



The Predictive Role of Physical Activity in Academic Self-Efficacy Among High School Students

Ömer KILINÇ¹ Çalık Veli KOÇAK²

¹Aksaray University, Faculty Of Sport Sciences, Aksaray,Türkiye

²Aksaray University, Faculty Of Sport Sciences, Aksaray,Türkiye

Corresponding Author: Ömer KILINÇ e-mail:omerkilnc@gmail.com

DOI:10.5281/zenodo.19362146

Research Article

Received:
25.02.2026

Published:
01.04.2026

Abstract

Adolescence is a period in which students' academic perceptions and learning-related attitudes begin to take shape. This study focused on the relationship between physical activity levels and academic self-efficacy among high school students and examined the extent to which physical activity contributes to these beliefs. The research was conducted with 224 students aged 14–17 attending an Anatolian high school in Ankara, Türkiye. Data were collected using the Physical Activity Questionnaire for Adolescents (PAQ-A) and the Academic Self-Efficacy Scale. The analysis included correlation, independent samples t-tests, one-way ANOVA, and regression techniques. The results showed a strong association between physical activity and academic self-efficacy ($r = .85$, $p < .001$). Physical activity accounted for a substantial proportion of the variance in academic self-efficacy ($R^2 = .725$). No meaningful differences were observed based on gender or grade level. However, students who regularly participated in sports reported higher levels of both physical activity and academic self-efficacy. Overall, the findings indicate that physical activity is linked to students' academic self-perceptions and suggest that opportunities for physical activity within school settings may support both academic and psychological development.

Keywords: academic self-efficacy, adolescents, high school students, physical activity, sports participation

INTRODUCTION

Academic achievement during adolescence has traditionally been explained by factors such as instructional quality, cognitive ability, and study behaviors. However, recent research has increasingly emphasized the role of lifestyle-related variables in shaping students' academic development. Among these variables, physical activity has emerged as a particularly relevant factor, given its potential to influence not only physical health but also cognitive, psychological, and motivational processes that are closely linked to learning (Guthold et al., 2018). Considering that adolescence represents a critical developmental period characterized by rapid biological, psychological, and social changes, identifying modifiable behaviors that support academic functioning has become an important research priority.

Physical activity, broadly defined as any bodily movement produced by skeletal muscles that requires energy expenditure, has been widely associated with a range of cognitive benefits. Evidence from experimental, cross-sectional, and longitudinal studies indicates that regular participation in physical activity contributes to improvements in executive functions, including attention control, working memory, and cognitive flexibility (Donnelly et al., 2016; Álvarez-Bueno et al., 2017). These functions are essential for goal-directed behavior and are directly involved in academic tasks such as problem-solving, information processing, and sustained concentration. In addition, physical activity has been shown to positively influence brain structure and function, including increased cerebral blood flow and neuroplasticity, which may further support cognitive performance during adolescence.

Beyond cognitive functioning, physical activity is also associated with important psychological outcomes. A growing body of research suggests that physically active adolescents report higher levels of psychological well-being, lower levels of stress and anxiety, and better emotional regulation compared to their less active peers (Biddle et al., 2019). These psychological benefits are particularly relevant in educational settings, where students are required to manage academic demands, cope with performance-related pressures, and maintain engagement over extended periods. Studies conducted in the Turkish context similarly indicate that participation in physical activity is positively related to students' psychosocial development, life satisfaction, and overall well-being (Lubans et al., 2016; Biddle et al., 2019). Taken together, these findings suggest that physical activity may support academic functioning not only through direct cognitive mechanisms but also by enhancing students' psychological readiness for learning.

Recently, scholars have emphasized that the link between physical engagement and academic achievement is best understood through the lens of motivational dynamics. Within this framework, academic self-efficacy stands out as a pivotal construct. It describes a student's conviction in their capacity to organize and carry out the actions necessary for academic success. Drawing from Bandura's (1997) social cognitive theory, self-efficacy acts as a primary driver of behavior, dictating how individuals choose tasks, exert effort, and maintain resilience when facing obstacles. Students possessing robust academic self-efficacy are more inclined to tackle demanding assignments, utilize sophisticated learning techniques, and exhibit the persistence required for superior academic performance.

