficacy perceptions of the participants?

2. Materials and Methods

2.1. Model

This is a descriptive and cross-sectional study. The independent variables of the study are gender, class, participation in social activities and academic success. The dependent variables of the study are occupational anxiety and academic self-efficacy.

2.2. Study Group

The study group consists of total 586 teacher candidates who are 1st to 4th grade students of physical education departments of 10 different universities (Aksaray, Anadolu, Cumhuriyet, Çukurova, Fırat, İnönü, Kafkas, Kocaeli, Mersin and Pamukkale) in Turkey. 56.8% of the participants is male and 43.2% is female. The mean age of the participants is 21.40 and SD = 2.40. Demographic characteristics of the participants are given in Table 1.

Table 1. Demographic characteristics of the sample group

Variables	Groups	f	%
Gender	Male	333	56.8
	Female	253	43.2
University	Mersin	74	12.6
	Cumhuriyet	60	10.2
	Anadolu	37	6.3
	Kafkas	72	12.3
	Fırat	70	11.9
	Aksaray	72	12.3
	Kocaeli	58	9.9
	Cukurova	62	10.6
	Pamukkale	39	6.7
	İnönü	42	7.2
Grade level	1 st	162	27.6
	2 nd	146	24.9
	3 rd	145	24.7
	4 th	133	22.7
Participation in social activities	Yes	321	54.8
	Sometimes	210	35.8
	No	55	9.4
Evaluation of subjective academic achievement	Poor	33	5.6
	Middle	323	55.1
	Good	230	39.2

2.3. Data Collection Tools

Occupational Anxiety Scale for Pre-Service Teachers (OAS) was developed as a five point Likert scale by Cabi and Yalçınalp [13] with the participation of 1st-4th grade pre-service teachers in the faculty of education (n= 283). The content validity of the scale was confirmed by the experts' opinion. Construct validity was examined by factor structure and it consisted of 45 items and 8 sub-factors, namely job-oriented anxiety, socio-economic anxiety, interaction with student anxiety, colleagues and students' parents anxiety, individual self-development anxiety, occupational exam anxiety, adaptation anxiety and school management. These factors corresponded to 65.7% of the total variance. Cronbach alpha coefficients of eight factors in the scale ranged from .67 to .94. The study revealed that the factors corresponded to 62.5% of the total variance, and total Cronbach alpha value was .96. The mean scores of the scale were considered as "low", "middle" and "high" when the occupational anxiety level was between 1 - 2.33; 2.34 - 3.67; and 3.68 - 5.00, respectively.

Academic Self-Efficacy Scale (ASES) was developed by Owen and Froman [50] to help students determine their self-confidence in activities such as taking notes, responding to questions, writing, adapting to class and using computers. The original scale consisted of three dimensions (social status, cognitive applications and technical skills) and had totally 33 items. The test re-test internal consistency reliability mean co-efficient of the five-point Likert scale was calculated as .85. The adaptation of the scale to Turkish context was done by Ekici [33] with the participation of 683 university students. Explanatory Factor Analysis (EFA) was applied for construct validity of the scale and it was stated that the scale consisted of three factors, corresponded to 45.8% of the total variance and overlapped with 33 items on the original scale. Cronbach alpha values in the reliability analysis for each dimension were found as .88 for "social status" dimension, .82 for "cognitive applications" dimension, and .90 for "technical skill" dimension. For this study, it was found that the total variance explained by the

factors was 42.3% and Cronbach alpha value was .93. The mean scores of the scale were classified as "low", "middle" and "high" while the academic self-efficacy level was between 1 - 2.33; 2.34 - 3.67; and 3.68 - 5.00, respectively.

2.4. Process

The universities, where we collected data, were determined according to geographical regions. Permissions were obtained from the administrators of physical education teaching departments of 10 different universities. An application guideline, scale forms and return envelopes with address information were sent to the departments that approved the permission. Guideline desires a voluntary participation. Totally 750 scale forms were delivered, however 607 were returned. Thus the rate of return is 81.1%. A normality test was conducted before the data analysis and 21 participants affecting the normal distribution were deleted from the dataset.

