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## ACADEMIC SELF-EFFICACY AND PRE-EXAM ANXIETY AS THE PREDICTORS OF REAL AND SELF-ESTIMATED EXAM GRADES IN PHYSICAL EDUCATION TEACHER CANDIDATES

### ABSTRACT

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The present study aimed to explore the relationship between academic self-efficacy, pre-exam anxiety, and real and self-estimated exam grade in physical education teacher candidates. Participants included 70 (25 female) physical education teacher candidates. Participants responded College Academic Self-Efficacy Scale items and 10 points visual analog scale for the measurement of academic self-efficacy and pre-exam anxiety, respectively. Pearson correlation analyses, as well as linear regression analyses, were conducted to analyze obtained data. Results revealed that academic self-efficacy efficacy was not associated with real exam grade. On the contrary, academic self-efficacy was significantly correlated to self-estimated exam grade. Pre-exam anxiety was significantly associated with real exam grade. Regression model consisting of academic self-efficacy and pre-exam anxiety was able to explain significant amount variance in both real, and self-estimated exam grade. Consequently, results provided evidence for the argument that academic self-efficacy was more strongly associated with self-estimated exam grades than real grades in physical education teacher candidates.

**Keyword:** academic self-efficacy, pre-exam anxiety, academic success

## BEDEN EĞİTİMİ ÖĞRETMENİ ADAYLARININ GERÇEK VE TAHMİNİ SINAV NOTLARININ ÖNGÖRÜCÜSÜ OLARAK AKADEMİK ÖZ YETERLİLİK VE SINAV ÖNCESİ KAYGI

### ÖZ

Bu çalışmanın amacı beden eğitimi öğretmeni adaylarında akademik öz yeterlik, sınav kaygısı, gerçek sınav notu ve tahmini sınav notu arasındaki ilişkiyi incelemektir. Araştırmaya beden eğitimi öğretmeni adayı birinci sınıf 70 kişi dahil edilmiştir. Katılımcılar Eğitim Psikolojisi dersi vize sınavı öncesinde Üniversite Akademik Öz Yeterlik Ölçeği maddelerinin yanısıra sınav kaygısının ölçümü için 10 basamaklı görsel analog skalaya tepki vermişlerdir. Sınav sonrasında katılımcılardan alacakları notu tahmin etmeleri de istenmiştir. Elde edilen verilerin analizinde Pearson korelasyon analizi ve lineer regresyon analizi kullanıldı. Sonuçlar akademik öz yeterlik ve gerçek sınav notu arasında anlamlı bir ilişki bulunmadığını gösterdi. Öte yandan, akademik öz yeterlik ve tahmin edilen sınav notu ile anlamlı derecede ilişkili bulundu. Sınav öncesi kaygı ise sadece gerçek sınav notu ile ilişkiliydi. Akademik öz yeterlik ve sınav öncesi kaygıdan oluşan regresyon modeli gerçek ve tahmin edilen sınav notundaki değişimi anlamlı derecede açıklayabildi. Sonuç olarak, araştırmadan elde edilen bulgular akademik öz yeterliğin gerçek sınav notundan çok tahmin edilen (beklenen) sınav notuyla ilişkili olduğu yönündeki yargıya destek sağlamıştır.

**Anahtar Kelimeler:** akademik öz yeterlik, sınav kaygısı, akademik başarı

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## INTRODUCTION

Academic success in college is one of the most critical issues for both students and educational institutions. In many countries, individuals' quality of occupational status is determined based on their academic success in university. Moreover, academic success may have the potential to influence individuals economic status as well as social class status. Therefore, understanding the factors that can lead to better academic success is of importance for both researchers and practitioners.

To date, researchers focused mainly on intelligence and personality<sup>1-4</sup> as the possible antecedents of students' academic success. However, this line of research failed to provide evidence to suggest a link between intelligence, personality, and academic success. Hence, it seems that some other factors may affect students academic success. In the present study, academic self-concept, and state test anxiety were recognized as the predictors of academic success of physical education teachers in a theoretical course exam. This study specifically focused on physical education teacher candidates for one particular reason.

Contrary to many scientific disciplines, the field of physical education requires the development of both intellectual and physical capacities. However, anecdotal evidence suggests that physical education teacher candidates may have less confidence and interest to become successful in theoretical courses. Therefore, there is a clear need for a better understanding of whether certain cognitive qualities, academic self-concept, trait anxiety may have the ability to predict physical education teacher candidates' academic success.

