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Research Article

Self-Regulation and Psychological Resilience as Predictors of the Academic Self-Efficacy of University Students

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Abstract

The purpose of this study is to determine the effects of the self-regulation and psychological resilience levels of university students on their academic self-efficacy. The sample of the correlational study consisted of a total of 520 university students, 414 female and 106 male. The Self-Regulation Scale, the Brief Resilience Scale, and the Academic Self-Efficacy Scale were used to collect data. In the study, independent groups t-test was applied to determine the differences between genders regarding the variables, Pearson Correlation Analysis was applied to examine the correlation between variables, and Hierarchical Regression Analysis was applied to examine its prediction. It was determined that the psychological resilience levels of the participants varied based on their genders, while their self-regulation and self-efficacy levels did not differ based on the gender variable. Self-regulation and psychological resilience were found to be associated with academic self-efficacy, where self-regulation and psychological resilience together predicted academic self-efficacy.

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Introduction

It is important to examine the factors that affect the academic success of university students, who have a key part in the future of countries. The purpose of an education system is to train individuals who have learned how to learn, are aware of their talents and can use these talents, believe in themselves and what they can do, can regulate their behaviors in line with their goals, and believe in their capacity (Arseven, 2016; Özkale, 2022). One of the significant concepts in the achievement of these goals is self-efficacy. Self-efficacy is the belief of an individual in their performance in a task (Zimmerman, 2000). In other words, a person's self-efficacy is the degree to which they perceive themselves capable in terms of learning some behaviors and implementing what they have learned (Shunk & DiBenetto,

2014). The self-efficacy of a person affects their thoughts, emotions, and motivational factors that may lead their behaviors (Bandura, 1998).

Self-efficacy skills may be important in determining whether the individual can cope with the problems they encounter in society or how much effort they will make while coping with these problems (Bandura, 1977). According to Bandura (1995), self-efficacy can be developed by an individual, and direct experiences, indirect experiences, verbal persuasion, physical status, and emotional tendencies contribute to the development of self-efficacy. The successful experiences in an individual's past and their positive mood significantly contribute to their self-efficacy. In addition to this, the individual can strengthen their belief that they can perform a task by taking others as role models, and they can achieve an increase in their self-efficacy by self-persuasion or persuasion by others that they will be successful (Bandura, 1995).

Self-efficacy is an important concept for an individual and contributes to their success in various areas of life (Bandura, 1977). In the literature, the concept of self-efficacy is explained in the context of various skills; one of them is academic self-efficacy (Shunk & Pajares, 2009). If the belief of an individual in their capacity to perform a task is related to an academic activity and connected to the successful completion of academic tasks, this belief is called academic self-efficacy (Ekici, 2012; Yılmaz et al., 2007). Therefore, it can be said that academic self-efficacy has an important role in predicting academic achievement (Chemers et al., 2001; Zimmerman, 1995).

According to the Social Cognitive Theory, people are active beings that have the capacity to self-regulate (Pajares, 2002). Self-regulation refers to the ability of the individual to manage their thoughts, feelings, and behaviors based on their goals (Cascallar et al., 2006). Therefore, a student with self-regulation skills may be expected to make plans to use the appropriate strategies for success while performing a task assigned to them, be able to keep track of their progress and have a strong motivation for success (Zimmerman, 1989). External factors are not the only factors effective in the formation of human behavior, and people have self-regulation skills that allow them to control their thoughts, emotions, and behaviors (Bandura, 1991). Individuals with self-regulation skills are aware of their responsibility for their own learning, can choose the most suitable learning strategy for themselves, and show the effort necessary to succeed (Arends, 1998; Israel, 2007). Thus, like their academic self-efficacy, the self-regulation skills of students also predict their success levels (Posner &