2.5. Analysis of Data

In the analysis of data, t test was used for independent groups, One Way Variance Analysis (ANOVA) for more than two groups, and Welch test of Robus tests for more than two groups with non-normal distribution. Tukey was used as Post Hoc test for normal distribution, and Tamhane's T2 test for the situations with non-normal distribution. Pearson Product-Moment Correlation technique was used to determine the relation between the variables. The confidence interval was .95.

3. Results

Table 2 shows that the participants have the highest level of anxiety at "Occupational exam anxiety" sub-scale and the lowest level of anxiety at "Job-oriented anxiety" sub-scale. In Academic Self-Efficacy Scale, the participants have the highest level of efficacy at "Cognitive Applications" sub-scale and the lowest level of efficacy at "Technical Skills" sub-scale.

Table 2. Mean, standard deviation, kurtosis and skewness scores of the Vocational Anxiety and Academic Self-Efficacy Scale scores

Scales and Subscales	N	Min	Max	Mean	SD	Skewness	Kurtosis
Vocational Anxiety Scale (total)	586	1.00	4.18	1.90	.60	.83	.34
Job oriented anxiety	586	1.00	3.93	1.62	.63	1.24	1.07
Socio-economic anxiety	586	1.00	5.00	2.42	.93	.33	-.50
Interaction with student anxiety	586	1.00	4.67	1.68	.71	1.20	1.07
Colleagues and students' parents anxiety	586	1.00	4.80	1.62	.68	1.37	1.82
Individual self-development anxiety	586	1.00	5.00	1.75	.88	1.31	1.09
Occupational exam anxiety	586	1.00	5.00	2.72	1.11	.26	-.69
Adaptation anxiety	586	1.00	5.00	1.92	.87	.90	.35
School management anxiety	586	1.00	5.00	2.21	.89	.51	-.31
Academic Self-Efficacy Scale (Total)	586	1.21	5.00	3.45	.63	-.14	.09
Social status	586	1.20	5.00	3.37	.68	-.08	-.04
Cognitive applications	586	1.21	5.00	3.51	.67	-.20	-.03
Technical skills	586	1.25	5.00	3.32	.83	-.01	-.53

The results of Levene test in Table 3 show that the variances are equal in the total and sub-scales of Occupational Anxiety Scale and Academic Self-Efficacy Scale. There is a significant difference in the total scores of Occupational Anxiety Scale by gender [$t_{(584)} = 2.021, p = .044$]. The comparison between the groups shows that females' anxiety levels in "economic/social" and "occupational exam anxiety" sub-scales are significantly higher than males' anxiety level in total scores of Occupational Anxiety Scale ($p < .05$). There is also a significant difference in total scores of Academic Self-Efficacy Scale in terms of gender [$F(584) = 2.233; p = .026$]. It also reveals that females have significantly higher scores in Academic Self-Efficacy Scale and "cognitive application efficacy" sub-dimensions than males ($p < .05$).

Table 3. Mean, standard deviation, and t test results of Vocational Anxiety and Academic Self-Efficacy Scale scores according to gender

Scale and Subscales	Gender	N	Mean	SD	df	t	p
Vocational Anxiety Scale (Total)	Male	333	1.85	.60	584	-2.021*	.044
	Female	253	1.95	.58			
Job oriented anxiety	Male	333	1.61	.63	584	-.834	.405
	Female	253	1.65	.64			
Socio-economic anxiety	Male	333	2.33	.91	584	-2.623*	.009
	Female	253	2.53	.96			
Interaction with students anxiety	Male	333	1.64	.71	584	-1.581	.114
	Female	253	1.74	.72			
Colleagues and students' parents anxiety	Male	333	1.59	.70	584	-1.038	.299
	Female	253	1.65	.65			
Individual self-development anxiety	Male	333	1.74	.90	584	-.207	.836
	Female	253	1.75	.85			
Occupational exam anxiety	Male	333	2.54	1.05	584	-4.502*	.000
	Female	253	2.95	1.15			
Adaptation anxiety	Male	333	1.87	.88	584	-1.721	.086
	Female	253	1.99	.86			
School management anxiety	Male	333	2.22	.92	584	.276	.783
	Female	253	2.20	.86			
	Female	253	1.95	.58			
Academic Self-Efficacy Scale (Total)	Male	333	3.39	.63	584	-2.233*	.026
	Female	253	3.51	.63			
Social status	Male	333	3.35	.67	584	-.723	.470
	Female	253	3.39	.70			
Cognitive applications	Male	333	3.44	.66	584	-3.106*	.002
	Female	253	3.61	.66			
Technical skills	Male	333	3.30	.79	584	-.733	.464
	Female	253	3.35	.87			

