ACADEMIC SELF-EFFICACY, STUDY SKILLS, AND SELF-REPORTED ACADEMIC PERFORMANCE

A thesis presented to the faculty of the Graduate School of Western Carolina University in partial fulfillment of the requirements for the degree of Specialist in School Psychology

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Abstract

The relationship between self-efficacy and academic performance gained significant attention in educational psychology following the development of Bandura's Social Cognitive Theory (Bandura 1977b). Academic self-efficacy, defined as a student's belief in their ability to succeed in academic tasks, has been consistently linked to higher academic achievement (e.g., Doménech-Betoret et al., 2017). Similarly, study skills, like self-testing and rewording, have also been heavily researched and shown to be positively related to academic performance. In the current study, 120 participants completed a survey assessing their college GPA, study habits, and their levels of self-efficacy related to academics. Through mediation and correlational analysis, the results of this study indicate that students with higher levels of academic self-efficacy tend to report using more effective approaches to studying, which include the deep and strategic study methods, and less surface-level or ineffective study methods. The results also indicated that students with higher self-efficacy are more likely to engage in strategic studying, which in turn enhances academic performance.

Introduction

As people go through life, they experience a range of events and situations. These experiences are continuously shaping beliefs, goals, thought processes, identities, and responses to similar situations. For some, these experiences may elicit fear, anxiety, or self-doubt, while others are able to bounce back, demonstrating resilience. While there are many variables that go into human behavior, the psychological construct of self-efficacy plays a major role in how people are shaped by their experiences (Bandura, 1977a).

Bandura (1977a) describes self-efficacy as a person's belief that they can accomplish or succeed at something. In an educational context, self-efficacy has been shown to be positively related to academic performance (Doménech-Betoret et al., 2017, Usher & Pajares, 2008; Lei et al. 2022). Bandura notes that self-efficacy directly relates to the amount of time and effort someone applies to situations. When students have stronger self-efficacy, they tend to put more effort into accomplishing tasks, like studying or doing homework. They are also less likely to give up when challenges arise (Cassidy, 2015).

Although self-efficacy has been shown to be a positive predictor of academic performance, study skills have also been supported as positive predictors of academic performance (Walck-Shannon, 2021). Study skills are strategies applied to academics to facilitate the learning, organizing, or retaining of information (Taghani & Razavi, 2022). Effective study skills include techniques such as self-testing, rewording, and distributed practice (Biwer et al., 2023; West & Sadoski, 2011). Students who use study skills effectively are shown to have higher academic achievement, but many students are unaware of effective study methods due to lack of instruction about them (Dunlosky & Rawson, 2015). When students have ineffective study

habits, it can contribute to the perception that studying is aversive, stressful, difficult, or useless (Svartdal et al., 2021).

When examining the facets of academic performance, it is important to include self-efficacy and study skills. However, there is limited research investigating how effective study skills, or a lack thereof, may mediate the relationship between academic performance and self-efficacy. This research study aims to investigate how effective study skills and self-efficacy contribute to academic performance.

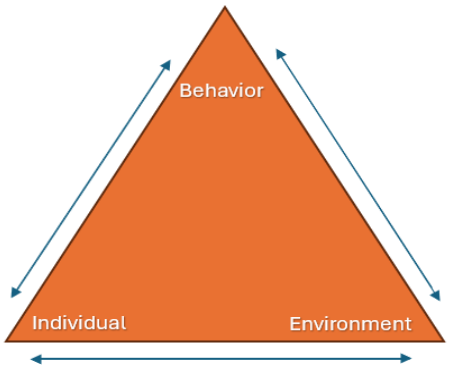
Literature Review

Self-Efficacy and Social Cognitive Theory

In 1977, Bandura coined the term self-efficacy and defined it as a person's belief that they are capable of succeeding, accomplishing goals, and completing tasks, even in challenging situations. Bandura's Social Cognitive Theory (1977b) identifies the triadic relationship between individuals, environment, and behavior. He emphasizes that learning is derived from social situations through modeling and observation of actions and consequences (see Figure 1). This theory has been widely researched and has been used to explain human behavior and responses in a variety of contexts.

Figure 1

Model of the Social Cognitive Theory



Note: This diagram shows the triadic relationship between behavior, individual characteristics, and environmental factors (Nickerson, 2024).

Rooted within Bandura's social cognitive theory is the self-efficacy theory. Bandura (1977a) suggests that self-efficacy influences behavior through a set of efficacy expectations, the extent to which one believes they can perform necessary actions to produce specified outcomes

(see Figure 2). Bandura differentiates efficacy expectations from outcome expectations, which is the idea that a given behavior will elicit a specific outcome. Outcome expectations provide a sense of purpose or motivation for engaging in a specific behavior; they are part of the force that drives self-efficacy and its influence on behavior.

Figure 2

Self-Efficacy Theory

Note: This is a visual representation of the self-efficacy theory and the integration of efficacy and outcome expectations (Bandura, 1977a).