Rothbart, 2009). When a student with high levels of self-efficacy experiences failure, they re-evaluate their self-regulation skills thinking that they have not spent enough effort for success (Akın, 2008). In the relevant literature, there are studies that have investigated the relationship between self-regulation and academic self-efficacy (Aldan Karademir et al., 2018; Hamimi, 2018; Luszczynska et al., 2005). While there is a relationship between self-regulation and academic self-efficacy, self-regulation also encompasses self-efficacy, and it can contribute to the confidence of the person in their abilities by affecting self-efficacy positively (Pintrich, 2000). According to its definition by Bandura (1997), self-efficacy is the belief of the person that they will succeed after regulating what needs to be done to reach success. Considering this definition, it may be stated that self-efficacy and self-regulation skills are necessities for each other (Bandura, 1997). Zimmerman (1995) argued that for academic self-efficacy, a person needs to have the skills to plan and regulate the goals they need to reach. With the help of self-regulation, a person can increase their self-efficacy by putting their thoughts and feelings into action toward the goal they want to achieve (Yahsi Sari et al., 2020). This shows that self-regulation predicts academic self-efficacy.

Psychological resilience is another variable that could be associated with academic self-efficacy (Ateş & Sağar, 2021). Psychological resilience, considered a coping and adjustment capacity, is defined as a person's ability to overcome the difficult situations that they encounter in life and preserve harmony in their life (Masten & Barnes, 2018; Robbins et al., 2018). In other words, psychological resilience is the ability of a person to pull oneself together and return to their previous conditions after the experience of a negative situation (Ramirez, 2007). Psychological resilience is influenced by individual, familial, and environmental relationships, and while explaining psychological resilience, it is important to understand risk factors and protective factors (Masten & Reed, 2002). Having high levels of psychological resilience makes it easier for individuals to cope with problem situations encountered in life and then adapt (Fergusson & Horwood, 2003). As one of the important coping skills of individuals, psychological resilience develops as a result of the sound operation of basic adjustment skills, and one of these basic adjustment skills is self-regulation (Masten, 2001). There are studies in the literature on self-efficacy and psychological resilience (Toraman et al., 2023). These studies show that there is a positive relationship between psychological resilience and self-efficacy. It is thought that psychological resilience, which adds strength to the person in coping with challenging life events, may positively affect

academic self-efficacy by increasing the person's problem solving skills and empowerment. Bandura (1997) assumed that while individuals with low self-efficacy avoid their actions, those with high self-efficacy are much more resilient against challenges and successful. Reports showing that individuals with high psychological resilience are more persistent, and patient (Smokowski, 1999) may also indicate that students with high psychological resilience can also have increased academic self-efficacy while dealing with difficult academic tasks. Previous studies have also demonstrated the relationships between psychological resilience, endurance, and self-efficacy (Yahsi Sari et al., 2020). This may mean that being psychologically resilient affects the academic self-efficacy of students and can contribute to their academic success.

Considering the factors affecting self-efficacy as stated by Bandura (1997), which are direct experiences, indirect experiences, verbal persuasion, and psychological-physiological state, it is thought that the self-regulation and psychological resilience of university students may be associated with their academic self-efficacy. Likewise, it has been reported that the self-efficacy of university students is associated with their status of taking responsibility (Akbay & Gizir, 2010), having behavioral problems (Odacı & Berber Çelik, 2012), self-control and ability to manage the events in their lives, and their display of positive attitudes toward the future (Sagone & De Caroli, 2014). In this sense, it is believed that the academic self-efficacy expectations of university students would be influenced by their self-regulation skills, which provide control and planning, and their psychological resilience levels, which provide adjustment to difficult situations and flexibility. Hence, the main purpose of this study was to investigate whether the self-regulation and psychological resilience levels of university students predicted their academic self-efficacy.

The transition period to university is an important developmental process in which students experience many things about being an adult for the first time, start to live separately from their families, and strive to gain identity (Berman et al., 2009; Erkoç & Danış, 2020). In addition, since neuroplasticity begins to decrease after young adulthood, it can be said that the period in which university students are in is a critical period that shapes mental health and it is important to examine the coping resources that can improve students' mental health (Haynes et al., 2020). At this point, students' psychological resilience and self-regulation are important resources that protect mental health. Because increased psychological resilience and self-regulation skills can enable students to cope with