(*) $p < .05$

Table 4. ANOVA Results of Vocational Anxiety and Academic Self-Efficacy Scale scores according to grade level

Scales and Subscales	Grade	N	Mean	SD	df	F	p	Post-Hoc
Vocational Anxiety Scale (Total)	1 st	162	1.84	.55	3 582	3.15*	.025	2>1, 4
	2 nd	146	2.02	.61				
	3 rd	145	1.90	.65				
	4 th	133	1.83	.55				
Job oriented anxiety	1 st	162	1.53	.58	3 582	3.29*	.020	2>1
	2 nd	146	1.75	.66				
	3 rd	145	1.64	.69				
	4 th	133	1.58	.59				
Socio-economic anxiety	1 st	162	2.51	.90	3 582	4.80*	.003	1>4 2>4
	2 nd	146	2.57	.91				
	3 rd	145	2.37	.99				
	4 th	133	2.18	.89				
Interaction with students anxiety	1 st	162	1.58	.59	3 316.04	3.20*	.024	2>1
	2 nd	146	1.83	.81				
	3 rd	145	1.68	.75				
	4 th	133	1.65	.68				
Colleagues and students' parents anxiety	1 st	162	1.46	.55	3 314.84	6.18*	.000	2>1,4
	2 nd	146	1.73	.73				
	3 rd	145	1.72	.76				
	4 th	133	1.58	.65				
Individual self-development anxiety	1 st	162	1.74	.89	3 582	1.30	.272	-
	2 nd	146	1.86	.87				
	3 rd	145	1.72	.92				
	4 th	133	1.66	.84				
Occupational exam anxiety	1 st	162	2.59	1.10	3 582	1.47	.221	-
	2 nd	146	2.77	1.12				
	3 rd	145	2.68	1.14				
	4 th	133	2.85	1.08				
Adaptation anxiety	1 st	162	1.91	.87	3 582	.84	.473	-
	2 nd	146	2.01	.85				
	3 rd	145	1.90	.89				
	4 th	133	1.85	.88				
School management anxiety	1 st	162	2.17	.84	3 582	1.38	.248	-
	2 nd	146	2.34	.94				
	3 rd	145	2.18	.91				
	4 th	133	2.15	.88				
Academic Self-Efficacy Scale (Total)	1 st	162	3.42	.59	3 582	1.23	.300	-
	2 nd	146	3.40	.59				
	3 rd	145	3.44	.69				
	4 th	133	3.53	.66				
Social status	1 st	162	3.35	.64	3 582	.55	.646	-
	2 nd	146	3.34	.64				
	3 rd	145	3.36	.71				
	4 th	133	3.43	.73				
Cognitive applications	1 st	162	3.50	.61	3 582	.76	.516	-
	2 nd	146	3.47	.62				
	3 rd	145	3.50	.74				
	4 th	133	3.59	.70				
Technical skills	1 st	162	3.19	.81	3 582	5.59*	.001	4>1, 2
	2 nd	146	3.21	.79				
	3 rd	145	3.39	.84				
	4 th	133	3.53	.82				