Empirical research provides strong support for the role of academic self-efficacy in educational outcomes. Meta-analytic findings indicate that self-efficacy is a robust predictor of academic achievement across different age groups and educational contexts (Honicke & Broadbent, 2016). Furthermore, self-efficacy has been linked to a range of adaptive learning behaviors, including self-regulation, goal setting, and persistence. Evidence from studies conducted in Türkiye also supports these findings, demonstrating that students' self-efficacy beliefs are significantly associated with their academic achievement, motivation, and learning strategies (Aşkar & Umay, 2001; Yılmaz et al., 2007). These findings highlight the importance of examining factors that may contribute to the development of academic self-efficacy during adolescence.

From a theoretical perspective, physical activity may contribute to the development of academic self-efficacy through several mechanisms. Participation in physical activity, particularly in structured and goal-oriented environments such as organized sports, provides opportunities for mastery experiences, which are considered the most influential source of self-efficacy beliefs. Successfully performing physical tasks, improving performance over time, and overcoming challenges may enhance individuals' perceptions of competence. In addition, social interactions within physical activity settings, including feedback from coaches, teachers, and peers, may further reinforce self-efficacy beliefs (Schunk & DiBenedetto, 2020). Through these processes, experiences gained in physical activity contexts may generalize to academic domains, thereby strengthening students' confidence in their academic abilities.

Consistent with this theoretical framework, empirical studies have reported positive associations between physical activity and various motivational and psychological constructs, including academic motivation, perceived competence, and self-concept (Singh et al., 2019). However, despite this growing body of evidence, much of the existing research has focused primarily on academic achievement as an outcome variable or has been conducted with university student samples. As a result, the role of academic self-efficacy as a potential mechanism linking physical activity to academic functioning remains underexplored, particularly among high school students.

Another important limitation of the existing literature is its strong concentration in Western contexts. Cultural and educational differences may influence both students' participation in physical activity and the development of motivational beliefs. Educational systems characterized by high academic pressure and examination-oriented structures may shape students' learning experiences and self-perceptions in distinct ways. Previous research has emphasized that contextual and cultural factors play a significant role in shaping self-efficacy beliefs (Klassen, 2004; Usher & Pajares, 2008). In Türkiye, the education system is largely structured around high-stakes examinations, and students often experience intense academic competition. Studies have highlighted that such contextual characteristics may influence students' motivation, anxiety levels, and academic engagement (Büyüköztürk, 2011; Tezbaşaran, 1997). Therefore, examining the relationship between physical activity and academic self-efficacy within this context may provide valuable insights into how lifestyle behaviors interact with academic development in non-Western educational settings.

Although physical activity has gained traction in educational research, there remains a notable shortage of studies specifically exploring its correlation with academic self-efficacy among high schoolers. This gap is even more pronounced in non-Western settings, where cultural, social, and academic infrastructures often diverge from Western models. Addressing this oversight is crucial for building a thorough understanding of how physical engagement supports academic growth. Furthermore, such research is vital for shaping informed educational policies and designing effective school-based interventions tailored to diverse student populations.

In light of these considerations, the present study aims to examine the relationship between physical activity and academic self-efficacy among high school students and to evaluate the predictive role of physical activity in explaining students' academic self-efficacy beliefs. By focusing on adolescents within a school context and integrating cognitive, psychological, and motivational perspectives, this study seeks to contribute to the literature by providing a more focused and contextually grounded understanding of the educational relevance of physical activity.

METHOD

Research Design

This research utilized a cross-sectional quantitative correlational approach to explore the link between physical activity and academic self-efficacy in high school students. The primary goal was to examine existing associations between these variables and to assess the extent to which physical activity serves as a significant predictor of students' academic self-beliefs.

Participants

Participants consisted of 224 students enrolled in Grades 9 through 12 at an Anatolian high school located in the Batıkent–Çakırlar district of Ankara, Türkiye. The students ranged in age from 14 to 17 years ($M = 16.03$, $SD = 1.46$). The sample included 92 male students (41.1%) and 132 female students (58.9%). The distribution of participants across grade levels was as follows: Grade 9 ($n = 66$, 29.5%), Grade 10 ($n = 50$, 22.3%), Grade 11 ($n = 50$, 22.3%), and Grade 12 ($n = 58$, 25.9%). In terms of sports participation, 122 students (54.5%) reported regularly participating in sports, whereas 102 students (45.5%) reported no participation. Participants were selected using convenience sampling based on accessibility during the data collection period.

