

The mediating role of general self-efficacy in the relationship between metacognition and academic success of university students

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Abstract:


The objective of this study was to investigate the relationships between metacognition, general self-efficacy, and academic success among university students, and to examine the mediating role of general self-efficacy in these relationships. The study used a correlational research design and 360 university students participated by completing the Demographic Information Form, General Self-Efficacy Scale, and Metacognition Scale-30. Pearson correlation coefficients were used to analyze the relationships between variables, while structural equation modeling was employed to test the mediating role of general self-efficacy. The findings showed that there were positive associations between academic success and both metacognition and general self-efficacy. Furthermore, general self-efficacy was found to partially mediate the relationship between metacognition and academic success. The results suggested that supporting students' general self-efficacy beliefs could lead to increased metacognitive awareness and improved academic success. The implications of these findings were discussed in terms of higher education policies. The study's potential limitations include biases or social desirability effects that could result from using self-reported measures. Furthermore, the sample of university students may not be representative of the larger population, and the study's findings are limited to a particular geographic or cultural context. In summary, the study highlights the importance of metacognition and general self-efficacy for academic success among university students and underscores the need for interventions that aim to enhance these factors.

Keywords:

Metacognition, General self-efficacy, Academic success, University students, Higher education policy implications

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INTRODUCTION

The primary goal of education and training in higher education is for students to attain the necessary qualifications and achieve academic success. Academic success is defined by students meeting the program's content and learning outcomes. Numerous individual and environmental factors impact academic success, including cognitive, affective, and physical factors originating from the student (Kurt & Erdem, 2012; Sarier, 2016). Scholarly literature highlights the significance of metacognition and self-efficacy in academic success. Studies have associated academic achievement with individual factors, such as metacognition (Adıgüzel & Orhan, 2017; Bağçeci et al., 2011; Sawhney & Bansal, 2015; Stephanou & Tsoni, 2019) and self-efficacy (Ardura & Galan, 2019; Koca & Dadandı, 2019; Nasir. & Iqbal, 2019; Tataroğlu, 2009).

Metacognition, which is defined as “thinking about thinking” in its simplest form, has an important role in students' learning. If cognition refers to the learning skills that students apply to fulfill a task, metacognition can be defined as being aware of and reflecting one's own cognitive processes (Flavell, 1976). With his studies in the following years, Flavell (1979) further developed this definition and explained metacognition as a) information about the cognition of individuals, b) information about cognitive tasks, c) information about the strategies applied in the fulfillment of different tasks, and d) the ability to monitor the cognitive activities of the individual. In this direction, metacognition is the management and regulation of these processes, including awareness of cognitive processes and the selection and implementation of appropriate strategies related to the subject to be learned.

Downing et al. (2009) defined metacognition as the ability to analyze and reflect on one's own thinking, draw conclusions based on this analysis, and apply what has been learned to practical situations. In order to effectively address challenges, it is important for students to have an understanding of their own cognitive processes. In other words, students must be aware of how they carry out important cognitive activities like remembering, learning, and problem solving.

Metacognition is an individual's level of consciousness or understanding of the information that they have acquired. This comprehension can be conveyed through applying the knowledge in practice or by articulating it verbally. In essence, it involves recognizing one's thought processes and identifying potential solutions when addressing issues, making choices, or interpreting text. It also requires making well-informed decisions and continuously evaluating one's progress. Metacognition is characterized by a proactive, deliberate, and systematic approach and the ability to critically evaluate one's own learning (Sawhney & Bansal, 2015).

Studies emphasize three basic concepts related to metacognition, these are cognitive knowledge, metacognitive experiences and metacognitive regulation (Flavell, 1979;

Efklides, 2008). Cognitive knowledge is the individual's knowledge of his or her own cognition or general cognition. Beliefs about cognitive processes and the factors affecting their outcomes are cognitive knowledge and this knowledge is used to control thinking processes (Anderson, 2012). Metacognitive experiences are the elements of metacognitive knowledge that has entered consciousness. These are the conscious mental and affective experiences of the individual regarding the self, the subject to be learned, goals and strategies (Blummer & Kenton, 2014). Metacognitive experiences may occur before, in the middle or after a cognitive attempt, may be short or long in duration, or simple or complex in content (Flavell, 1979). Metacognitive regulation, on the other hand, is defined as the arrangements made by individuals to monitor and control their cognitive processes. A wide variety of processes, such as understanding task requirements, identifying personal strengths and weaknesses, identifying failures or changing strategies, all require metacognitive regulation skills (Roebbers & Spiess, 2017).