(*) p<.05

According to the results of Levene’s Test in Table 4, there is no homogenous variances in Vocational Anxiety Scale in sub-scales “Interaction with students anxiety” ($p=.003$) and “colleagues and students’ parents anxiety” ($p=.001$). In terms of class varieties, the score differences between groups in the total scores of Occupational Anxiety Scale are significant [$F(3,582) = 3.145, p=.025$]. According to Tukey test results, the occupational anxiety scores of the second graders are higher than the scores of the first and fourth graders ($p<.05$). In “job-oriented anxiety” sub-scale of Occupational Anxiety Scale, the occupational anxiety scores of the second graders are significantly higher than the anxiety scores of the first graders; and in “economic/social anxiety” sub-scale, the scores of the second and first graders are significantly higher than the scores of the fourth graders. According to Welch test results; in “interaction with students anxiety” sub-scale, the anxiety scores of the second graders are significantly higher than the scores of the first graders; and in “colleagues and students’ parents anxiety” sub-scale, the anxiety scores of the second graders are higher than the scores of the first and fourth graders ($p<.05$). There is no significant difference between the groups in the total scores of Academic Self-Efficacy Scale [$F(3,582) = 1.225, p=.300$]. However, the academic self-efficacy scores of the fourth graders are significantly higher than the scores of the first and second graders in “Technical skills” sub-scale of Academic Self-Efficacy Scale ($p<.05$).

Table 5. ANOVA results of Vocational Anxiety and Academic Self-Efficacy Scale scores according to participation in social activities

Scales and Subscales	Activity	N	Mean	SD	df	F	p	Post-Hoc
Vocational Anxiety Scale (Total)	Yes	321	1.87	.58	2 583	2.06	.128	-
	Smt.	210	1.90	.60				
	No	55	2.05	.66				
Job oriented anxiety	Yes	321	1.61	.64	2 583	1.74	.176	-
	Smt.	210	1.61	.62				
	No	55	1.78	.67				
Socio-economic anxiety	Yes	321	2.35	.90	2 583	3.08*	.047	No>Yes
	Smt.	210	2.44	.94				
	No	55	2.69	1.04				
Interaction with student anxiety	Yes	321	1.68	.74	2 583	.53	.591	-
	Smt.	210	1.66	.67				
	No	55	1.77	.73				
Colleagues and students’ parents anxiety	Yes	321	1.59	.65	2 583	1.22	.295	-
	Smt.	210	1.63	.69				
	No	55	1.75	.79				
Individual self-development anxiety	Yes	321	1.73	.87	2 583	.18	.834	-
	Smt.	210	1.76	.90				
	No	55	1.79	.89				
Occupational exam anxiety	Yes	321	2.67	1.10	2 583	2.36	.096	-
	Smt.	210	2.71	1.10				
	No	55	3.02	1.20				
Adaptation anxiety	Yes	321	1.90	.83	2 141.43	Welch 1.06	.351	-
	Smt.	210	1.90	.89				
	No	55	2.12	1.06				
School management anxiety	Yes	321	2.16	.89	2 583	1.25	.287	-
	Smt.	210	2.29	.91				
	No	55	2.18	.84				
Academic Self-Efficacy Scale (Total)	Yes	321	3.50	.64	2 583	2.84	.059	-
	Smt.	210	3.40	.60				
	No	55	3.31	.65				
Social status	Yes	321	3.48	.67	2 583	9.23*	.000	Yes>Smt, No
	Smt.	210	3.25	.66				
	No	55	3.20	.71				
Cognitive applications	Yes	321	3.53	.68	2 583	.63	.535	-
	Smt.	210	3.51	.64				
	No	55	3.42	.69				
Technical skills	Yes	321	3.41	.83	2 583	4.91*	.008	Yes>No
	Smt.	210	3.25	.81				
	No	55	3.09	.81				

(*) $p<.05$

According to the results of Levene’s test in Table 5, the variances are not homogenous in “Adaptation anxiety” sub-scale ($p= 0.009$). The total scores of Vocational Anxiety Scale show no significant difference among the groups in terms of the participation in social, cultural, art and sportive activities [$F(2, 583) = 2.06; p= .128$]. However, the results of Tukey test show that in “economic/social anxiety” sub-scale of Occupational Anxiety Scale, the anxiety levels of those who do not participate in social activities are significantly higher than those who participate in social activities ($p<.05$). There is no significant difference between the groups in the total scores of Academic Self-Efficacy Scale [$F(2, 583) = 2.84; p= .059$]. However, according to “social status” sub-scale of Academic Self-Efficacy Scale, the academic self-efficacy of those who participate in social activities are significantly higher than those who never or sometimes participate in the activities; and in “technical skills” sub-scale, those who participate in social activities have significantly higher level of academic self-efficacy than those who do not participate ($p<.05$).