While outcome expectations are an important aspect of self-efficacy, it should be noted that these expectations are theorized to only influence behavior in the presence of efficacy expectations. In other words, one may believe that engaging in a certain behavior will produce a certain outcome, but if they have doubts about their ability to engage in the behavior, having that outcome expectation would not influence the extent to which they engage in the behavior. An example of this is studying: a student may understand that effective study techniques are likely to result in a passing grade on an exam, but if they believe they are incapable of studying effectively, the student will likely not study for the exam. Bandura also references the learned helplessness theory (Seligman & Maier, 1976) that explains how people who experience adverse life events outside of their control are likely to develop the sense that actions do not affect

outcomes. This belief is then applied to many situations that affect the strength of efficacy expectations, even in those which behaviors can impact outcomes, like studying for a test.

Another important aspect of the self-efficacy theory is the source of self-efficacy. Although expectations may guide behavior through perception of one's capabilities, Bandura highlights the importance of four sources of information that contribute to self-efficacy: performance outcomes, vicarious experiences, verbal persuasion, and physiological feedback. The first two sources, performance outcomes and vicarious experiences, are considered the most influential sources of self-efficacy. Performance outcomes, also known as mastery experiences, are direct personal experiences of perceived success. An example of this could be receiving a good grade on a major project after spending a significant amount of time and effort working on it. Vicarious experiences, which directly relates to Bandura's social cognitive theory, come from observing others succeed or avoid adverse outcomes by engaging in a specific behavior, such as seeing a classmate receive a reward for being respectful and quiet in class. Witnessing others accomplish their goals can generate the popular notion that if one person can do it, so can others (Bandura, 1977a).

Academic Self-Efficacy and Academic Performance

One type of self-efficacy outlined by Bandura (1997) is academic self-efficacy; the belief that one can succeed and achieve academic goals**.** Research has indicated that students who have high academic self-efficacy tend to have higher academic achievement across all areas and levels when compared to students with lower self-efficacy (Lei et al. 2022). Students who perceive their efforts as being successful may have more confidence to accomplish similar tasks, while those who believe they were not successful may experience a decrease in confidence in that area (Usher & Pajares, 2008). Similarly, when students notice improvement over time, they may find

an increase in academic self-efficacy. Other skills related to self-efficacy may play a role in its effects on academic performance as well. One research study investigated the relationship between self-efficacy and academic performance, testing if this relationship is explained by academic buoyancy, the ability to bounce back from academic challenges, and moderated by social support (Lei et al. 2022). The researchers found that self-efficacy positively predicted academic performance directly and indirectly with academic buoyancy acting as a positive mediator, suggesting that students with higher levels of self-efficacy tend to have higher academic performance and do better at overcoming academic related challenges. This mediated relationship was also found to be moderated by social support, indicating that when students received greater social support, the impact of self-efficacy on academic performance became stronger. This suggests that self-efficacy can directly and indirectly predict academic outcomes.

The relationship between self-efficacy and academic outcomes is also hypothesized to be impacted by stress in academic contexts. Researchers investigated the influence of two types of stress on academic self-efficacy and performance: challenge stress and hindrance stress (Travis et al., 2020). Challenge stress includes stressors considered goal-relevant and manageable and is associated with more positive academic outcomes, such as increased performance and motivation (i.e., impending due date for an important assignment). Hindrance stress includes stressors considered unmanageable and potentially hindering personal growth and was found to be associated with negative academic outcomes, including decreased performance and increased maladaptive behaviors (i.e., ambiguous expectations for an assignment). The results indicated that although self-efficacy did not moderate the relationship between challenge stress and GPA, self-efficacy was shown to be an independent predictor of overall academic functioning.

Study Skills and Academic Outcomes

In addition to academic self-efficacy, study skills and habits have an impact on academic outcomes and performance. Research has indicated that practicing positive study skills, such as self-testing and rewording, can improve overall academic performance (Taghani & Razavi, 2022). In one study, researchers focused on the effects of learning strategy training on college students' academic performance and learning behaviors (Biwer et al., 2023). They found that students who received the training were able to distinguish between effective and ineffective learning strategies and reported using less highlighting and re-reading and more distributed practice, interleaving, and elaborating, which were some of the learning strategies in which they were trained. The results also indicated that the students who received the training improved significantly throughout the year and had less variation between student scores on exams. This suggests that students who understand how to use effective study skills can perceive positive effects on their academic outcomes with long-term practice.

Similarly, another study focused on how different study strategies and academic aptitude, the ability to perform well academically, predict academic performance in medical school students (West & Sadoski, 2011). The researchers found that two study skills, time-management techniques and self-testing, were stronger predictors of first-semester academic performance than academic aptitude. These findings suggest that developing strong study skills can significantly impact academic performance.