Individuals with high metacognitive awareness plan which subjects they already know and which they should know, where and how they can find information about these subjects and learn about them. Then he reviews the plans he has created, makes the necessary changes, and iterates. As individuals become more aware of metacognition, their skills related to thought processes are expected to increase, and they are expected to use these skills both in the learning process and in other areas of their lives (Coutinho, 2007; Dunning et al., 2003).

Metacognition is a strong predictor of academic performance and is therefore directly related to academic success. Therefore, students with good metacognition have high academic averages (Coutinho, 2007). Gama (2005) studied students who have difficulty in successfully completing the learning process and it was found that these students had problems in determining the difficulty level of the task, planning the learning before starting, determining the degree of success and the subject matter, the Apply previous knowledge and make quick decisions. These are problems related to metacognitive skills. Therefore, the inadequacy of individuals in their metacognitive abilities negatively affects their academic achievement.

A common research theme is the investigation of the relationship between metacognition and academic achievement. Mirzaei et al. (2012) studied 195 undergraduate physics students to examine the link between students' beliefs, metacognitions, academic goals, and academic achievement. Data was collected using a 7-point Likert scale, and the results showed that metacognition is a significant predictor of academic success. In another study, Romainville (1994) investigated the connection between the metacognitive characteristics of 35 economics students and their academic achievement. Through structured interviews, the data analysis indicated that high-achieving students were more aware of cognitive rules and frequently used metacognitive knowledge about cognitive processes and outcomes. On the other hand, in Eriyani's (2020) study with prospective teachers, there was a weak relationship found between metacognitive awareness and

academic achievement. Therefore, interventions that increase students' metacognitive awareness throughout their educational journey can help address future challenges and facilitate their learning process.

Another concept that is closely related to academic success is self-efficacy, because having low self-efficacy beliefs hinders academic achievement and can lead to self-fulfilling prophecies about lack of success and learned helplessness, which can ultimately negatively affect one's psychological well-being (Margolis & McCabe, 2006).

The concept of self-efficacy emerged based on Social Cognitive Theory and was defined by Bandura (1997) as the belief in one's ability to organize and execute the necessary action plans to manage possible situations. In other words, self-efficacy describes individuals' personal evaluations of what they can achieve with their abilities and skills and what level of success they can achieve (Maddux & Gosselin, 2003).

Bandura (1989) explained the sources of the emergence and development of self-efficacy as past experience, indirect experience, imagination, verbal persuasion, and psychological and emotional conditions. Past experiences, including success and failure, cause individuals to strengthen or weaken their beliefs about effectiveness. Students may feel unsuccessful because of past experiences, and small changes should be made in schools to replace such memories with new ones.

The effectiveness of indirect experiences increases depending on the quantity and quality of learning experiences that the individual can observe and model. In other words, observing an individual's behavior while someone else is doing it increases his/her belief that he/she will be successful in performing that behavior. For this reason, Bandura (1994) emphasizes that peers have a great influence on students' behavior in educational settings.

Imagination capacity enables individuals to understand and intuit situations, events and emotional reactions that can affect their sense of efficacy. Verbal persuasion states that individuals can be encouraged or discouraged based on what they are told. For this reason, individuals who are verbally persuaded that they will be successful will overcome them successfully when they encounter social or individual difficulties. For this reason, communication is of great importance at school and at home, and verbal reinforcers should be used carefully.

Psychological conditions also affect efficacy because a timid attitude towards a behavior can lead to failure and raise doubts about the individual's own abilities. Emotional conditions such as high levels of anxiety and depression can also negatively affect efficacy beliefs. A positive mood supports the self-efficacy of individuals, while a depressed mood decreases self-efficacy.