Table 6. ANOVA results according to subjective academic achievement variable of Vocational Anxiety and Academic Self-Efficacy Scale Scores

Scales and Subscales	Academic achievement	N	Mean	SD	df	F	p	Post-Hoc
Vocational Anxiety Scale (Total)	Poor	33	2.20	.67	2 583	5.17*	.006	Poor>Mid. & Good
	Middle	323	1.90	.59				
	Good	230	1.84	.59				
Job oriented anxiety	Poor	33	1.95	.73	2 583	5.15*	.006	Poor>Mid. & Good
	Middle	323	1.62	.61				
	Good	230	1.58	.64				
Socio-economic anxiety	Poor	33	2.65	1.01	2 583	1.21	.298	-
	Middle	323	2.42	.90				
	Good	230	2.38	.97				
Interaction with students anxiety	Poor	33	2.11	.90	2 583	6.79*	.001	Poor>Mid.& Good
	Middle	323	1.68	.69				
	Good	230	1.62	.70				
Colleagues and students’ parents anxiety	Poor	33	1.89	.71	2 583	2.91	.055	-
	Middle	323	1.61	.68				
	Good	230	1.59	.67				
Individual self-development anxiety	Poor	33	2.14	.86	2 583	5.28*	.005	Poor>Good
	Middle	323	1.78	.90				
	Good	230	1.64	.84				
Occupational exam anxiety	Poor	33	3.03	1.23	2 583	3.63*	.027	Poor>Good
	Middle	323	2.78	1.06				
	Good	230	2.58	1.14				
Adaptation anxiety	Poor	33	2.20	1.13	2 583	2.01	.134	-
	Middle	323	1.88	.84				
	Good	230	1.93	.87				
School management anxiety	Poor	33	2.21	.93	2 583	.21	.808	-
	Middle	323	2.23	.88				
	Good	230	2.18	.91				
Academic Self-Efficacy Scale (Total)	Poor	33	3.16	.53	2 583	13.70*	.000	Good>Mid. & Poor
	Middle	323	3.36	.60				
	Good	230	3.60	.65				
Social status	Poor	33	3.16	.63	2 583	6.67*	.001	Good>Mid. & Poor
	Middle	323	3.31	.66				
	Good	230	3.49	.70				
Cognitive applications	Poor	33	3.18	.54	2 583	15.95*	.000	Good>Mid. & Poor
	Middle	323	3.42	.64				
	Good	230	3.69	.68				
Technical skills	Poor	33	3.08	.83	2 583	7.31*	.001	Good>Mid. & Poor
	Middle	323	3.24	.80				
	Good	230	3.48	.84				

(*) $p<.05$

According to the results of Levene’s test in Table 6, the variances are homogenous. The results of the variance analysis show that the score differences between groups in the total scores of Occupational Anxiety Scale are statistically significant [$F(2, 583) = 5.168; p = .006$]. According to Tukey test results, the occupational anxiety level of those who consider their academic success as “poor” ($M = 2.20; SD = .67$) are significantly higher than those who consider their academic success as “middle” and “good” ($p < .05$). The difference between the groups for the total scores of Academic Self-Efficacy scores are also significant [$F(2, 583) = 13.666; p = .000$]. According to Tukey’s test results, those who consider their academic success as “good” have higher scores than those who consider their academic success as “middle” or “poor” ($p < .05$).

Table 7 represents the results of correlation analysis for total and sub-scale scores of Occupational Anxiety Scale and Academic Self-Efficacy Scale. The results reveal a negative and statistically significant correlation between the total scores of Occupational Anxiety Scale and Academic Self-Efficacy Scale ($r = -.33; p < .01$). Similarly, there is a negative and significant correlation between the sub-scales of both scales. In other words; as the occupational anxiety level of the candidates increases, their perception of academic self-efficacy significantly decreases.