While having consistent study habits may impact academic performance, it is important to understand the difference between effective and ineffective study skills. In a study conducted by Entwistle et al. (2013), researchers highlighted three different approaches to studying: deep, strategic, and surface. Using a deep approach involves relating ideas, seeking meaning, and using

evidence in study tactics. The strategic approach involves a more calculated approach to studying with time management techniques and organized or systematic study tactics. The surface approach to studying is described by Entwistle (2008) as focusing on memorizing answers or terms needed for the purpose of passing an assignment or class instead of for personal understanding. The surface approach to studying is considered ineffective. Reimann et al. (2007) found that the different approaches to studying were more significantly related to overall grades compared to scores on different types of questions (multiple choice and short answer) on an exam. The surface approach to studying was also shown to be related to lower self-ratings of achievement compared to students who use a deep approach (Entwistle, 2008). These findings suggest that students who strive to derive meaning from their studies and utilize organizational strategies may show higher academic achievement.

The Relationships Between Self-Efficacy, Study Skills, and Academic Outcomes

As research has indicated, study skills and self-efficacy both independently impact academic outcomes. In addition to understanding these individual relationships, researching the interplay between study habits, self-efficacy, and academic outcomes is important for helping inform strategies to promote student success. One strategy to promote student success involves study skills training. Researchers Taghani and Razavi (2022) used study skills training in their experiment to investigate the impact of effective study habits on academic self-efficacy, engagement, and performance. The study skills training involved randomly assigning 30 female high school students to either a control group or an experimental group. The 15 students in the experimental group received 8 study skills training sessions that focused on mnemonics, organizers, pre-writing strategies, and other study techniques, while the control group did not receive any training. They found that students in the experimental group reported significantly

increased self-efficacy, including the perceived ability to manage homework and school-related tasks, compared to students in the control group. They also reported improved engagement, including active participation and motivation to learn, and improved academic performance, which was measured by GPA. These findings suggest that strategies such as study skills training can be effective in improving academic functioning and self-efficacy.

In addition to creating strategies to enhance student success, investigating the relationship between self-efficacy, study skills, and academic performance is important for promoting retention. Self-efficacy and study habits in students play a critical role in predicting academic outcomes, such as dropping out (Vîrgă et al., 2022). In one study, researchers conducted a meta-analysis to see if psychosocial and study skills, including academic self-efficacy, motivation, and social support, were related to academic performance and persistence (Robbins et al., 2004). The results indicated moderate relationships between retention and self-efficacy, academic goals, and academic-related skills. Additionally, the findings indicated that the two best predictors for GPA are academic self-efficacy and motivation. The results of this study highlighted the predicting power of psychosocial and study skills on outcomes such as achievement, retention, and socio-economic status.

A critical component of understanding the influence of self-efficacy and study skills on academic outcomes is examining how they build upon each other. One recent study from Romania and India investigated the relationship between four types of psychological capital, including hope, resilience, optimism, and self-efficacy, and university experiences with study engagement as a mediator (Vîrgă et al., 2022). Using various questionnaires, the researchers found that there is partial mediation of study engagement between psychological capital and academic performance, burnout, and boredom. The results of the study showed that study

engagement partially mediates the relationship between psychological capital and academic performance, burnout, and boredom. In other words, students with higher levels of psychological capital, such as self-efficacy, tend to be more engaged in their studies, which in turn improves their academic performance and reduces burnout and boredom. This study highlights the role self-efficacy and other psychological states play in predicting academic performance and how studying can help explain this relationship. Their findings suggest more research should be conducted in this area to inform interventions focusing on psychological resources to further promote academic success.

Present Study

In the scope of education, understanding the interactions between self-efficacy, study skills, and academic performance is necessary. Academic self-efficacy has been widely studied and directly linked to academic performance, resulting in a positive relationship between the two variables (Usher & Pajares, 2008; Lei et al. 2022). In addition, study skills and engagement in positive study habits are also directly linked to academic performance, and when students understand how to distinguish between effective and ineffective study techniques and how to utilize them in their studies, students perceive a positive effect on their academic performance (Biwer et al., 2023).

While there is ample evidence supporting the independent impact of self-efficacy and independent impact of study habits on student performance, there is limited research investigating connections within this relationship and whether self-efficacy has more predictive power on performance (Vîrgă et al., 2022; Robbins et al., 2004). The objective of this study is to examine how different approaches to studying (surface, deep, and strategic) predict academic performance and how self-efficacy contributes to that relationship. The purpose of this research

is to contribute insight on various aspects of academic functioning and to inform interventions and strategies that promote and enhance student outcomes. The current study will answer the research question: are a student's study skills and level of academic self-efficacy predictive of their academic performance? The following hypotheses will be explored:

1. There will be a positive correlation between academic self-efficacy and self-reported GPA.
2. There will be a positive correlation between academic self-efficacy and study skills using deep and strategic approaches.
3. There will be a positive correlation between deep and strategic study skills and self-reported GPA.
4. Study skills mediate the relationship between academic self-efficacy and academic performance.