As a result, it is not the emotional and physical reactions that shape individuals' self-efficacy beliefs, but how these reactions are perceived and interpreted by individuals. While people with positive self-efficacy beliefs do not associate some affective factors with their

own abilities, individuals with low self-efficacy beliefs interpret them as the main reason for their failure (Bandura, 1994).

Self-efficacy affects individuals' willingness to learn any subject. While students avoid performing tasks that they believe will not be successful, they are willing to undertake very difficult tasks in areas where they have high self-efficacy beliefs. For this reason, self-efficacy is an important factor that can affect the academic success of individuals in a particular learning area (Nasir & İkbal, 2019).

Motlagh et al. (2011) conducted their studies examining the relationship between self-efficacy and scholastic success with 250 high school students. After analyzing the self-efficacy scale and performance scores, they concluded that self-efficacy is an important factor in academic performance. In a longitudinal study by Hwang et al. (2016), in which 1177 students in the eighth to twelfth grades were examined, it was found that there is a mutual connection between academic performance and self-efficacy. Accordingly, it was observed that students with high academic achievements in one semester showed a high self-efficacy perception in the following semester and students with high self-efficacy perceptions showed an increase in their academic success in the following semester. In a similar longitudinal study conducted with 412 Italian students, Caprara et al. (2011) concluded that there is a reciprocal relationship between students' self-efficacy and academic performance.

As at all educational levels, metacognition and self-efficacy have a significant impact on academic achievement at the university level. A university student with limited metacognitive skills will have difficulty in understanding the requirements of the subject to be learned, will have difficulty in distinguishing important information about the subject and will not be able to manage his own learning process. Low self-efficacy perception will negatively affect his self-confidence in the learning process and prevent him from revealing his potential (Kaplan, 2019).

Although there are many studies (Al-Baddareen et al., 2015; Aurah, 2013; Goli et al., 2016; Hassan et al., 2022; Hermita et al., 2015; Hrbackova et al., 2012; Honicke & Broadbent, 2016; Koca & Dadandı, 2019; Komarraju & Nadler, 2013; Rampp & Guffey, 1999; Stephanou & Tsoni, 2019) examining the relationship between metacognition, self-efficacy, and academic achievement, there are hardly any studies examining the mediating role of self-efficacy in the effect of success. In this direction, the aim of this study is to examine the predictive relationships between metacognition, academic success, and general self-efficacy in students and to determine the mediating role of general self-efficacy in this context. The following hypotheses were developed for this purpose:

H1: Metacognition has a positive effect on academic success.

H2: Metacognition has a positive effect on self-efficacy.

H3: Self-efficacy has a positive effect on academic success.

H4: Self-efficacy mediates the relationship between metacognition and academic success.

METHOD

This study was based on the correlational research design. Correlational studies aim to determine the extent to which some type or types of relationship exist. With this type of research, the researcher aims to conduct research in order to find and define the relationships that may exist between naturally occurring phenomena, without trying to change these phenomena in any way (Büyüköztürk et al., 2012). In this study, the relationships between metacognition, general self-efficacy and academic achievement were discussed using a correlational research design. The ethics committee permission document required to collect the data used in this study were obtained with decision number 2021/363 of the Ethics Committee of Necmettin Erbakan University dated 18.06.2021.

Research Group

The study group of this research consists of 360 university students studying at Konya Necmettin Erbakan University. Participation in the research was based on volunteerism and the students were informed about the study. Easily accessible sampling method was preferred in the selection of students. 55% (n=198) of the students were female and 45% (n=162) were male. 25% (n=90) of the students are first-year, 40% (n=144) are second-year students, 20% (n=72) are third-year students, and 15% (n=54) are fourth-year students. 69.4% (n=250) of the students are faculty students and 30.6% (n=110) are college students. The ages of the students ranged from 18 to 27 and the average age was calculated as 20.75 (Sd=1.91).

