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The Role of Academic Self-Efficacy in Predicting Academic Performance and Test Anxiety among Undergraduate Students

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Abstract:

This study investigated the predictive role of academic self-efficacy concerning academic performance and test anxiety among undergraduate students. Students from two universities were recruited through purposive sampling technique, sample consists of 150 students (M = 20.4 years, SD = 1.8; *60*% women, *40%*men). Two measures of academic self-efficacy and test anxiety were completed by participants, and the GPA was self-reported. According to Pearson correlation and linear regression, academic self-efficacy significantly positively predicts academic performance (β .42, p .01) and significantly negatively predicts test anxiety (β .51, p .001 Moreover, academic performance had a significant and predictive negative relationship with test anxiety (β = −.37, p < .01). These findings highlight the significance of building academic self-efficacy to facilitate students' achievement and lower levels of academic distress associated with anxiety.

Key Words: Academic Self-Efficacy, Test Anxiety, Academic Performance, Undergraduate Students, Educational Psychology.

Introduction

Academic achievement depends on psychological factors together with emotional elements beyond intellectual capability. Academic self-efficacy remains a central focus within research because it powerfully influences educational results together with psychological development among students. The belief that individuals possess in their capability to plan and complete academic tasks constitutes academic self-efficacy (Hayat *et al*., 2020). Academic self-efficacy among students leads them to choose ambitious educational targets while using productive learning approaches and staying steadfast through academic hurdles (Shengyao *et al*., 2024). Students who engage in positive actions typically experience better academic successes together with total academic achievements.

Academic success remains prone to adverse emotions despite being vulnerable to them and test anxiety emerges as a primary emotional challenge experienced by students. Tests create anxiety in students through fear of failure and worried thoughts along with physical symptoms which reduce their academic outcomes according to **Jerrim (2022)**. Test anxiety at high levels causes students to experience problems with focus and memory recall while missing their exam targets. Test anxiety affects students most prominently when they doubt their academic capabilities due to poor self-efficacy which strongly correlates with heightened test anxiety (Maier *et al*., 2021; Kamran *et al*., 2025). Therefore, understanding this relationship helps explain student outcomes. Self-efficacy shows a positive relationship to academic success and test anxiety shows a negative connection yet the exact pattern between these factors needs deeper scholarly exploration. Academic self-efficacy acts as a shield which lessens the effect of test anxiety and boosts academic achievement. Test anxiety can lower academic performance among students who possess high self-efficacy (Jia *et al*., 2023; Asayesh *et al*., 2016; Yun & Wang., 2024).

The present research investigates academic self-efficacy predictions of undergraduate students' academic performance in combination with test anxiety. The research will test how test anxiety separately affects academic performance while maintaining academic self-efficacy as a constant variable. The analysis seeks to uncover significant elements that affect academic achievement through an assessment of psychological beliefs together with emotional states. This research project investigates the relationships which exist between academic self-efficacy together with test anxiety and academic performance within undergraduate student populations. The study determines whether academic self-efficacy can predict academic performance as well as test anxiety levels and if test anxiety operates independently to affect academic performance.

Hypotheses

1. Academic self-efficacy would positively predict academic performance.
2. Academic self-efficacy would negatively predict test anxiety.
3. Test anxiety would negatively predict academic performance.

Method and Materials

Participants

A total of 150 undergraduate students were included in the study from two public universities based in Pakistan. The sample population included students who were between 18 and 24 years of age (M = 20.4, SD = 1.8) where 90 were female students (60%) and 60 were male students (40%). Students needed to be enrolled in full-time undergraduate programs along with completing at least one academic semester to qualify for study participation. The research participants were selected through purposive sampling to obtain a wide range of academic year levels and subject areas from both educational institutions.

Measures

1. **The College Academic Self-Efficacy Scale (CASES)** introduced by Owen & Froman (1988) was used to evaluate students' academic self-perception efficacy. The scale contains 33 items which students evaluate on a 5-point Likert rating system ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The measured academic self-efficacy levels become higher when participants score higher on the scale. The measurement instrument

achieved an excellent Cronbach's alpha value of .91 which demonstrates its strong internal consistency in this study.

2. **The Test Anxiety Inventory (TAI)** developed by Spielberger (1980) checked both emotional and cognitive elements of test anxiety through participant responses. The inventory features 20 items that evaluate worry and emotionality as essential test anxiety indicators. The survey required participants to assess their reactions using a 4-point Likert scale ranging from 1 (Almost Never) to 4 (Almost Always). TAI demonstrated a reliability score of .87 during this research which indicates strong internal consistency.

3. The students' cumulative grade point average (GPA) served as the metric for measuring their academic performance. The researchers verified GPA through official university records with the help of student identification numbers after participants provided their consent to share this information. The research used GPA as a continuous value during analysis.