Methods

Participants

This study recruited college students in the United States who were at least 18 years old and had completed a minimum of 12 credit hours, ensuring they had an established GPA. 120 participants completed the full survey, while 23 were excluded due to non-consent (n = 3), being underage (n = 2), having fewer than 12 credit hours (n = 10), living outside the United States (n = 2), or failing to report GPA (n = 7). To assess the adequacy of the sample size, a post-hoc power analysis was conducted using GPower 3.1* (Faul et al., 2007) for a linear multiple regression model with four predictors. The analysis was performed with an effect size of $f^2 = 0.1043$, corresponding to a small-medium effect size (Cohen, 1988), an α level of 0.05, and 120 participants (N = 120, df = 115). The achieved statistical power was 0.939, indicating a 93.9% probability of detecting a true effect if one exists. Given that power above 0.80 is conventionally acceptable, these results suggest that the sample size was sufficient to detect effects, and that any nonsignificant findings are unlikely due to sample size limitations.

Of the 120 participants, 24.2% identified as male (n=29), 71.7% as female (n=86), and 4.2% as non-binary/non-conforming (n=5). In terms of race and ethnicity, the majority of participants identified as White (76.7%, n=92), followed by Multiracial (10.8%, n=13), Hispanic or Latino (7.5%, n=9), Black or African American (2.5%, n=3), Asian (1.7%, n=2), and Some Other Race (0.8%, n=1). Regarding first-generation student status, 36.7% (n=44) were first-generation students, while 59.2% (n=71) were not, and 4.2% (n=5) were unsure. Most participants were full-time students (95.8%, n=115), while 4.2% (n=5) were part-time. In terms of academic standing, 59.2% (n=71) were first-year students, 19.2% (n=23) were sophomores, 6.7% (n=8) were juniors, 6.7% (n=8) were seniors, and 8.3% (n=10) were graduate students.

Materials

Consent form. Prior to the beginning of the survey, the participants were provided a brief overview of the study along with a consent form (see Appendix A).

Demographics and GPA. Participants were then asked to complete questions about their demographics and status in higher education. The participants were asked to report their race/ethnicity, gender, age, and residence status in the United States. In the analysis, race was coded as 1 = White and 2 = Non-White, reflecting the demographic composition of the sample. Gender was coded as 1 = Female and 2 = Non-Female, given the majority of participants identified as female. These coding decisions allowed for simplified comparisons while maintaining the integrity of subgroup analyses. They were also asked about whether they attend college, year in school, number of credit hours completed, part-time or full-time status, and whether they are a first-generation student. The participants were then asked to self-report their college GPA, which was used as the primary outcome measure for academic performance. Self-reported GPA had a mean of 3.42 with a standard deviation of .57 with a moderately negative skew (-1.01) and slight kurtosis (0.30), indicating a left-skewed distribution. For Western Carolina University students, a link was provided where they could find their GPA on the university's website (see Appendix B).

Study skills. To measure study skills, the short version of the *Approaches and Study Skills Inventory for Students* (ASSIST; Entwistle et al., 2013) was used. The ASSIST questionnaire uses a Likert rating scale from 1 ("disagree") to 5 ("agree") and consists of 18 items divided into three subscales, each with 6 items: deep, strategic, and surface. Each subscale is summed with scores ranging from 6 to 30; higher scores on the deep and strategic approaches subscales indicate more consistent usage of effective study skills and techniques. However,

higher scores on the surface approach subscale indicate use of ineffective study habits or lack of study skills.

In the current study, the strategic subscale had good reliability (α = .800). The sum of items on this subscale had a mean of 20.13 with a standard deviation of 5.02 with a slight negative skew (-0.39) and near-normal kurtosis (-0.26), indicating a relatively normal distribution. An example item from the strategic subscale is: “I work steadily through the term or semester, rather than leave it all until the last minute” (see Appendix C). The surface approach subscale had acceptable reliability (α = .725) with a mean score of 16.39 and standard deviation of 4.72 with nearly no skew (0.08) and a mild negative kurtosis (-0.47), indicating a flatter distribution. An example item on the surface subscale is: “Often I feel I'm drowning in the sheer amount of material we're having to cope with.” The deep approach on this subscale, however, had questionable reliability (α = .679). Therefore, scores on the deep approach subscale may have more measurement error, suggesting that items within the subscale may not consistently measure the intended concept. This could result in deviations between the participants’ measured scores and their true scores. The mean score on the deep subscale was 18.75 with a standard deviation of 4.42 with a slight negative skew (-0.34) and mild kurtosis (0.59), suggesting a relatively normal distribution. An example item on the deep subscale is: “When I’m working on a new topic, I try to see in my own mind how all the ideas fit together.”

Academic self-efficacy. To measure academic self-efficacy, the *General Academic Self-Efficacy* (GASE) scale (Nielsen et al., 2018) was used. The GASE scale is a five-item self-report measure that assesses academic self-efficacy using a Likert scale of 1 (strongly disagree) to 5 (strongly agree). Scores on the GASE are summed with a range from 5 to 25, with higher scores indicating higher levels of academic self-efficacy. In this study, the GASE scale had acceptable

reliability (α = .751) with a mean score of 19.13 and standard deviation of 3.49, showing a moderate left-skew (-1.01) and peaked kurtosis (2.05), suggesting a distribution that leans toward lower self-efficacy scores. An example item from this measure is: “I generally manage to solve difficult academic problems if I try hard enough” (see Appendix D).