4. Discussion

This study was conducted to determine the levels of occupational anxiety and academic self-efficacy of physical education teacher candidates and to examine them in terms of gender, class level, participation in sports and social activities and subjective perception of academic achievement. According to the results of the analysis conducted for the

first research question “*Research question 1. What is the occupational anxiety and academic self-efficacy level of the participants?*”, it is indicated that the highest level of occupational anxiety experienced by the participants is for “occupational exam anxiety” (Table 2). Physical education teachers, as well as branch teacher candidates in other fields, have a similar appointment-oriented anxiety. For instance, Çelikten et.al. [51] found similar results in their study conducted on pre-service teachers. The study, conducted by Taşğın [8] on the occupational anxiety levels of physical education teacher candidates, revealed that they were worried only before they were appointed and they had concerns about whether they would be successful in the profession. Another study conducted to determine the occupational anxiety levels of form teachers found that form teacher candidates had low level of occupational anxiety [41]. It is possible that physical education teacher candidates have occupational exam anxiety only because it is not certain whether they will be successful at KPSS (Public Servant Selection Test). However, as a result of the training and education that the participants received in the universities, their occupational attitudes, self-efficacy perceptions, academic motivations and academic-self efficacy perceptions might have an impact on their academic achievements and the high level of appointment-oriented anxiety. The previous studies showed a negative correlation between self-efficacy belief and occupational anxiety [16, 20], and a positive correlation between self-efficacy and occupational attitudes [16]. On the other hand; a study conducted with pre-service teachers of education faculty indicated that according to employment variances, the anxiety levels of those who were pessimistic were significantly higher than those who were optimistic [21].

Table 7. The results of correlation analysis for total and sub-scales of Occupational Anxiety Scale (OAS) and the Academic Self-Efficacy Scale (ASES)

Variables	ASES (Total)	Social status	Cognitive applications	Technical skills
Vocational Anxiety Scale (Total)	-.334**	-.260**	-.341**	-.269**
Job oriented	-.337**	-.254**	-.353**	-.250**
Socio-economic	-.190**	-.147**	-.178**	-.214**
Interaction with students	-.275**	-.221**	-.281**	-.205**
Colleagues and students’ parents	-.295**	-.226**	-.309**	-.209**
Individual self-development	-.276**	-.239**	-.273**	-.201**
Occupational exam	-.178**	-.133**	-.187**	-.133**
Adaptation	-.166**	-.135**	-.161**	-.151**
School management	-.201**	-.145**	-.209**	-.165**

** Correlation is significant at the .01 level (2-tailed).

The analysis of participants' academic self-efficacy perceptions concludes that PE teacher candidates have the lowest score for "technical skills" sub-scale (Table 2). Another study conducted with pre-service teachers of education faculty showed that there was no significant difference between the groups according to the comparison between the academic self-efficacy perception level of PE teacher candidates and other field candidates (Social Sciences, Physics, Maths and Foreign Language) [52]. According to Bloom's Mastery Learning Model [53], a teacher candidate is expected to have cognitive, emotional and practical knowledge and skills. The result of this study state that PE teacher candidates consider themselves efficient in "cognitive" field yet inefficient in "technical skills/practices". The reason for having a low score in "technical skills" sub-scale can be explained through the fact that technical practices – theoretical knowledge – can't be transferred enough to practical knowledge in the education process. Another study conducted with form teacher candidates revealed certain findings that technology played an important role in the future of teaching profession and teachers should have been trained to have advanced technical skills [14].

"Research question 2. Are the occupational anxiety and academic self-efficacy levels of the participants varied by gender, class level, participation in social activities and the variables of the evaluation of subjective academic achievement?"

The comparison between occupational anxiety levels of the participants by *gender* variance shows that the scores of female candidates are significantly higher than the scores of male candidates in the total scores and "economic/social anxiety" and "appointment-oriented anxiety" sub-scales of Occupational Anxiety Scale (Table 3). The studies conducted with pre-service and in-service teachers [22] also indicated that occupational anxiety levels of female participants were higher than male participants, while some other studies found that gender variances were ineffective [19-21,42]. The fact that female participants have higher levels of appointment and they have economic/social anxieties can be interpreted as the results of the social, cultural and economic environments where they live. Similarly, Akgün et.al [22] suggested that women's higher level of occupational anxiety could have been affected by social values, socio-economic and cultural characteristics of their families, gender inequality and the development level of the region.