Measures

Physical Activity Questionnaire for Adolescents (PAQ-A)

Physical activity levels were assessed using the Physical Activity Questionnaire for Adolescents (PAQ-A), originally developed by Kowalski, Crocker, and Donen. The PAQ-A is a self-report instrument consisting of eight scored items designed to assess adolescents' general physical activity levels during the previous seven days. The items evaluate participation in physical education classes, leisure-time activities, after-school activities, and weekend physical activity patterns. Responses are rated on a Likert-type scale, and higher total scores indicate higher levels of overall physical activity. Previous studies have demonstrated acceptable validity and reliability for adolescent samples. In the present study, internal consistency reliability was acceptable (Cronbach's $\alpha = .746$).

Academic Self-Efficacy Scale

Academic self-efficacy was measured using the Academic Self-Efficacy Scale developed by Ekici (2012). The scale consists of 20 items assessing students' beliefs about their ability to organize and successfully perform academic tasks such as studying effectively, completing assignments, preparing for examinations, and coping with academic difficulties. Items are rated on a five-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Total scores are obtained by summing item responses, with higher scores indicating stronger academic self-efficacy beliefs. Previous validation studies conducted with Turkish students have reported satisfactory psychometric properties. In the present study, the scale demonstrated acceptable internal consistency (Cronbach's $\alpha = .753$).

Demographic Information Form

A demographic information form was used to obtain participants' gender, age, grade level, and sports participation status (0 = does not participate, 1 = participates). No identifying personal information was collected.

Data Analysis

Statistical evaluations of the research data were performed using the SPSS software package (Version 28). To understand the distributional properties and reliability of the scales, descriptive statistics—including means, standard deviations, and range values—were calculated alongside Cronbach's alpha coefficients. The normality of the data distribution was verified through skewness and kurtosis indices. Since these values remained within

the threshold of -1 and +1 for all variables, the data were confirmed to be normally distributed, justifying the use of parametric testing methods.

The association between physical activity levels and academic self-efficacy was explored using Pearson product-moment correlation analysis. To identify potential differences based on gender and sports involvement, independent samples t-tests were utilized, while one-way analysis of variance (ANOVA) was employed to compare scores across different grade levels. Furthermore, a simple linear regression model was constructed to evaluate how effectively physical activity predicts academic self-efficacy. Where applicable, effect sizes were reported to provide a more comprehensive interpretation of the findings. The threshold for statistical significance across all analyses was established at $p < .05$.

RESULTS

Table 1. Descriptive Statistics, Reliability Coefficients, and Correlations Between Physical Activity and Academic Self-Efficacy (N = 224)

Variables	M ± SD	Min–Max	Cronbach’s α	1
1. Physical Activity (PAQ-A total)	24.60 ± 4.69	14–34	.746	—
2. Academic Self-Efficacy (ASE total)	49.63 ± 6.76	31–66	.753	.851***

Note. SD = standard deviation. *** $p < .001$.

Table 1 presents a strong and statistically significant positive correlation between physical activity and academic self-efficacy. Students reporting higher levels of physical activity also tend to report higher levels of academic self-efficacy.

Table 2. Gender Differences in Physical Activity and Academic Self-Efficacy

Variables	Male (n = 92) M ± SD	Female (n = 132) M ± SD	t(222)	p	Cohen’s d
Physical Activity	24.61 ± 4.84	24.60 ± 4.61	0.016	.987	0.00
Academic Self-Efficacy	49.68 ± 7.03	49.58 ± 6.59	0.110	.912	0.02

Note. M = mean; SD = standard deviation.

Table 2 indicates that there are no statistically significant differences between male and female students in either physical activity or academic self-efficacy. These findings suggest a similar pattern across genders.