challenging life events more easily and regulate their behaviours in the desired direction. This can be expected to positively affect university students' academic self-efficacy. Since university students' academic self-efficacy is related to their academic success and development, it is important to examine the variables affecting academic self-efficacy (Mirlohi et al., 2024). At this point, self-regulation and psychological resilience are thought to be related to academic self-efficacy. In the review of the relevant literature in this process, a limited number of studies examining the relationships between academic self-efficacy, self-regulation, and psychological resilience were encountered (Dai et al., 2022; Yahsi Sari et al., 2020). However, to improve the academic self-efficacy of university students, it is needed to examine the variables that could be effective on self-efficacy. It is thought that self-regulation and psychological resilience are variables that affect the academic self-efficacy of university students. The research questions determined in line with this consideration were as follows:

1. Are there significant differences in the self-regulation, psychological resilience, and academic self-efficacy of university students based on their gender?

2. Are there significant relationships between the self-regulation and psychological resilience of university students and their academic self-efficacy?

3. Do the self-regulation and psychological resilience levels of university students predict their academic self-efficacy?

Method

Design

In this study, to investigate the relationships between the examined variables, as a quantitative research method, the correlational design was employed. The correlational design is a method that is used in quantitative studies to test whether there is a simultaneous change in multiple variables or identify the degree of this change if such a change exists (Fraenkel et al., 2012).

Sample

The sample of the study included 520 university students enrolled in the Atatürk Education Faculty at Marmara University in the 2021-2022 academic year. While 414 (79.6%) of the participants were women, 106 (20.4%) were men. Among the participants, 69 (13.3%) were 1st-year students, 91 (17.5%) were 2nd-year students, 120 (23.1%) were 3rd-year students, and 240 (46.2%) were 4th-year students. The ages of the participants varied in the

range of 18-44, and their mean age was 21.78. The convenience sampling method was used to form the sample. This method is called convenience sampling because it is used to select participants who can easily be reached and included when there are limitations in terms of time, economic resources, labor, and other factors (Büyüköztürk et al., 2010). To conduct the study, approval dated 03/05/2021 and numbered 4-4 was obtained from the Ethics Committee of the Institute of Educational Sciences at Marmara University.

Data Collection Instruments

Self-Regulation Scale (SRS): SRS was adapted to Turkish by Demiraslan Çevik et al. (2015). It measures the attention control aspect of self-regulation and consists of 7 items and 1 dimension. The exploratory factor analysis of the scale revealed that the factor loads of its items varied from 0.558 to 0.800. Following the confirmatory factor analysis and the modification process, the goodness-of-fit indices of the scale were found to be in a suitable range. Cronbach's alpha internal consistency coefficient for the scale was reported to be 0.84. In the scoring of the scale, higher scores are interpreted to indicate that the person has a higher level of attention control in goal pursuit. In the analyses conducted in this study, the internal consistency coefficient of the scale was calculated as 0.84.

Brief Resilience Scale (BRS): BRS was adapted to Turkish by Doğan (2015). It is a 5-point Likert-type scale consisting of 1 dimension and 6 items. Items 2, 4, and 6 are inversely scored. Higher scale scores indicate higher levels of psychological resilience. The unidimensional structure of the scale was demonstrated by its exploratory factor analysis. According to the results of the confirmatory factor analysis of the scale, its goodness-of-fit indices satisfied the relevant criteria, and the factor loads of its items varied from 0.52 to 0.76. Cronbach's alpha internal consistency coefficient for the scale was reported to be 0.83. In the analyses conducted in this study, the internal consistency coefficient of the scale was calculated as 0.78.

Academic Self-Efficacy Scale (ASES): ASES was adapted to Turkish by Yılmaz et al. (2007). It is a 4-point Likert-type scale with 7 items. The minimum and maximum scores that can be obtained on the scale are 7 and 28. Higher scores are interpreted to indicate higher academic self-efficacy levels. The construct validity analyses of the scale demonstrated its unidimensional structure, whereas its factor load values were found to be between 0.500 and 0.829. Cronbach's alpha internal consistency coefficient for the scale was reported to be 0.79.

In the analyses conducted in this study, the internal consistency coefficient of the scale was calculated as 0.75.