Bandura (1997)<sup>5</sup> described self-efficacy as "the belief in one's capabilities to organize and execute courses of action required to

produce given attainments" (p. 3). Hackett and Bets (1981)<sup>6</sup> were the first authors suggesting that individuals' self-efficacy beliefs may affect academic success. Later, research findings provided evidence for the Hackett and Bets (1981)<sup>6</sup> view. For example, Abd-Elmotaleb and Saha (2013)<sup>7</sup> demonstrated that academic self-efficacy was associated with academic success. Abd-Elmotaleb and Saha (2013)<sup>7</sup> further showed that academic self-efficacy could mediate the relationship between perceived academic climate and academic success. Similarly, Zajacova, Lynch, and Espenshade (2005)<sup>8</sup> found that academic self-efficacy was a more robust predictor of academic success than stress. A meta-analytical study by Multon, Brown, and Lent (1991)<sup>9</sup> also provided evidence to assume a positive association between academic self-efficacy and academic success ( $r = .38$ ).

In addition to academic self-efficacy, previous research also revealed that state test anxiety possibly influences academic success in exams. In this respect, Cassady, and Johnson (2002)<sup>10</sup> examined test anxiety in terms of cognitive appraisal and information processing models and provided strong support for the argument that cognitive test anxiety has a robust and negative impact on academic performance.

Another point that must be dealt with whether academic self-efficacy may be associated with students' academic outcome expectations. Despite the growing body of research on the relationship between academic self-efficacy and actual academic success, to the best of my knowledge, no previous study reported results regarding whether academic self-efficacy may be linked with students' expected exam grade. Hence, whether academic self-efficacy may be associated with realistic grade point estimations is not clear and deserves an

examination in an ecologically valid academic examination setting.

Despite a wealth amount of study documenting the link between academic-self efficacy and academic performance, none of the above-cited studies examined this relationship in an academic discipline that requires physical abilities as well as intellectual abilities such as physical education and sport sciences. Further, the effect of academic self-efficacy rarely studied in a particular academic examination.

The present study aimed to examine whether academic self-efficacy, together

## **METHOD**

### **Participants**

The participants included 70 first (25 female) grader physical education teacher candidates ranging in age from 18 to 22.

### **Materials**

#### **College Academic Self-Efficacy Scale**

To measure academic self-efficacy of physical education teacher candidates, the College Academic Self Efficacy Scale developed by Owen and Froman (1988)<sup>11</sup> and adapted for the Turkish speaking population by Ekici (2012)<sup>12</sup> was used. The scale contains 33 items and gives three subscale scores, namely, social status, cognitive applications, and technical abilities. Item responses are made using a 5-point format.

#### **Pre-Exam Anxiety**

In order to measure pre-exam anxiety, 100 mm Visual Analogue Scale (VAS) was used. VAS marked at one end as “very low anxiety” and at the other as “very high anxiety.” Participants were instructed to rate their anxiety level immediately before the exam.

### **Procedure**

with state test anxiety may predict physical education teacher candidates’ academic success as well as grade point estimates in a theoretical course exam. Based on the theoretical explanations and research as mentioned above, it was predicted that academic self-efficacy should be associated with teacher candidates actual academic success in a theoretical course exam represented by exam grade. On the contrary, academic success should be unrelated to students’ estimates of academic success represented by exam grade. Finally, pre-exam state anxiety should be negatively associated with real academic success.

Participants first responded College Academic Self-Efficacy Scale items before Educational Psychology midterm exam. Then, participants rated their pre-exam anxiety level via visual 100 mm analog scale. After the midterm exam, participants were asked to estimate their exam grade. Lastly, participants’ psychometric data obtained immediately before the Educational Psychology midterm exam were matched self-estimated and real exam grades. The local ethics committee approved the study protocol. Participants provided informed consent approved by the local ethics committee. All procedure was executed following the latest version of the Helsinki Declaration.

### **Statistical analyses**

In order to analyze the obtained data set, Pearson correlation coefficients were calculated among academic self-efficacy, pre-exam anxiety, real grade point, and self-estimated grade point. Afterward, two regression analyses were conducted to test whether the regression model consisting of academic self-efficacy and pre-exam anxiety may have the ability to predict both real grade point and self-estimated grade point. In the regression

analyses, all predictor variables were entered the model simultaneously (enter method).

## RESULTS

Table 1. The relationship among academic self-efficacy, pre-exam state anxiety, real grade point, and self-estimated grade point

Variable names	1	2	3	4	5
1 Social status	-				
2 Cognitive ap.	r=.60** p= .00	-			
3 Technical ab.	r=.52** p= .00	r=.609** p=.00	-		
4 Pre-exam anx	r=.004 p=.97	r=-.022 p=.857	r=-.114 p=.346	-	
5 Real grade p.	r=-.049 p=.68	r=.153 p=.209	r=.049 p=.689	r=-.288* p=.016	-
6 Self est. grade p.	r=.264* p=.027	r=.355** p=.003	r=.180 p=.135	r=-.223 p=.063	r=.432** p=.00

\*p<.05, \*\*p<.01

Pearson correlation analyses showed that academic self-efficacy was not correlated to the real grade point. However, academic self-efficacy was significantly associated with the self-estimated grade point. Pre-exam anxiety was negatively related to real grade point. Pre-exam anxiety was not related to academic self-efficacy.