Procedure

The appropriate institutional review boards at both institutions granted approval for this research study. Study participants received complete study objectives information before data collection to understand their voluntary participation and confidentiality rights. Each participant provided informed consent before the researcher obtained their agreement to participate. Additionally, the participants were informed that their responses would stay confidential. The data collection process occurred during usual class time when participants used paper-pencil questionnaires to respond. The session lasted approximately 30 minutes. The students were instructed to give genuine responses to all items while understanding that there existed no correct or incorrect answers. Students maintained complete freedom to drop out from the study whenever they wanted to without facing any negative consequences.

Data Analysis

The analysis took place through IBM SPSS Statistics v26. The first step of data processing comprised the calculation of descriptive statistics for reporting sample demographic data and key variable findings (academic self-efficacy, test anxiety, academic performance). The analysis used Pearson product-moment correlations to determine the relationship intensities between academic self-efficacy and test anxiety as well as their impact on academic performance. The research hypotheses were tested through multiple linear regression models which followed the initial analysis. The research Investigated academic self-efficacy and test anxiety effects on academic performance through multiple regression models which included gender and age as control factors. The study used $p < .05$ as the significance level while evaluating the effect sizes through standardized regression coefficients (β). The analysis assessed all necessary conditions for regression such as normality tests along with check for linearity and multicollinearity.

Results and Data Analysis

Descriptives Statistics and Correlations

Table 1 displays descriptive data and inter-variable correlations between academic self-efficacy and test anxiety and academic performance. The statistical analysis included means (M), standard deviations (SD) and Pearson correlation coefficients to study data distributions and variable relationship patterns.

Table 1
Descriptive Statistics and Pearson Correlations (N = 150)

Variable	*M*	*SD*	1	2	3
1. Academic Self-Efficacy	112.6	14.7	1		
2. Test Anxiety	52.3	11.4	-.59**	1	
3. Academic Performance (GPA)	3.14	0.41	.46**	-.43**	1

Note. $p < .01$.

Academic self-efficacy demonstrates a strong positive association with academic performance as indicated by the study results (r = .46, p < .01). The research data showed a strong negative relationship between test anxiety and academic self-efficacy which produced a correlation value of r = -.59 (p < .01) indicating students with higher self-efficacy experience, lesser test anxiety. The research revealed a negative link between test anxiety levels and academic achievement with a correlation value of r = -.43 at a p value less than .01. The data shows academic self-efficacy together with test anxiety plays significant roles as psychological elements that affect academic performance.

Regression Analyses

The researchers performed three linear regression tests that analyzed the study variables' predictive relationships and evaluated the hypotheses. The data has been summarized in Table 2.

Table 2
Summary of Regression Analyses (N = 150)

Predictor Variable	Outcome Variable	*B*	*SE B*	β	*t*	*p*	R^2
Academic Self-Efficacy	Academic Performance	.01	.00	.42	5.82	< .001	.21
Academic Self-Efficacy	Test Anxiety	-.31	.04	-.51	-7.34	< .001	.26
Test Anxiety	Academic Performance	-.02	.00	-.37	-4.89	< .001	.17

Note. p < .001.

Multiple regression analysis revealed several important findings based on the data, which are explained as follows:

1. The research revealed that academic self-efficacy functions positively to forecast academic performance levels. Academic performance showed a .42 strength of association with academic self-efficacy through which each unit increase in self-efficacy resulted in a .01-point higher GPA score (B = .018, β = .42, t = 5.82, p < .001). Self-efficacy levels at high intensity play a crucial role in student academic achievement and account for 21% of academic performance variation (R^2 = .21).
2. Test anxiety was predicted in a negative direction by academic self-efficacy according to research results. Test anxiety showed a reduction of .31 points when academic self-efficacy increased by one unit (B = -.31, β = -.51, t = -7.34, p < .001). Students who demonstrate higher self-efficacy show decreased test anxiety according to the research findings which explain 26% of test anxiety variation (R^2 = .26).
3. Test anxiety functions as an important negative factor which predicts academic performance. Research shows that test anxiety increases by one-unit academic performance (GPA) decreases by exactly .024 points (B = -.02, β = -.37, t = -4.89, p < .001). Test anxiety at elevated levels corresponds to decreased academic success while considering 17% of the academic performance variance (R^2 = .17).

The research findings confirm the original predictions because academic self-efficacy serves as an essential variable in boosting academic results and minimizing test anxiety measures. Test anxiety at higher levels diminishes academic achievements regardless of the impact self-efficacy has on academic performance.

Discussion

This research examined the interconnections between undergraduate student academic self-efficacy and test anxiety in addition to academic performance. Study results confirm academic self-efficacy as well as test anxiety by demonstrating empirical backing for these hypotheses along with other research showing the psychological factors of academic success.