Data Collection Tools

Demographic Information Form: A demographic information form developed by the researcher was used to obtain the descriptive information of university students. The form included variables of gender, grade level, academic grade point average, school type and age. The form includes open-ended and multiple-choice questions.

General Self-Efficacy Scale-GSE: Schwarzer and Jerusalem (1995) created this scale, which was then validated and tested for reliability in its Turkish form by Aypay (2010). The scale contains 10 items that are divided into two dimensions, which are effort and resistance, ability and self-confidence. The scale relies on self-reported responses, where each item is rated from exactly true (4) to not at all true (1). High scores on the scale indicate strong general self-efficacy beliefs. The study found that the alpha coefficients for the effort and resistance, ability and self-confidence dimensions of the scale were 0.87 and 0.83.

Metacognition Scale-30: Wells and Cartwright-Hatton (2004) created a measurement tool, which was later adapted for Turkish use by Tosun and Irak (2008). The scale consists of 30 items and is composed of five distinct dimensions, namely positive beliefs, cognitive

confidence, uncontrollability and danger, cognitive awareness, and the need to control thoughts. The scale is based on self-report and each item is scored as strongly agree (4), agree (3), disagree (2), and strongly disagree (1). High scores obtained from the scale indicate a high level of metacognitive awareness. In this study, the alpha coefficients of the scale calculated for the dimensions of positive beliefs, cognitive confidence, uncontrollability and danger, cognitive awareness and control of thoughts were 0.86, 0.77, 0.87, 0.81, and 0.92.

Academic Success: Grade point averages were taken into account in measuring the academic success of the students. According to the 4-point assessment system used to evaluate the grades given to each student, grade point averages of 3.00 and above were classified as “high”, grade point averages between 2.00 and 2.99 were classified as “medium”, and grade averages of 2.00 and below were classified as “low” academic success.

Analysis of Data

Some assumptions were checked before the data were analysed. In the first step, the distribution of the scores obtained from the scales was examined by calculating the skewness and kurtosis coefficients. The skewness and kurtosis coefficients in the range of ± 1 indicate that the assumption of normal distribution is met (Hair et al., 2013). The calculated coefficients were within the specified range, and the assumption of normal distribution was met (Table 1).

Table 1. Skewness and Kurtosis Coefficients

Variables	Skewness		Kurtosis	
	z	SH	z	SH
Academic success	0,00	0,13	-0,35	0,26
Effort and resistance	-0,01	0,13	-0,90	0,26
Ability and self-confidence	-0,38	0,13	-0,02	0,26
Positive beliefs	0,39	0,13	-0,65	0,26
Cognitive confidence	0,79	0,13	-0,18	0,26
Uncontrollability and danger	0,20	0,13	-0,76	0,26
Cognitive awareness	-0,55	0,13	-0,45	0,26
Need to control thoughts	0,05	0,13	-0,41	0,26

The mediating role of general self-efficacy between metacognition and academic achievement was tested by applying structural equation model analysis. Cook distance values calculated before the analysis indicated that there were no extreme values in the data set (Cook distance <1). Multicollinearity was examined by calculating the variance increase factor (VIF) values (Çokluk et al., 2010). The obtained values showed that there was no multicollinearity between the variables ($1.47 \leq VIF \leq 2.86$). Preliminary analysis results

indicated that the data were suitable for multivariate analysis. Analyzes were carried out with the AMOS 24.0 statistical package program.

Ethical consideration

In this study, all the rules specified under the “Higher Education Institutions Scientific Research and Publication Ethics Directive” were adhered to. None of the actions listed under the section “Actions Against Scientific Research and Publication Ethics”, which is the second part of the directive, were taken.

Ethical review board name: Necmettin Erbakan University Social and Humanities Scientific Research Ethics Committee

Date of ethics review decision: 18.06.2021

Ethics assessment document issue number: 2021/363

RESULTS

The results of the correlation and mediator variable analysis are presented in this section.