Table 1. Descriptive statistics of the variables

Variables	N	X̄	SD	Min	Max	Skewness	Kurtosis
Self-regulation	520	21.72	3.80	10	28	-0.176	-0.397
Psychological Resilience	520	18.95	4.06	7	30	0.146	0.028
Academic Self-Efficacy	520	20.21	3.50	11	28	0.127	-0.304

Descriptive statistics of the variables in the study were examined. Table 1 presents the mean and standard deviation values of the scores of the participants on ASES ($\acute{x}$=20.21, *SD*=3.50), BRS ($\acute{x}$=18.95, *SD*=4.06), and SRS ($\acute{x}$=21.72, *SD*=3.80).

Data Analysis

Before the analyses of the data, the presence of errors in coding and missing data was checked. The analyses were carried out using the SPSS 26 package program. Descriptive statistics were calculated for the data, independent-samples t-tests were conducted to determine whether the measured variables varied based on gender, and hierarchical regression analysis was performed to test whether self-regulation and psychological resilience predicted academic self-efficacy.

Findings

Statistical analysis of the data obtained from the participants in the study was performed. The findings obtained as a result of the analyzes performed are included in this section.

Table 2. Analyses of academic self-efficacy, psychological resilience, and self-regulation based on gender

Score	Gender	N	$\bar{x}$	SD	$Sh_{\bar{x}}$	*t*- Test		
						t	*df*	*p*
Academic Self-efficacy	F	414	20.12	3.51	0.17	-1.35	518	0.179
	M	106	20.63	3.48	0.34			
Psychological Resilience	F	414	18.68	3.93	0.19	-3.06	518	0.002*
	M	106	20.02	4.41	0.43			
Self-Regulation	F	414	21.86	3.51	0.18	1.61	518	0.108
	M	106	21.20	3.48	0.39			

Statistical analysis was carried out to determine whether the participants' academic self-efficacy, psychological resilience and self-regulation characteristics differ according to gender. As seen in the independent-samples t-test results shown in Table 2, the psychological resilience levels of the participants varied significantly based on their gender *(t= -3.06; p< 0.05)*. The mean BRS score of the male participants ($\acute{x}$==20.02) was significantly higher than the mean BRS score of the female participants ($\acute{x}$==18.68). On the other hand, there was no significant difference in the academic self-efficacy *(t= -1.35; p> 0.05)* or self-regulation *(t= 1.61; p> 0.05)* levels of the participants based on their gender.

Table 3. Results of the Pearson product moment correlation analysis on the relationships between the variables of the study

	Self-regulation	**Psychological Resilience**	**Academic Self-efficacy**
Self-regulation	1	0.278*	0.310*
Psychological Resilience	0.278*	1	0.398*
Academic Self-efficacy	0.310*	0.398*	1
N	520	520	520

*p<0.001

Statistical analysis was performed to determine whether there was a significant relationship between the participants' academic self-efficacy, psychological resilience and self-regulation scores. According to the Pearson correlation analysis results given in Table 3, there was a moderate, positive, and significant relationship between academic self-efficacy and self-regulation (*r*= 0.310, *p*< 0.001), there was a moderate, positive, and significant relationship between academic self-efficacy and psychological resilience (*r*= 0.398, *p*< 0.001), and there was a low, positive, and significant relationship between self-regulation and psychological resilience (*r*= 0.278, *p*< 0.001). Accordingly, as self-regulation increased, psychological resilience and academic self-efficacy also increased. Similarly, as psychological resilience increased, academic self-efficacy also increased.

Before testing the predictive effects of the self-regulation and psychological resilience levels of the participants on their academic self-efficacy levels, the presence of a multicollinearity problem between the predictor variables was tested. According to the

results of the analyses, there was no multicollinearity problem (VIF<10, Tolerance>0.10 CI<30). The results of the hierarchical regression analysis are presented in Table 4.