Procedure

Following approval from an IRB, participants who are attending Western Carolina University chose to complete the survey on the university’s research participation system (SONA) for course credit. Other participants chose to take this survey through online recruiting from Social Psychology Network (https://www.socialpsychology.org). Before the survey started, the participants were asked for their consent and provided with a brief written introduction to the study. Upon giving consent, the participants were asked questions about their demographics and status in higher education before being instructed to report their college GPAs and to complete the ASSIST and GASE scales (Entwistle et al., 2013; Nielsen et al., 2018). This survey took between 5-10 minutes to complete for most participants.

Results

A mediation analysis was conducted to examine whether a student's study skills (as measured by the ASSIST scale; Entwistle et al., 2013) mediated the relationship between the level of academic self-efficacy (as measured by the GASE scale; Nielsen et al., 2018) and academic performance, as measured by self-reported GPA. Correlation analyses were conducted to assess the relationships between academic self-efficacy, study skills, and self-reported GPA. Demographic frequencies, descriptive statistics, and reliability analyses were also conducted to assess the population and validity of the measures.

Descriptive Statistics

Prior to conducting the regression analysis, descriptive statistics for the study variables were examined. All items on the ASSIST and GASE (Entwistle et al., 2013; Nielsen et al., 2018) were coded so high scores equal high endorsement of the variable due to the use of similar Likert-scales (1=[strongly] disagree, 5=[strongly] agree). Additionally, coefficients of determination were computed to assess the relationships between academic self-efficacy, study skill approaches, and self-reported GPA. Findings of the correlation analysis may be also found in Table 1 (see Appendix E).

Based on correlation analyses, significant positive correlations were found between self-reported GPA and academic self-efficacy with a small effect size (r = .184, R^2 = .03, p < .05), supporting the first hypothesis. This suggests that students who report higher levels of academic self-efficacy tend to report higher GPA. Self-efficacy was also found to have a moderate positive correlation with the deep approach with a medium effect size (r = .397, R^2 = .158, p <.01) and the strategic approach with a large effect size (r = .530, R^2 = .281, p < .01). This supports hypothesis 2 indicating that effective study approaches are correlated with increased academic self-efficacy. This suggests that students with higher self-efficacy tend to adopt more effective, deeper, and more strategic study methods. Moderate positive correlations were also found between self-reported GPA and the strategic study approach with a small effect size (r = .302, R^2 = .091, p <.01). This provides partial support to hypothesis 3. While the deep study approach was positively correlated with GPA, this correlation was not statistically significant, suggesting that strategic study skills may be particularly important for academic success. In addition, the surface study approach had a slight negative correlation to GPA, although insignificant as well. Additionally, the surface level approach was found to have a negative correlation with self-

efficacy with medium effect size (r = -.461, R^2 = .213, p <.01). This suggests that those who have lower academic self-efficacy may be more prone to approaching learning with a surface-level perspective.

Mediation Analysis

To test the fourth hypothesis and to examine whether deep, surface, and strategic study approaches mediate the relationship between academic self-efficacy and GPA, a multiple mediation analysis was conducted using PROCESS macro for SPSS (Model 4, version 5.0 beta 2.1, Hayes, 2022) with study approaches acting as three parallel mediators. A bootstrapping approach (n = 5000) was applied to estimate indirect effects with 95% bias-corrected confidence intervals (CIs). Findings of the mediation analysis can be found in Table 2 (see Appendix E). The model was conducted with and without covariates (gender, race, and first-generation status). However, these covariates did not change the overall effects or directions of the model and were not significant. Therefore, only the models without the covariates are reported for simplicity.

The total model with self-efficacy as a predictor, the three study skills as mediators, and GPA as the outcome was significant (F(4, 115) = 2.995, p < .05, R^2 = .094). The direct effect of self-efficacy on GPA was B = .0302, SE = .0148, t(1, 118) = 2.0503, p < .05, indicating a significant direct relationship between self-efficacy and GPA (higher self-efficacy predicted higher GPA). When mediators were included, the direct effect of self-efficacy on GPA was B = .0055, SE = .0186, t(4,115) = .2926, p = .7704, indicating mediation may be present. The indirect effects of the deep approach (B = -.0029, SE = .0071, CI [-.0168, .0111]) and surface approach (B = .0029, SE = .0089, CI [-.0147, .0209]) showed no significant mediating effect. However, the strategic approach (B = .0248, SE = .0104, CI [.0036, .0447]) showed a significant mediating

effect, as the 95% confidence interval did not contain zero. This effect suggests that greater strategic studying explains the relationship between academic self-efficacy and GPA.

Discussion

The purpose of this research was to investigate various factors that play into academic performance, including self-efficacy and the ways we approach studying and learning. Previous research indicates a positive relationship between self-efficacy and academic performance as well as study habits and academic performance (Doménech-Betoret et al., 2017; Dunlosky & Rawson, 2015). The goal of this study was to contribute insight on various aspects of academic functioning to inform interventions and strategies that promote and enhance student outcomes.