Gender-oriented comparison of academic self-efficacy perceptions of the participants reveals that the academic self-efficacy scores of the male and female participants differ, and that females' scores in the total and "cognitive applications" sub-scale of Academic Self-Efficacy Scale are significantly higher than the score of male participants (Table 3). On the other hand; the study conducted by Tabanlı and Kazım [52] with the students from different departments of education faculty, the study conducted by

Akbaş and Çekilelli [43] on physical science teaching of pre-service form teachers, and the study conducted by Sandıkçı and Öncü [54] on the occupational self-efficacy perceptions of pre-service PE teachers showed that there was no difference by gender. However, many studies on academic success found that women had higher academic success than men [55, 56] as there was a positive correlation between academic success and academic self-efficacy [47-49, 57]. In our study, the differences in the academic self-efficacy perceptions of PE teacher candidates may be due to women's desire and needs to participate in the work force and obtain economic independence and participate in social life and to be liberated when social and cultural factors are taken into consideration. For this reason, female teacher candidates may feel more successful than men in their academic life.

According to ANOVA test results to compare the occupational anxiety levels of the participants by *grade level* variance; the occupational anxiety levels of second graders are significantly higher than the levels of first and fourth graders in the total scores of Occupational Anxiety Scale. Although there is no significant difference between classes in terms of "appointment-oriented anxiety" sub-scale of Occupation Anxiety Scale, it is interesting that the severity of occupational anxiety is constantly increasing (Table 4). In analogy to our study results, another study on the occupational anxiety of pre-service form teacher candidates showed that occupational anxiety differed depending on grade level variance [9]. Nonetheless, some studies concluded that occupational anxieties did not differentiate in terms of grade level variance [17,18]. In our study, it can be interpreted that PE teacher candidates experience a continuous occupational anxiety starting from the first years in the profession, and since occupational anxiety level differ between the grades, it reaches up to the optimum level in 2nd grade and "appointment-oriented anxiety" doesn't differ between the grades. PE teacher candidates' experience of a lasting occupational anxiety might negatively affect their attitudes towards the teaching profession as there is a middle-level negative correlation between the attitudes towards the profession and occupational anxiety [17].

Although the academic self-efficacies of the participants do not show a continuous increase in terms of grade level variance, the 4th graders differ from 1st and 2nd graders only in "technical skills" sub-scale (Table 4). In the previous studies on academic self-efficacy, a significant difference depending on the grade levels was also observed [45-47]. It can be interpreted in this ongoing study that the continuous increase in the technical skills of the candidates depending on their grade levels and the significant differentiation in the final grade are related to training and education that the candidates receive. In other words, PE teaching departments gradually increase their efficiency in teaching PE teacher candidates so that they acquire better technical skills every year.

For the comparison between the scores that participants get from the Occupational Anxiety Scale, the sub-scale and

the variables of “*sports*” and “*participation in social and cultural activities*”, the results of Table 5 reveal that only in “*economic/social anxiety*” sub-scale, the anxiety scores of those who do not participate in activities are significantly higher than the participants. Despite our findings, the study conducted by Kafkas et.al [20] with PE teacher candidates reported that active participation in sports had no impact on occupational anxiety. The literature review indicates that the participation in social and cultural activities are effective in mitigating anxiety and coping with stress [58, 59]. In our study, it can be stated that the findings suggesting that the anxiety level of PE teacher candidates, who do not participate in sport, social and cultural activities, is significantly higher than those who participate in the activities are compatible with the findings of literature review; and this difference can be explained by the fact that the socialization skills of those who do not participate in social activities are less developed as they lack social interaction. The analysis of the academic self-efficacy of the participants with regard to the variable of “*participation in sports*”, “*social and cultural activities*” showed that those who participate in the activities received significantly higher scores in “*social status*” and “*technical skills*” sub-scales than those who did not participate (Table 5). Individuals can gain a lot of knowledge and skills through participation in sports, social and cultural activities, and they can also be influential in acquiring a social role. Participation in such activities is also thought to be effective in obtaining some technical skills; which might explain the significant difference between the groups.