Table 4. Results of the hierarchical regression analysis of the predictors of academic self-efficacy (self-regulation, psychological resilience)

Model Predictors	*R*	*ΔR2*	*B*	SE	*β*	*t*	*F*
Constant			12.25	.82		14.97	
	.398	.159					97.71*
Self-Regulation			.37	.037	.398	9.89	
Constant			9.92	.91		10.87	
Self-Regulation			.31	.038	.338	8.27	
	.449	.202					65.36*
Psychological Resilience			.19	.035	.216	5.29	

$p< 0.01$*

Statistical analysis was performed to determine whether self-regulation and psychological resilience levels were predictive of participants' academic self-efficacy scores. In the regression analysis of the predictors of academic self-efficacy, self-regulation was included in the first model, whereas psychological resilience was added in the second model. According to the results, both models predicted academic self-efficacy to a significant extent. Here, self-regulation explained 16% of the total variance in academic self-efficacy (β= 0.398, p< 0.001). When the effect of self-regulation was controlled for, psychological resilience, which was introduced in the second model, explained 4% of the variance in academic self-efficacy (β= 0.216, p< 0.001). Therefore, 20% of the total variance in academic self-efficacy was explained together by self-regulation and psychological resilience. This result demonstrated that changes in the SRS and BRS scores of the participants explained changes in their ASES scores to a statistically significant extent. In other words, the self-regulation and psychological resilience levels of the participants were significant predictors of their academic self-efficacy levels.

Discussion and Conclusion

The purpose of this study was to determine the predictive effects of the self-regulation and psychological resilience levels of university students on their academic self-efficacy. Before addressing the main question of the study, an independent-samples t-test was carried out to see whether the self-regulation, psychological resilience, and academic self-efficacy levels of the participants varied depending on their gender. It was found that

while the self-regulation and academic self-efficacy levels of the participants did not vary based on their gender, their psychological resilience levels varied significantly between the male and female participants, and the former had significantly higher levels of psychological resilience. Some studies in the literature have provided similar results, indicating higher levels of psychological resilience in men (Erkoç & Danış, 2020), whereas there are also studies showing higher psychological resilience levels in women (Akdeniz et al., 2020). Moreover, in the relevant literature, there are studies reporting that self-regulation did not differ based on gender (Agrawal et al., 2012; Tezel-Şahin, 2015) and those reporting that it did (Haşlaman & Aşkar, 2007). In most of the previous studies on academic self-efficacy conducted with university students, as in our study, no significant difference was identified in academic self-efficacy levels based on gender (Akyürek, 2020; Oğuz, 2012). However, there are also few studies in the literature showing that academic self-efficacy differs according to gender and male students have more academic self-efficacy than female students (Osmanoğlu & Ulu, 2024). Therefore, it may be useful to analyze this finding in a larger group of participants with a balanced gender distribution.

Afterward, the relationships between the self-regulation, psychological resilience, and academic self-efficacy variables were examined by correlation analyses in this study, and significant correlations were identified. According to the results, there was a significant positive relationship between academic self-efficacy and self-regulation. Additionally, according to the regression analysis results, self-regulation explained 16% of the total variance in academic self-efficacy. Similarly, other studies in the literature have revealed that there is a positive relationship between self-regulation and academic self-efficacy, and self-regulation predicts academic self-efficacy (Aldan-Karademir et al., 2018). In this study, it was found that as self-regulation increased, academic self-efficacy also increased. This result was supported by other studies showing the positive effect of self-regulation on the academic performance of students (Al Khatib, 2010; Cho & Shen, 2013; Theobald, 2021). Based on all these results, one may conclude that self-regulation skills affect the academic self-efficacy of students positively by raising their academic success levels, and they affect the academic success levels of students positively by supporting their academic self-efficacy.