The results of this study largely support the first three hypotheses. A significant positive correlation was found between academic self-efficacy and self-reported GPA, which aligns with previous research suggesting that students with higher academic self-efficacy are more likely to achieve higher academic performance (Doménech-Betoret et al., 2017; Lei et al. 2022; Usher & Pajares, 2008). This suggests that students who believe in their abilities in academic areas tend to report higher academic performance. Additionally, academic self-efficacy was strongly positively correlated with deep and strategic study approaches, while it was negatively correlated with surface-level study strategies. These findings are consistent with prior studies that have emphasized the role of self-efficacy in motivating students to engage in more effective study behaviors, such as deep processing and strategic learning (Pintrich & De Groot, 1990). This implies that students who hold the belief that they are capable of academic success are more likely to engage in more effective studying behaviors, like time management techniques or using evidence in study tactics. Conversely, students who are less sure of their academic abilities may

use more surface-level approaches to learning, such as memorizing terms solely to pass a test or not attempting to bring personal understanding to the subject. This could be due to fear of failure, tendency to avoid difficult tasks, or lack of motivation (Constantine et al., 2019).

The third hypothesis, which posited a positive correlation between deep and strategic study skills and self-reported GPA, was partially supported. Specifically, a significant correlation was found between self-reported GPA and the strategic study approach. This suggests that students who adopt strategic study behaviors, such as planning, organizing, and self-monitoring, tend to perform better academically. The correlation between deep study approaches and GPA was weaker but still positive, which indicates that while deep study skills are important, their contribution to academic success may be less pronounced compared to strategic approaches.

The fourth hypothesis was partially supported. This hypothesis predicted that study skills (deep, strategic, and surface) would mediate the relationship between academic self-efficacy and GPA. The multiple mediation analysis revealed that strategic learning significantly mediated the relationship, while deep and surface learning did not. This suggests that students with higher self-efficacy are more likely to adopt strategic study methods, which in turn enhances academic performance. However, deep and surface learning did not significantly contribute to GPA variance, indicating that strategic study approaches may be the most impactful in academic success. This finding aligns with prior research suggesting that strategic learners engage in time management, goal-setting, and efficient studying, which directly influence academic outcomes (Entwistle et al., 2013). The lack of mediation through deep or surface learning may indicate that these approaches do not strongly contribute to GPA variability or that other unmeasured factors influence their effectiveness in academic performance.

The finding that academic self-efficacy is positively correlated with self-reported GPA and study skills aligns with the literature on the motivational aspects of academic performance (Bandura, 1977a; Vîrgă et al., 2022). Students who believe in their ability to succeed academically are more likely to engage in adaptive study behaviors, such as using deep and strategic study methods. The stronger correlation between strategic study skills and GPA suggests that students who effectively manage their study time, set goals, and employ techniques for organizing and integrating information are better able to achieve academic success. Strategic learning strategies have been consistently shown to enhance learning outcomes by promoting deeper understanding and retention of material (West & Sadoski, 2011). Therefore, these findings support the idea that the quality of study strategies is more critical than the mere quantity or time spent studying.

Implications for Practice

The results of this study have several practical implications for educators and academic counselors. First, since both academic self-efficacy and strategic study skills were strongly associated with GPA, interventions aimed at enhancing students' self-efficacy and promoting effective study strategies may be valuable for improving academic performance. For instance, programs that focus on training students to use more strategic approaches to learning and studying and educating them about effective versus ineffective study tactics could be beneficial. Teaching students how to implement strategic study techniques, such as time management and self-monitoring, could further enhance their academic success. Furthermore, the strong negative correlation between self-efficacy and surface-level study approaches highlights the potential value of discouraging ineffective study strategies, such as highlighting or rereading. Encouraging

students to adopt more active and engaged learning techniques could reduce reliance on surface approaches and improve long-term academic outcomes.

Limitations

While the findings of this study provide useful insights, several limitations should be considered. First, the reliance on self-reported GPA may limit the generalizability of the results, as self-reported grades can be inflated or inaccurate compared to official records. Specifically, students with lower academic self-efficacy may be more likely to underreport their GPA due to negative self-perception, lack of confidence in their abilities, or heightened academic anxiety. Future research should consider using actual GPA data to validate these findings. Additionally, the study used cross-sectional data, meaning that causality cannot be inferred due to the descriptive nature of the study. Longitudinal research would be needed to determine whether changes in self-efficacy and study skills lead to changes in academic performance over time. The participants in this study were also majority white (76.7%) and female (71.7%), which could lead to biased results or underrepresentation of other populations.