Correlation Analysis Results

Table 1. Pearson Correlation Coefficients of the Relationships Between Academic Success, Self-Efficacy and Metacognition Components

Variables	Mean	Sd	1.	2.	3.	4.	5.	6.	7.	8.
1. Academic success	2,02	0,61	1							
2. Effort and resistance	17,84	3,91	0,43**	1						
3. Ability and self-confidence	12,88	2,17	0,43**	0,76**	1					
4. Positive beliefs	2,11	0,75	0,31**	0,27**	0,31**	1				
5. Cognitive confidence	1,95	0,80	0,26**	0,17**	0,15**	0,42**	1			
6. Uncontrollability and danger	2,45	0,79	0,41**	0,25**	0,26**	0,41**	0,51**	1		
7. Cognitive awareness	2,78	0,77	0,37**	0,31**	0,30**	0,36**	0,09	0,50**	1	
8. Need to control thoughts	2,36	0,67	0,43**	0,33**	0,32**	0,52**	0,42**	0,65**	0,68**	1

** $p < 0,01$; $N = 360$

Upon examining the table, it becomes evident that academic success shares low to moderate positive correlations with several factors. These include effort and resilience ($r = 0.43$; $p < 0.01$), ability and confidence ($r = 0.43$; $p < 0.01$), positive beliefs ($r = 0.31$; $p < 0.01$), cognitive confidence ($r = 0.26$; $p < 0.01$), the perception of uncontrollability and danger ($r = 0.41$; $p < 0.01$), cognitive awareness ($r = 0.37$; $p < 0.01$), and the need to control thoughts ($r = 0.43$; $p < 0.01$). In addition, it can be seen that academic success also increases with increasing components of self-efficacy and metacognition.

Effort and resistance and positive beliefs ($r = 0.27$; $p < 0.01$), cognitive confidence ($r = 0.17$; $p < 0.01$), uncontrollability and danger ($r = 0.25$; $p < 0.01$), cognitive awareness ($r = 0.31$; $p < 0.01$), and the need to control thoughts ($r = 0.33$; $p < 0.01$), there are low and moderate positive correlations. As the effort and resistance scores increased, the metacognition components also increased.

Ability and self-confidence and positive beliefs ($r = 0.31$; $p < 0.01$), cognitive confidence ($r = 0.15$; $p < 0.01$), uncontrollability and danger ($r = 0.26$; $p < 0.01$), cognitive awareness ($r = 0.30$; $p < 0.01$), and the need to control thoughts ($r = 0.32$; $p < 0.01$), there are low and moderate positive correlations. As ability and confidence scores increased, metacognition components also increased.

Mediator Variable Analysis Results

To test the research hypotheses, the study used the structural model presented in Figure 1. Metacognition was considered as the independent variable, academic achievement as the dependent variable, and general self-efficacy as the mediator variable. The fit values calculated ($\chi^2/sd=1.33$, RMSEA=0.03, SRMR=0.03, CFI=1.00, GFI=0.99, AGFI=0.97, TLI=0.99 and IFI=1.00) indicated that the model and data were perfectly aligned (Browne & Cudeck, 1993; Carmines & McIver, 1981; Jöreskog & Sörbom, 1984; McDonald & Marsh, 1990; Tanaka & Huba, 1985). Table 2 shows the path coefficients and significance levels in the model.