Another result of this study was the significant positive relationship between the psychological resilience and academic self-efficacy levels of the participants. Based on this result, the participants with high levels of psychological resilience also had high levels of

academic self-efficacy. Various studies in the literature have investigated the relationship between psychological resilience and self-efficacy (Ateş & Sağar, 2021, 2022; Toraman et al., 2023; Yıldız & Kardaş, 2021; Yılmaz-Bingöl et al., 2019). Yılmaz-Bingöl et al. (2019), who investigated the predictive role of psychological resilience and positivity in the self-efficacy of university students, reported a moderate, positive, and significant relationship between psychological resilience and self-efficacy. Ateş and Sağar (2021), who studied the self-efficacy levels of university students, found a positive and significant relationship between self-efficacy and psychological resilience, and they stated that psychological resilience was a significant predictor of self-efficacy. For this reason, it is believed that interventions aimed at increasing the psychological resilience of university students will have a positive effect in supporting their self-efficacy. In another study that included university students, psychological resilience and self-efficacy were examined as potential predictors of academic success by Ateş and Sağar (2022), who concluded that psychological resilience and self-efficacy predicted academic success. Sagone et al. (2020), who investigated the relationship between psychological resilience and self-efficacy in youths, showed that higher levels of perceived self-efficacy in life skills corresponded to higher psychological resilience levels. In their study on the academic self-efficacy and academic resilience of university students, Cassidy (2015) reported a significant relationship between the academic self-efficacy and academic resilience of their participants and found that academic self-efficacy predicted academic resilience. Hamill (2003) researched the psychological resilience and self-efficacy levels of high school students and observed that psychological resilience was a significant predictor of self-efficacy. The results of these studies were in line with the result of our study showing a significant relationship between psychological resilience and academic self-efficacy. As a coping and adjustment skill, psychological resilience is expected to contribute to the development of self-efficacy by a person by helping them overcome the difficulties they face on their way to their goals and success and making it easier for them to adapt (Cassidy, 2015). Thus, it is believed that psychological resilience contributes to academic self-efficacy, which is known to be a significant predictor of academic success, by affecting academic performance positively.

To find an answer to the primary question of this study, which was "Do the self-regulation and psychological resilience levels of university students predict their academic self-efficacy?", a hierarchical regression analysis was performed. As a result of the analysis, it

was determined that self-regulation and psychological resilience were significant predictors of academic self-efficacy, and they collectively explained 20% of the total variance in academic self-efficacy. Likewise, other studies in the literature presented the effects of self-regulation and psychological resilience on academic self-efficacy (Ateş & Sağar, 2021; Yahsi Sari et al., 2020). Most studies in this field have investigated the effects of self-regulation and psychological resilience on academic self-efficacy separately, and few studies were found to examine self-regulation and psychological resilience together as predictors of academic self-efficacy (Dai et al., 2022; Yahsi Sari et al., 2020). Yahsi Sari et al. (2020), who examined the factors affecting the academic self-efficacy levels of Syrian asylum-seeker students, stated that self-regulation affected academic self-efficacy directly, and psychological resilience had a mediator effect in the relationship between self-regulation and academic self-efficacy. They concluded that to increase the self-efficacy levels of students, it is needed to improve their self-regulation skills and raise their resilience against difficulties (Yahsi Sari et al., 2020). Ateş and Sağar (2021), who examined some variables affecting self-efficacy in university students, found cognitive flexibility, emotional regulation, and psychological resilience to be significant predictors of self-efficacy. In this study, we investigated the effects of self-regulation and psychological resilience on academic self-efficacy both separately and together, and we found that, as in other studies in the literature, both self-regulation and psychological resilience affected academic self-efficacy. In the hierarchical regression analysis, when the effect of self-regulation was controlled for, it was seen that psychological resilience explained 4% of the total variance in academic self-efficacy. The decrease in the explanation rate when the effect of self-regulation was controlled may be explained by that self-regulation skills are among the basic adjustment skills that contribute to psychological resilience by making adjustment easier (Masten, 2001).

Information in the literature has shown that an individual with good self-regulation skills can plan their behaviors effectively in terms of reaching their goals and regulate their learning process in a way suitable for them as they are aware of their rate and methodology of learning. Because they are open to learning by themselves and receiving feedback, individuals with this quality can easily adapt to different conditions and shape their learning methods according to current conditions (Zimmerman, 1989, 2000). Furthermore, these individuals have stronger motivations and beliefs in their capacity to succeed, and they enjoy the learning process. Theobald (2021), who investigated the effectiveness of self-regulated

learning programs aimed at increasing the academic performance, learning strategies, and motivations of university students in their meta-analysis study, concluded that self-regulated learning programs increased the academic performance and motivation of students. Their result was consistent with our finding that the self-regulation skills of university students raised their academic self-efficacy. In this context, it is expected that a person who has the skills to self-regulate would have a higher level of self-efficacy. From another perspective, a person who has high self-efficacy and believes that they can perform a task would be expected to utilize self-regulation skills such as developing unique strategies and reaching their goals by regulating their behaviors. Hence, one may argue that self-efficacy and self-regulation skills have a reciprocal relationship in terms of contributing to each other.