Another limitation is the use of the ASSIST scale to measure study skills. While the ASSIST scale provides useful insights into students' study approaches, it may not capture all aspects of academic behavior that contribute to success, such as motivation, effort, or cognitive strategies. Additionally, the deep approach subscale on the ASSIST had low reliability (Cronbach's $\alpha > .60$). The GASE scale to measure self-efficacy also may not have fully encompassed all the facets of self-efficacy. Future studies could benefit from including additional measures of motivation, effort, and self-belief to provide a more comprehensive understanding of the factors that influence academic performance.

Future Directions

Future research should explore other mechanisms through which self-efficacy influences academic performance. For example, it may be valuable to examine whether self-efficacy affects GPA indirectly by the amount of effort they put into their coursework. Additionally, research could investigate how other variables, such as personality traits or external support (e.g., family, mentors), interact with self-efficacy and study skills to predict academic success. Additionally, investigating the role of other study-related behaviors, such as time management, goal-setting, and metacognitive strategies, could provide a more nuanced understanding of how students' learning habits impact their academic outcomes. Examining these behaviors in combination with self-efficacy could offer new insights into how best to support students in achieving academic success.

Conclusion

In conclusion, this study provides evidence that academic self-efficacy and study skills, particularly strategic study approaches, are significant predictors of academic performance. While self-efficacy plays an important role in shaping students' study behaviors, strategic study skills appear to have a stronger impact on the relationship between academic self-efficacy and GPA. Educators and academic support programs should focus on both enhancing students' self-efficacy and teaching them effective study strategies to foster academic success. Further research is needed to better understand the complex relationships between self-efficacy, study skills, and academic performance, particularly through longitudinal and experimental designs.

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Appendix A

Consent Form

Western Carolina University

Consent Form to Participate in a Research Study

Project Title: Academic Self-Efficacy, Study Skills, and Academic Performance

This study is being conducted by: Alexandra Jarman, B.S., Dr. Candace Boan-Lenzo, Ph.D.

Description and Purpose of the Research: You are invited to participate in a research study about self-efficacy, study habits, and academic performance. By doing this study, we hope to learn more about the complexities in educational psychology.

What you will be asked to do: Participants will be asked to complete a survey. The survey questions ask about demographics, academic performance, study habits, and confidence and comfortability in academic tasks. This survey will take between 5 to 15 minutes to complete.

Risks and Discomforts: There are no anticipated risks from participating in this research.

Benefits: There are no direct benefits to you for participating in this research study. The study may help us better understand ways to support students in achieving their academic goals. If you'd like a copy of the results when the study is finished, you will be given the option to provide your email address.

Privacy/Confidentiality/Data Security: The research team will work to protect your data to the extent permitted by technology. It is possible, although unlikely, that an unauthorized individual could gain access to your response because you are responding online. This risk is similar to your everyday use of the internet.

Voluntary Participation: Participation is voluntary, and you have the right to withdraw your consent or discontinue participation at any time without penalty. If you choose not to participate or decide to withdraw, there will be no impact on your academic standing.

Compensation for Participation: Participants may receive class credit for completing this survey.

Contact Information: For questions about this study, please contact Alexandra Jarman at afjarman1@catamount.wcu.edu. You may also contact Dr. Candace Boan-Lenzo, the principal investigator and faculty advisor for this project, at cboan@email.wcu.edu.

If you have questions or concerns about your treatment as a participant in this study, you may contact the Western Carolina University Institutional Review Board through the Office of Research Administration by calling 828-227-7212 or emailing irb@wcu.edu. All reports or correspondence will be kept confidential to the extent possible.

You will be given a copy of this information to keep for your records.

Participant Assent

I understand what is expected of me if I participate in this research study. I have been given the opportunity to ask questions and understand that participation is voluntary. By clicking this box, I agree to participate in the research study.

[] I consent to participation in this research study.

Summary of Results

If you would like to receive a summary of the results, once the study has been completed, please write your email address here:

_____

Appendix B

Demographic and Academic Performance Questions

1. How old are you? _____

2. What is your gender?

_ Man

_ Woman

_ Non-Binary/Non-Conforming

_ Prefer to describe _____

3. Is your gender different from the sex you were assigned at birth?

_ Yes

_ No

4. Are you currently residing in the United States?

_ Yes

_ No

5. What is your race and/or ethnicity? Please select all that apply.

_ American Indian or Alaska Native

_ Asian

_ Black or African American

_ Hispanic or Latino

_ Middle Eastern or North African

_ Native Hawaiian or Pacific Islander

_ White

_ Some Other Race (please describe) _____

6. Are you currently attending a college, university, or other institution of higher education?

_ Yes

_ No

7. What is your current year in school?

_ First-year or Freshman

_ Second-year or Sophomore

_ Third-year or Junior

_ Fourth-year or Senior

_ Fifth-year or more

_ Graduate Student

7. How many credit hours have you completed? (Do not include credit hours for classes currently enrolled in. If this is your first semester of college, please write 0.) _____

8. Are you a first-generation* student?

*First-generation students refer to those whose parents did not complete a 4-year degree.