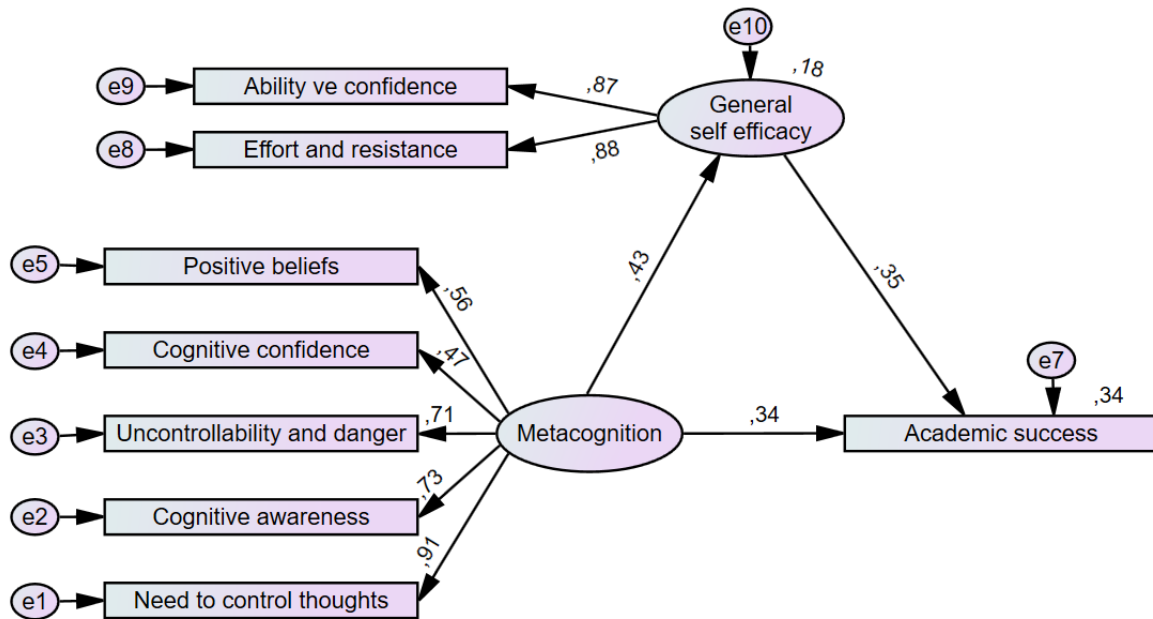


Figure 1. Structural Model, $\chi^2=19,10$; Sd=15; p=0,17

Table 2. Total, Direct and Indirect Effects

		β	Sh	p	%95 CI		Hypothesis	
					Min	Max		
Total effect								
Metacognition	--->	Academic success	0,49	0,05	0,00**	0,37	0,60	accepted
Direct effect								
Metacognition	--->	Academic success	0,34	0,09	0,00**	0,31	0,56	accepted
Metacognition	--->	Self-efficacy	0,43	0,09	0,00**	0,21	0,47	accepted
Self-efficacy	--->	Academic success	0,35	0,01	0,00**	0,24	0,46	accepted
Indirect effect								
Metacognition	--->	Academic success	0,15	0,04	0,00**	0,09	0,23	accepted

**p<0,01

The results indicate that metacognition has a positive overall effect on academic success, with a β coefficient of 0.49, and the hypothesis is accepted. The direct effect of metacognition on academic success is also significant ($\beta = 0.34$), which means that part of the positive overall effect is directly attributable to metacognition.

There is also a significant positive effect of metacognition on self-efficacy ($\beta = 0.43$), indicating that higher levels of metacognition are associated with higher levels of self-efficacy. Self-efficacy also has a significant direct influence on academic success ($\beta = 0.35$), meaning that those who believe in their ability to succeed are actually more successful.

The indirect effect of metacognition on academic success through self-efficacy is also significant ($\beta = 0.15$), meaning that part of the positive overall effect of metacognition on academic success is mediated by the positive influence of metacognition on self-efficacy. According to the results obtained, the H1, H2, H3 and H4 hypotheses were accepted.

DISCUSSION

The aim of this study was to explore the interrelationships between metacognition, academic success, and general self-efficacy in university students. The results indicated a positive association between metacognition and general self-efficacy as well as academic success. These findings are consistent with previous research, such as the studies conducted by Cera et al. (2013), Hwang et al. (2016), Polat and Uslu (2012), Raoofi et al. (2014), and Vrugt and Oort (2008). For instance, Young and Fry (2008) conducted a study with university students and found a significant correlation between metacognitive awareness and academic success. Similarly, Cheng and Chiou (2010) identified a positive and significant correlation between general self-efficacy and academic success.

Metacognition is the awareness of what one knows and the ability to understand it. This interpretation arises from the use or explanation of knowledge when thinking, problem solving, making decisions, or interpreting an event. Individuals are aware of what they know, make conscious choices, and take an active and systematic approach to the learning process (Sawhney & Bansal, 2015). Ackerman and Goldsmith (2011) state that information on their own learning processes affects the academic success of students. As metacognitive awareness increases, so will academic success (Thomas & McRobbie, 2001), since students will be able to recognize their deficiencies and weaknesses, and make realistic and accurate decisions on how to learn a subject with the help of their metacognitive awareness.