Consequently, in this study where the effects of the self-regulation and psychological resilience levels of university students on their academic self-efficacy were investigated, it was observed that the self-regulation skills and psychological resilience of university students were effective on their academic self-efficacy. There are other studies in the literature demonstrating the contribution of self-regulation, psychological resilience, and academic self-efficacy to academic performance (Ateş & Sağar, 2022; Posner & Rothbart, 2009; Theobald, 2021). Considering the results of all these studies, self-regulation and psychological resilience may be expected to increase the academic self-efficacy of a person by affecting their academic success and their perceptions regarding success positively. Based on this inference, it can be said that it would be beneficial to gain self-regulation skills, which are skills of regulating and organizing thoughts, feelings, and behaviors, and to improve psychological resilience, which covers the concepts of adaptation and flexibility in order to increase the self-efficacy of students in their academic lives. Especially along with challenging life events such as epidemics and natural disasters in recent years, distance education and online learning environments have become prevalent, and the shift of education toward online settings has brought about various problems in terms of the establishment of suitable learning environments for students, time management, and motivation (Adnan & Anwar, 2020). Therefore, coping and adjustment skills such as self-regulation and psychological resilience have gained much significance for students who are experiencing substantial changes in their education lives and trying to adapt to new circumstances (Tülübaş, 2022). Following the devastating Kahramanmaraş Earthquakes that happened in February 2023 in Turkey, many students who were affected and had to

continue their studies through distance education have had to cope with various challenges and regulate their learning processes based on their changing conditions. Skills and qualities like self-regulation, psychological resilience, and academic self-efficacy become more important for the maintenance of academic performance in difficult and distressing times. For this reason, it may be recommended to examine these factors that influence academic performance in samples of students who have to continue their education outside their schools due to their challenging living conditions. Furthermore, it is believed that examining other psychological and cognitive skills and qualifications of students in the context of their academic self-efficacy in future studies will be important in terms of the world of education that is constantly being updated and transformed.

The sample of this study consisted of 520 university students receiving face-to-face education. Therefore, the results obtained in the study are limited to the data collected from this sample. Collecting data from university students who are in distance education could contribute to the results of this study. Furthermore, the fact that most of the participants of this study were female students may be considered a limitation. It is thought that this situation arose due to the higher number of female students at the faculty of education where the study was carried out. Reaching students of different faculties through online data collection methods may be helpful in balancing the gender distributions by reaching more participants. In short, this study shows that, in addition to the effect of self-regulation on university students' academic self-efficacy levels, students' psychological resilience is also an important predictor. Based on the results of this study, it can be concluded that organizing psychoeducation and psycho-support activities at universities to help them improve their self-regulation skills and psychological resilience and establishing education and instruction programs aimed at developing their capacity to regulate their thoughts, feelings, and behaviors, as well as learning strategies, will be beneficial in increasing their academic performance.

Ethical Committee Permission Information

Name of the board that carries out ethical assessment:

Marmara University Ethics Committee of the Institute of Educational Sciences

The date and number of the ethical assessment decision: 03.05.2021 / 4-4

Author Contribution Statement

Mine SAYIN KILIÇ: *Literature review, conceptualization, preparation of data collection form, data collection, methodology, data analysis, interpretation, organization, writing and editing.*

Özge ERDURAN TEKİN: *Literature review, conceptualization, preparation of data collection form, data collection, methodology, data analysis, interpretation, organization, writing and editing.*

Berra KEÇECİ: *Literature review, conceptualization, preparation of data collection form, data collection, methodology, data analysis, interpretation, organization, writing and editing.*

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