_ Yes

_ No

_ Not sure

9. Are you currently a full-time or part-time student?

_ Full-time (12+ credit hours per semester for undergraduates; 9+ hours for graduate students)

_ Part-time (Fewer than 12 credit hours per semester for undergraduates; fewer than 9 hours for graduate students)

10. Please report your current GPA here. _____

*For WCU students, visit your student profile on myWCU at https://banxp-wcu.uncecs.edu:9935/wcuprodStudentSelfService/ssb/studentProfile to view your GPA.

Appendix C

Approaches and Study Skills Inventory for Students (ASSIST)

This questionnaire asks you to indicate your level of agreement or disagreement to statements about studying on a scale from 5 (agree) to 1 (disagree). Please record your immediate response and answer all questions. Try not to use 3 (unsure) unless you need to or if it does not apply to you.

5 = Agree	4 = Agree Somewhat	3 = Unsure	2 = Disagree Somewhat	1 = Disagree

1. I often have trouble in making sense of the things I have to remember.

   5 4 3 2 1

2. When I'm reading an article or book, I try to find out for myself exactly what the author means.

   5 4 3 2 1

3. I organize my study time carefully to make the best use of it.

   5 4 3 2 1

4. There's not much of the work here that I find interesting or relevant.

   5 4 3 2 1

5. I work steadily through the term or semester, rather than leave it all until the last minute.

   5 4 3 2 1

6. Before tackling a problem or assignment, I first try to work out what lies behind it.

   5 4 3 2 1

7. I'm pretty good at getting down to work whenever I need to.

   5 4 3 2 1

8. Much of what I'm studying makes little sense: it's like unrelated bits and pieces.

   5 4 3 2 1

9. I put a lot of effort into studying because I'm determined to do well.

   5 4 3 2 1

10. When I’m working on a new topic, I try to see in my own mind how all the ideas fit together.

    5 4 3 2 1

11. I don't find it at all difficult to motivate myself.

    5 4 3 2 1

12. Often I find myself questioning things I hear in lectures or read in books.

    5 4 3 2 1

13. I think I’m quite systematic and organized when it comes to revising for exams.

    5 4 3 2 1

14. Often I feel I'm drowning in the sheer amount of material we're having to cope with.

    5 4 3 2 1

15. Ideas in course books or articles often set me off on long chains of thought of my own.

    5 4 3 2 1

16. I’m not really sure what’s important in lectures, so I try to get down all I can.

    5 4 3 2 1

17. When I read, I examine the details carefully to see how they fit in with what’s being said

    5 4 3 2 1

18. I often worry about whether I'll ever be able to cope with the work properly.

    5 4 3 2 1

Appendix D

General Academic Self-Efficacy (GASE) Scale

The following questions ask you to indicate your level of agreement or disagreement to statements about your belief in your academic abilities on a scale from 1 (strongly disagree) to 5 (strongly agree). Please answer all questions.

---

1 = Strongly Disagree 2 = Disagree 3 = Unsure/Neutral 4 = Agree 5 = Strongly Agree

(1) I generally manage to solve academic problems if I try hard enough.

1 2 3 4 5

(2) I know I can stick to my aims and accomplish my goals in my field of study.

1 2 3 4 5

(3) I will remain calm in my exam because I know I will have the knowledge to solve the problems.

1 2 3 4 5

(4) I know I can pass the exam if I put in enough work during the semester.

1 2 3 4 5

(5) The motto “If other people can, I can too,” applies to me when it comes to my field of study.

1 2 3 4 5

Appendix E

Tables

Table 1. *Descriptive Statistics for GPA, Study Skills, and Self-Efficacy*

Variable	Mean	Standard Deviation	Correlations			
			1	2	3	4
1. Self-Efficacy	19.13	3.49				
2. Surface Approach	16.39	4.72	-.461**			
3. Deep Approach	18.75	4.42	.397**	-.170		
4. Strategic Approach	20.13	5.02	.530**	-.380**	.409**	
5. GPA	3.42	.57	.184*	-.142	.097	.302**

Notes. $N = 120$

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2. *Summary of Mediation Analysis for Self-Efficacy Predicting GPA via Study Approaches*

Path	*B*	*SE*	*t*	*p*	95% CI (LL)	95% CI (UL)	R^2
Total Effect (X → Y)	.0302*	.0148	2.050	.043	.0010	.0595	.0344
Direct Effect (X → Y)	.0055	.0186	.293	.770	-.0315	.0424	.0944
Indirect Effects							
Via Deep (X → M1 → Y)	-.0029	.0071	--	--	-.0168	.0111	.1577
Via Surface (X → M2 → Y)	.0029	.0089	--	--	-.0147	.0209	.2125
Via Strategic (X → M3 → Y)	.0248*	.0104	--	--	.0036	.0447	.2808
Final Model							.0944

Note. X = Self-efficacy; Y = GPA; M1 = Deep Approach; M2 = Surface Approach; M3 = Strategic Approach. CI = confidence interval; LL = lower limit; UL = upper limit. Variance (R^2) is reported for each model. Bootstrap resampling (5,000 iterations) was used to estimate confidence intervals.

*p < .05.