In terms of subjective academic achievement variable, the anxiety levels of those, who consider their anxiety levels as “*poor*” in the total score and “*job-oriented anxiety*”, “*interaction with students*”, “*individual self-development*” and “*appointment-oriented anxiety*” sub-scales of Occupational Anxiety Scale, are significantly higher than those who consider their anxiety levels as “*good*” (Table 6).

The previous studies already showed that there was a mid-level correlation between occupational anxiety and self-efficacy [20], and a negative correlation between the occupational self-efficacy perception and occupational anxiety levels of the form teacher candidates [9,16]. Sandıkçı and Öncü [54] also compared the occupational competency and the attitudes of PE and other field teacher candidates, and revealed that those who had higher academic achievements had better perception of self-efficacy and competency than those who had lower academic achievement. Psychologically, people who have high anxiety levels develop low level of the competence perceptions [2, 23]. In our study, those with low academic achievement have a higher vocational anxiety score. If the issue of appointment is resolved, or the academic achievement of PE teacher candidates is improved, then the candidates will have lower level of professional anxiety.

In terms of the total and the sub-scale scores of Academic Self-Efficacy Scale, the results indicated that PE teacher

candidates, who subjectively evaluate their academic achievements as “*good*”, have significantly higher scores than those who evaluate their academic achievements as “*middle*” or “*poor*”. Academic self-efficacy is defined one’s self-competency and self-belief in his/her successful accomplishment of academic tasks that are assigned to him/her during education period [32]. The previous studies stated that individuals, who have higher levels of academic self-efficacy, show higher academic performance [47], and there is a positive correlation between self-efficacy perceptions and life-long learning motivations of teacher candidates [60], and between academic self-efficacy and academic motivation [61]. The result of another study conducted on the academic self-efficacy of teacher candidates concluded that those who had better academic achievements (81-90 points) significantly differed from those who had middle (71-80 points) or poor (61-70 points) achievements [42].

Research question 3. “Is there a correlation between the occupational anxiety levels and academic self-efficacy perceptions of the participants?”

The results of correlation analysis show that there is a negative and significant correlation between the scores of Occupational Anxiety Scale and Academic Self-Efficacy Scale (Table 7). In other words, an increase in the occupational anxiety scores of the participants may result in a decrease in their self-efficacy scores. The results of previous studies also indicated that those who had higher academic self-efficacy scores also had better academic achievements [47-49]. Another study conducted on teacher candidates reported that the academic self-efficacy perceptions of teacher candidates were negatively affected by occupational exam anxiety [42]. Considering the fact that mid-level anxiety can have a positive impact on performance, and low and severe anxiety can have a negative impact on individuals’ performance [23], the results of our study show that there is a negative and significant correlation between occupational anxiety levels and academic self-efficacy perceptions of the participants; which can be interpreted that PE teacher candidates, who participate in our study, experience a high level of occupational anxiety. This result also shows that the high level of occupational anxiety can negatively impact the participants’ academic self-efficacy and thus decrease their performance, and the achievement of general and specific teaching skills expected from teacher candidates.

5. Conclusions

The fact that PE teacher candidates experience higher level of appointment-oriented anxiety has a negative impact on their academic self-efficacy. The fact that candidates have been constantly anxious since the first day they started university also negatively affects their academic self-efficacy. Besides, the participants’ low scores in

“technical skill” sub-scale are regarded being due to the lack of practice and technology usage experience. It can be concluded that the participation in social, cultural and sports activities can create a positive impact on occupational anxiety and academic self-efficacy, and academic self-efficacy can help improve academic achievement. As a result, in order to decrease vocational anxiety levels of physical education teacher candidates, it is suggested to solve the problems of appointment-oriented anxiety and to take necessary precautions to increase academic achievement.

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