According to Demirci (2021), instructing individuals on metacognitive strategies such as planning, implementing, and evaluating can enhance their autonomy in the learning process and lead to improved academic outcomes. The study indicates a positive correlation between metacognition and academic success in university students, implying that the participants are taking ownership of their learning and being conscious of the learning process. This is particularly relevant for undergraduate students who have to make decisions on what, when, and how to learn during their academic journey.

The study found that higher levels of general self-efficacy were positively associated with greater academic success. General self-efficacy refers to an individual's belief in their ability to influence events that affect their lives (Bandura, 1997). Those who have confidence in their abilities and believe that they can accomplish their goals will approach learning with a more positive and determined attitude, leading to enhanced academic success. The research suggests that the high levels of general self-efficacy observed among the students in the study had a positive impact on their academic performance. These findings are consistent with those of previous studies, including Ardura and Galan's (2019) research with 507 students, which found that self-efficacy was a predictor of academic success. Similarly, Hwang et al. (2016) observed a significant association between self-efficacy and academic success, with students' success in one academic year leading to increased self-efficacy and subsequent success in following years.

Zimmerman (2000) noted that self-efficacy is not the only factor influencing academic success, and that even if students have high self-efficacy, it is not possible for them to achieve success if they lack knowledge and skills. Furthermore, Hassan et al. (2022) emphasized that metacognitive awareness has a significant effect on success. Therefore, in this study it can be assumed that both the self-efficacy and metacognitive features of the participants have a positive effect on their academic success.

The aim of the study was to investigate the potential mediating role of self-efficacy in the relationship between metacognition and academic performance. The findings suggested that general self-efficacy partially mediated the relationship between metacognition and academic success. This conclusion is supported by previous research in the field. Stephanou and Tsoni's (2019) study of 165 middle school students in fifth and sixth grade found that general self-efficacy played a mediating role in the relationship between metacognition and scholastic success. Therefore, the results suggest that students with higher levels of metacognitive awareness and strong self-efficacy beliefs are likely to achieve better academic outcomes.

CONCLUSION and RECOMMENDATIONS

The study emphasizes the significance of metacognition and self-efficacy for academic success. Metacognition is the capacity to think about and analyze one's own cognitive processes and learning strategies, while self-efficacy is the confidence in one's ability to effectively perform a task. The study's results indicate that both metacognition and self-efficacy play crucial roles in enhancing academic success. In addition, the study suggests that general self-efficacy mediates the connection between metacognition and academic success.

The emphasis on promoting metacognitive and self-efficacy perceptions has significant implications for higher education policy. Universities and colleges may need to re-evaluate their curricula and teaching methods to ensure that they are providing students

with opportunities to develop these skills. This may involve increasing the use of group work and self-reflection tasks, as well as providing more feedback and support to students. Additionally, institutions may need to provide more resources for tutoring programs, self-efficacy courses, and communication programs to help students improve their confidence and expectations of self-efficacy.

Another important implication is the need for further research into individual factors associated with metacognition and self-efficacy. This research can inform the development of evidence-based policies and programs that support students in their academic success. It may also be necessary to examine the relationship between metacognition, self-efficacy, and other factors, such as motivation and resilience, to develop a more comprehensive understanding of what contributes to student success.

Overall, the findings of this study suggest that higher education institutions should take a more holistic approach to supporting student success. This may involve a shift away from traditional, content-focused teaching methods and towards more student-centered, skills-focused approaches that emphasize metacognitive and self-efficacy development. By doing so, institutions can better equip students with the tools they need to succeed academically and in their future careers.

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Author(s)' statements on ethics and conflict of interest

Ethics statement: I hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. Prior to completing the survey, participants were informed about their rights through informed consent forms. I take full responsibility for the content of the paper in case of dispute.

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