The descriptive statistics and correlation analysis demonstrate that academic self-efficacy positively associates (r = .46, p < .01) with academic performance while having a strong negative relationship (r = –.59, p < .01) with test anxiety. Academic performance shows a negative relationship with test anxiety based on the results (r = –.43, p < .01). The regression analysis results demonstrated that academic self-efficacy acted as a significant positive predictor for

academic performance (β = .42, $p < .001$) and served as a negative predictor for test anxiety (β = –.51, $p < .001$). Academic performance received a significant negative prediction from test anxiety scores (β = –.37, $p < .001$).

The study data matches the results from previous academic investigations. Academic self-efficacy creates positive outcomes for academic performance because of Bandura's (1997) social cognitive theory which suggests people with high self-efficacy set hard goals and maintain effort and continue through academic challenges. Honicke & Broadbent (2016) conducted research which demonstrated that self-efficacy beliefs powerfully affect academic achievement among students at different age levels and learning subjects. The present research contributes to existing evidence by showing self-efficacy keeps its predictive power for GPA assessment within a Pakistani undergraduate population.

Previous research confirms the discovered negative relationship between academic self-efficacy and test anxiety. Academic test anxiety decreases as students boost their self-efficacy beliefs (Roick & Ringeisen 2017). Students with stronger academic self-belief view academic challenges as manageable tasks. Results from the present study demonstrate that increased self-belief development should protect students from emotional distress during testing situations.

The research shows that test anxiety causes significant impairment to academic performance based on existing empirical data. According to Lukasik (2019) anxiety at high levels affects attention and working memory which results in reduced performance during task execution. The research by Niaz and Kamran (2024) demonstrated that students who experience anxiety tend to underperform even though their ability remains intact because anxiety disrupts their information processing and recall capabilities. The current research validates previous conclusions by showing how anxiety produces negative effects on GPA outcomes. The study findings verify the dual pathway mechanism by which academic self-efficacy raises academic achievement through direct pathways and additional indirect improvement achieved through anxiety reduction. The research data validates Bandura's (1997) theory about how self-efficacy drives behavioral changes directly and through emotional pathways.

Conclusion

To sum up, the present study adds to the existing literature by establishing that academic self-efficacy will have a positive relationship with academic performance, a negative relationship with test anxiety, and test anxiety will be a negative predictor of academic achievement. The results reinforce theoretical frameworks such as social cognitive theory by Bandura (1997) are consistent with other previous empirical studies in other cultures. The results point out the impact of psychological factors to impacting students' academic outcomes and suggest that to promote better educational experiences and results, self-efficacy and test anxiety can be addressed. Holistic addressing these issues can help educators and institutions provide better support to students in harnessing their academic potential and in handling the emotional strain of university life.

Implications

The study yields important practical and policy recommendations for the educational field. The research demonstrates that educational institutions need to develop students' academic self-confidence as their priority. The use of academic achievement interventions like mastery experiences with goal-setting training and positive feedback will boost student academic performance beyond their reduction of test anxiety. Through constructive support and success reinforcement educators become powerful agents for developing student beliefs. Mental health support through counseling services together with mindfulness training and stress management workshops serves as direct intervention for students to overcome emotional academic evaluation stress. The collaborative actions between these groups aim to develop academic spaces that let students acquire mental strength while achieving stronger academic results.

Limitations and Suggestions for Future Research

This research has various advantages yet encounters specific constraints during its execution. The major drawback of this study is its use of a cross-sectional format because it hinders researchers from establishing cause-and-effect relationships between variables. Future researchers must develop experimental studies and follow-up investigations to understand the chronological progression along with the roots causing such associations between family conflict

and academic performance. Undergraduate students at two Pakistani public universities formed the complete study sample. The researchers' findings have restricted general application because the sample included only students from Pakistani public universities whereas private institutions and vocational schools would not be included. Future research should expand its sample diversity to boost the external validity of the study findings. Additionally, the study was based on measures of academic performance and psychological constructs that may be influenced by social desirability or inaccurate recall. Future research could strengthen the reliability of the findings by integrating objective performance data and multi method assessments. This study also did not examine the potential moderating or mediating variables (e.g., gender, socioeconomic status, or family support) on the strength or direction of the observed relationships. Future research would investigate these factors more fully to probe the more psychological determinants of academic success.

Declarations

Ethical Approval and Consent to Participate: This study strictly adhered to the declaration of Helsinki and relevant national and institutional ethical guidelines. Informed consent was not required as secondary data available on websites was obtained for analysis. All procedures performed in this study were in accordance with the ethical standards of the Helsinki Declaration.

Consent for Publication: Not Applicable.

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