Table 2. The predictive power of the academic self-efficacy, pre-exam state anxiety, for real grade point

Independents	B	Beta	t	P	R	R <sup>2</sup> <sub>adj</sub>
Constant	51,927		3,676	,000		
Social status	-,464	-,196	-1,307	,196		
Cognitive ap.	,478	,305	1,903	,062	.37	.08
Technical ab.	-,411	-,064	-,421	,675		
Pre-exam anx	-1,872	-,289	-2,466	,016*		

\*p<.05,

Table 2 shows that regression analyses with stepwise method demonstrated that regression model consisting of academic self-efficacy and pre-exam anxiety could explain

a small yet significant amount of variance in real grade point. Results revealed that most of the variance was explained pre-exam anxiety.

Table 3. The predictive power of the academic self-efficacy, pre-exam state anxiety, self-estimated grade point

Independents	B	Beta	t	P	R	R <sup>2</sup> <sub>adj</sub>
Constant	40,530		3,621	,001		
Social status	,228	,117	,807	,423		
Cognitive ap.	,454	,354	2,286	,026*	.43	.14
Technical ab.	-,651	-,123	-,838	,405		
Pre-exam anx	-1,227	-,230	-2,034	,046*		

\*p<.05,

Table 3 shows that regression analyses with stepwise method demonstrated that regression model consisting of academic self-efficacy and pre-exam anxiety could explain a significant amount of variance in self-estimated exam grade. Among the independent variables, cognitive applications and pre-exam anxiety were the strongest predictors of the self-estimated exam grade.

## DISCUSSION

The present study aimed to investigate whether academic self-efficacy, together with pre-exam anxiety, may have the ability to predict physical education teacher candidates' real and self-estimated exam grades in a theoretical exam. Contrary to the hypothesis, the results observed in the study revealed that academic self-efficacy was more strongly and significantly correlated to self-estimated exam grade rather than real exam grade. Further, pre-exam anxiety was negatively and significantly associated with real exam grade. Moreover, the regression model consisting of academic self-efficacy and pre-exam anxiety was able to explain a significant amount of variation in both real and self-estimated exam grade.

The most exciting finding of the present study that must be addressed is the lack of association between real exam grade and academic self-efficacy. However, a recent

meta-analysis by Honicke and Broadbent (2016)<sup>13</sup> reported a moderate positive relationship between academic self-efficacy and academic success. One important theoretical explanation appears that can explain the lack of association between academic self-efficacy and academic performance. As stated by Honicke and Broadbent (2016)<sup>13</sup> most of the previous research operationalized the outcome measure (academic success) via different parameters such as official grade point average, official subject grade, exam grade, and self-report grade point average. In this respect, the moderate positive correlation between academic self-efficacy and academic success reported by previous research may stem from inflated self-report academic success. Formerly, Dobbins, Farh, and Werbel (1993)<sup>14</sup> also suggested that despite the widespread use of self-reported academic success in scientific studies, self-report academic success data may not be entirely accurate. Hence,

it seems that researchers aiming to explore the link between academic self-efficacy and self-reported academic success should take into account the factor that can moderate this relationship, such as social desirability or even self-deceptive enhancement.

Despite the lack of association between academic self-efficacy and real exam grade, there was a moderate and positive association between academic self-efficacy and self-estimated exam grade. This result indicated that academic self-efficacy might be a predictor of self-estimated exam grade but not real exam grade. This results also provided support for both Honicke and Broadbent (2016)<sup>13</sup>, and Dobbins, Farh, and Werbel (1993)<sup>14</sup> arguments suggesting that the ability of academic self-efficacy to predict academic success might be depending on how the academic success is operationalized. Lack of association between academic self-efficacy and real grade exam indicated that physical teacher candidates might not be a realistic self-evaluation regarding their academic capabilities.

Another result that must be dealt with is the association between real exam grade and pre-exam anxiety. As expected, pre-exam anxiety was negatively and significantly correlated to real exam grade, which means that anxiety may diminish physical education teacher candidates'

academic success in a theoretical course exam. This results confirmed previous studies<sup>15-16</sup> showing that a higher level of anxiety before an important exam may lead to a lower level of academic success.

The present study may have several implications for both researchers and practitioners aiming to maximize academic success in students from the field of sports sciences. First, this study provided preliminary evidence that teacher candidates might not evaluate their academic qualities properly, possibly due to the lack of information about the course content. Second, in future studies, researchers should take into consideration factors with the potential to moderate the link between academic self-efficacy such as intelligence, self-deceptive enhancement tendency, and attendance.

The present study is not with its limitations. This study examined academic self-efficacy and academic success association in a theoretical course exam, Educational Psychology in this case. However, whether academic self-efficacy is associated with academic success in a practical course remains unclear and deserves a careful examination. Further, the current study does include any variable that can mediate the relationship between academic self-efficacy and academic success.

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