Table 3. Differences in Physical Activity and Academic Self-Efficacy According to Sports Participation

Variables	No (n = 102) M ± SD	Yes (n = 122) M ± SD	t(222)	p	Cohen’s d
Physical Activity	20.13 ± 2.25	28.34 ± 2.32	−26.78	< .001	−3.59
Academic Self-Efficacy	43.91 ± 4.55	54.40 ± 4.05	−18.24	< .001	−2.45

Note. Sports participation was coded as 0 = no and 1 = yes. Negative d values indicate higher mean scores in the sports participation group.

Table 3 shows that students who participate in sports have significantly higher levels of both physical activity and academic self-efficacy compared to those who do not participate. This pattern highlights the potential contribution of sports participation to both behavioral and academic domains.

Table 4. Grade-Level Differences In Physical Activity And Academic Self-Efficacy (One-Way ANOVA)

Outcomes	Grade 9 (n = 66) M ± SD	Grade 10 (n = 50) M ± SD	Grade 11 (n = 50) M ± SD	Grade 12 (n = 58) M ± SD	F(3, 220)	p	η ²
Physical Activity	24.65 ± 4.71	24.94 ± 5.02	24.62 ± 4.45	24.24 ± 4.68	0.20	.896	.003
Academic Self-Efficacy	49.95 ± 6.43	50.54 ± 7.68	49.52 ± 6.19	48.55 ± 6.78	0.85	.469	.011

Note. M = Mean; SD = Standard Deviation.

Table 4 shows no statistically significant differences across grade levels in either physical activity or academic self-efficacy. This result suggests that these variables remain relatively consistent throughout high school years.

Table 5. Simple Linear Regression Predicting Academic Self-Efficacy from Physical Activity (N = 224).

Predictor	B	SE B	β	t	p
Constant	19.45	1.27	—	15.32	< .001
Physical Activity (PAQ-A total)	1.23	0.05	.851	24.19	< .001

Note. Model fit: F(1, 222) = 585.06, p < .001, R² = .725, Adjusted R² = .724.

Table 5 indicates that physical activity is a significant predictor of academic self-efficacy. Higher physical activity levels are associated with higher levels of academic self-efficacy.

DISCUSSION

The present study examined the relationship between physical activity and academic self-efficacy among high school students. As shown in Table 1, a strong and statistically significant positive correlation was found between these variables. This finding suggests that higher levels of physical activity are associated with stronger academic self-efficacy among adolescents.

This result is consistent with previous research showing that physical activity is positively related to cognitive and psychological processes that support academic functioning. Regular physical activity has been associated with improvements in executive functions such as attention, working memory, and cognitive flexibility (Donnelly et al., 2016; Álvarez-Bueno et al., 2017; Hillman et al., 2008; Lubans et al., 2016). These functions are essential for effective learning and may help students approach academic tasks with greater confidence. In addition, physically active students often report higher motivation and classroom engagement, which may further strengthen academic self-efficacy beliefs (Singh et al., 2019; Sibley & Etnier, 2003).

Regarding gender differences, the findings presented in Table 2 showed no significant differences in either physical activity or academic self-efficacy. This suggests that the relationship between these variables may operate similarly across male and female students. Previous studies have also indicated that behavioral and motivational factors may be more influential than gender in shaping academic self-beliefs (Barbosa et al., 2020).

In contrast, Table 3 showed significant differences according to sports participation. Students who participated in sports reported higher levels of both physical activity and academic self-efficacy than those who did not. This

finding is consistent with previous research indicating that organized sports participation is associated with stronger motivation, discipline, and self-regulation skills (Singh et al., 2019). Sports environments may also provide opportunities for persistence, coping with challenges, and receiving performance feedback, all of which may contribute to stronger academic self-perceptions.

As shown in Table 4, no significant differences were found across grade levels in either physical activity or academic self-efficacy. This finding suggests that the relationship between physical activity and academic self-efficacy remains relatively stable across different stages of high school. One possible explanation is that students at different grade levels are exposed to similar academic expectations and school environments, which may produce comparable patterns of engagement and self-evaluation.

The regression results presented in Table 5 further demonstrated that physical activity significantly predicted academic self-efficacy. Physical activity explained a substantial proportion of the variance in academic self-efficacy, indicating that it is an important factor associated with students' academic confidence. From a theoretical perspective, this finding can be interpreted within Bandura's social cognitive theory. According to Bandura (1997), mastery experiences are the strongest source of self-efficacy. Participation in physical activity and sports may provide repeated opportunities for success, improvement, and performance feedback. These experiences may foster a sense of competence that extends from physical settings to academic contexts. In addition, self-efficacy has been identified as a core motivational construct that supports learning and academic performance (Zimmerman, 2000; Marsh & Martin, 2011). Self-regulation and effort-monitoring processes embedded in physical activity settings may also contribute to stronger academic self-beliefs (Schunk & DiBenedetto, 2020).

The magnitude of the relationship observed in this study was notably high. One possible explanation is that both variables were assessed through self-report measures, which may have increased shared variance (Podsakoff et al., 2003). In addition, adolescence is a developmental period in which competence perceptions are highly sensitive to experience. Physical activity may therefore function as a meaningful context in which students develop a sense of achievement and competence that generalizes to academic domains.

Despite these findings, several limitations should be considered. First, the cross-sectional design does not allow causal conclusions about the direction of the relationship. It remains unclear whether physical activity enhances academic self-efficacy, whether students with higher academic self-efficacy are more likely to be physically active, or whether both variables are shaped by other contextual factors such as family support or school climate. Second, the use of self-report measures may have inflated the observed associations. Future research should employ longitudinal and experimental designs and include objective measures of physical activity to clarify causal mechanisms more clearly.

Overall, the findings highlight the potential educational value of physical activity. Consistent with previous research emphasizing the cognitive and psychological benefits of physical activity (Biddle et al., 2019; Lubans et al., 2016), promoting physical activity in school settings may support not only students' well-being but also their academic confidence and engagement.

Conclusion and Implications

This study highlights a clear positive link between physical activity and academic self-efficacy in high schoolers. Regular physical engagement significantly predicts how confident students feel about their schoolwork. Specifically, those active in sports showed higher scores in both activity levels and academic self-belief, whereas gender and grade level had no notable impact.

These results suggest that staying active benefits more than just physical health—it also boosts how adolescents view their academic potential. Therefore, promoting school sports could be a strategic way to improve both

student well-being and academic confidence. Future studies should use longitudinal models to better understand these causal paths.

Limitations and Recommendations

A few constraints should be noted. First, the cross-sectional data means we cannot confirm a direct cause-and-effect relationship. Second, using self-reported surveys may introduce subjective bias. Finally, since the data came from a single school, the results might not apply to all student populations.

Schools should focus on creating more opportunities for students to stay active. Beyond physical fitness, such programs could strengthen students' belief in their academic abilities. To build a stronger evidence base, future research should incorporate objective tracking tools and more diverse data sources.

Ethical Statement

Data collection was conducted during scheduled class periods with the researcher present. Students were informed about the purpose of the study and the voluntary nature of participation. Completion of the questionnaire package required approximately 20–25 minutes. Ethical approval for the study was obtained from Aksaray University (Approval Date: November 18, 2025; Protocol No: 2025-494). Permission was also obtained from the school administration. Written parental consent and student assent were secured prior to participation, and confidentiality of responses was ensured.

REFERENCES

- Álvarez-Bueno, C., Pesce, C., Cervero-Redondo, I., Sánchez-López, M., Martínez-Hortelano, J. A., & Martínez-Vizcaíno, V. (2017). The effect of physical activity interventions on children's cognition and metacognition: A systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(9), 729–738. <https://doi.org/10.1016/j.jaac.2017.06.012>
- Álvarez-Bueno, C., Pesce, C., Cervero-Redondo, I., Sánchez-López, M., Garrido-Miguel, M., & Martínez-Vizcaíno, V. (2017). Academic achievement and physical activity: A meta-analysis. *Pediatrics*, 140(6), e20171498. <https://doi.org/10.1542/peds.2017-1498>
- Aşkar, P., & Umay, A. (2001). İlköğretim matematik öğretmenliği öğrencilerinin bilgisayara ilişkin öz-yeterlik algısı. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 21, 1–8.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Barbosa, A., Whiting, S., Simmonds, P., Scotini Moreno, R., Mendes, R., & Breda, J. (2020). Physical activity and academic achievement: An umbrella review. *International Journal of Environmental Research and Public Health*, 17(16), 5972. <https://doi.org/10.3390/ijerph17165972>
- Biddle, S. J., Ciacconi, S., Thomas, G., & Vergeer, I. (2019). Physical activity and mental health in children and adolescents: An updated review of reviews and an analysis of causality. *Psychology of Sport and Exercise*, 42, 146–155. <https://doi.org/10.1016/j.psychsport.2018.08.011>
- Büyükoztürk, Ş. (2018). Sosyal bilimler için veri analizi el kitabı. *Pegem Atıf İndeksi*, 001-214.
- Donnelly, J. E., Hillman, C. H., Castelli, D., Etnier, J. L., Lee, S., Tomporowski, P., & Szabo-Reed, A. N. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. *Medicine & Science in Sports & Exercise*, 48(6), 1197–1222. <https://doi.org/10.1249/MSS.0000000000000901>
- Ekici, G. (2012). Akademik öz-yeterlik ölçeğinin geliştirilmesi: Geçerlik ve güvenirlik çalışması. *Eğitim ve Bilim*, 37(164), 174–188.
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1·6 million participants. *The Lancet Child & Adolescent Health*, 4(1), 23–35. [https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)
- Hillman, C. H., Erickson, K. I., & Kramer, A. F. (2008). Be smart, exercise your heart: Exercise effects on brain and cognition. *Nature Reviews Neuroscience*, 9(1), 58–65. <https://doi.org/10.1038/nrn2298>
- Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84. <https://doi.org/10.1016/j.edurev.2015.11.002>
- Klassen, R. M. (2004). A cross-cultural investigation of the efficacy beliefs of South Asian immigrant and Anglo Canadian adolescents. *Journal of Educational Psychology*, 96(4), 731–742. <https://doi.org/10.1037/0022-0663.96.4.731>
- Kowalski, K. C., Crocker, P. R., & Donen, R. M. (2004). The physical activity questionnaire for older children (PAQ-C) and adolescents (PAQ-A) manual. College of kinesiology, university of saskatchewan, 87(1), 1-38.
- Lubans, D., Richards, J., Hillman, C., Faulkner, G., Beauchamp, M., Nilsson, M., ... & Stuart J. H. Biddle (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. *Pediatrics*, 138(3), e20161642. <https://doi.org/10.1542/peds.2016-1642>

- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, 60, 101832. <https://doi.org/10.1016/j.cedpsych.2019.101832>
- Sibley, B. A., & Etnier, J. L. (2003). The relationship between physical activity and cognition in children. *Pediatric Exercise Science*, 15(3), 243–256. <https://doi.org/10.1123/pes.15.3.243>
- Singh, A., Uijtdewilligen, L., Twisk, J. W. R., van Mechelen, W., & Chinapaw, M. J. M. (2012). Physical activity and school performance: A systematic review of the literature. *Archives of Pediatrics & Adolescent Medicine*, 166(1), 49–55. <https://doi.org/10.1001/archpediatrics.2011.716>
- Singh, A. S., Saliassi, E., Van den Berg, V., Uijtdewilligen, L., De Groot, R. H. M., Jolles, J., & Chinapaw, M. J. M. (2019). Effects of physical activity interventions on cognitive and academic performance. *British Journal of Sports Medicine*, 53(10), 640–647. <https://doi.org/10.1136/bjsports-2017-098136>
- Tezbaşaran, A. A. (1996). *Likert tipi ölçek geliştirme kılavuzu*. Türk Psikologlar Derneği.
- Usher, E. L., & Pajares, F. (2008). Sources of self-efficacy in school: A critical review. *Review of Educational Research*, 78(4), 751–796. <https://doi.org/10.3102/0034654308321456>
- Yılmaz, M., Gürçay, D., & Ekici, G. (2007). Akademik öz-yeterlik ölçeğinin Türkçeye uyarlanması. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 33, 253–259.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82–91. <https://doi.org/10.1006/ceps.1999.1016>