

Impact of Meanings of Education on Academic Achievement: The Mediating Role of Academic Stress

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ARTICLE INFO			ABSTRACT
Article History:			<i>This study investigates the association between Meanings of Education and academic achievement through academic stress as a mediating element among 400 university students. The correlation analysis showed that meanings of education positively affected academic results while also correlating positively with academic stress. Academic stress showed a significant positive relationship with academic achievement as the correlation value $r = .323$ and it acted as a strong mediating factor that links meanings of education to academic achievement. Higher academic performance rates occur among students who interpret education as important because they show increased academic stress levels which act as an intermediate factor between education meaning and achievement. The research implications reveal that student educational views and academic stress management must be studied meticulously to boost educational performance. Academic stress functions as the essential connection which connects Meanings of Education perceptions to both direct and indirect academic success outcomes. Student interpretations about education play a direct role which determines their academic success in institution. The evaluation of academic stress serves both as an essential intermediary element that connects Meaning of Education perceptions to academic achievement success and demonstrates why stress management strategies in education help improve student performance.</i>
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Introduction

Education goes beyond learning facts because it transforms people through development of their personal and intellectual abilities. According to Ryan and Deci (2020) students recognize education as a tool for securing career prospects and critical skill development and social network building. Students' understanding of education varies extensively since their views develop from their unique life experiences along with cultural traditions and individual targets. Education holds different meanings for individual students because some view it as a tool for independence development and empowerment whereas others consider it as a defined system which trains students to achieve academic success (Tadesse et al., 2021).

Student understanding of education undergoes transformative changes based on their classroom teaching techniques along with their learning spaces and social expectations alongside their personal background and educational experiences. Students view education as an instrument that improves their chances of securing employment while enhancing their income potential (Armellini et al., 2021). The ways students approach education together with their assigned meanings about it show significant variations across different students. The various student perspectives on learning trigger recognition among teaching faculty who instruct undergraduate students (Svensson et al., 2025). The wide array of meanings that undergraduate students hold about their university education remains relatively unexplored through current research studies. Educational meanings research investigates student interpretations by showing that education contains a core essential meaning which scholars refer to as deeper significance (Tadesse et al., 2021). Students form their own educational interpretations in their learning journey which might differ from institutional guidance. The definition of education goes beyond learners' educational goals but excludes those aspects. Different individuals view education in diverse ways where some only care about reaching specific goals yet some prioritize learning definition over specific targets when pursuing their educational goals. Students maintain diverse opinions about school purposes because they either consider it a means to reach their occupational goals or an ongoing life challenge. Education leads to the successful completion of goals yet students also need a profound understanding of its true value (Tadesse et al., 2021).

The study by Henderson-King and Smith (2006) analyzed undergraduate students from a middle-sized Midwestern institution and discovered ten different significances of education. Education had multiple interpretations for students who approached it through practical education, salary growth, individual growth, independence goals and life planning. Some students considered education as a way to enhance personal understanding of self while simultaneously accessing social prospects and advancing intellectual skills and affecting the world on a global scale. Education elicited two different responses from students because some measured it by stress levels while others treated it as a means to avoid daily responsibilities. Research evidence showed that students chose one main interpretation of education as their primary understanding against other possible interpretations. The research approach deviated from prior methods by omitting student classification based on their preferred views to show how educational experiences vary between individuals (Henderson-King et al., 2006).

Students who hold particular meanings about education develop distinct perceptions regarding their academic journey together with their academic challenge management abilities. Research by Usher and Pajares (2019) proved that students who maintain intrinsic motivation in education will reach higher academic engagement results together with better academic performance. Students who discover intrinsic value in their education develop better study commitment that drives up

their academic results according to their assessment. According to Pascoe and others in 2020, students develop stronger coping strategies and resilience based on their educational beliefs and perspectives. They indicate that learners who recognize education as developmental as an alternative of obligatory assemble lesser academic stress levels mutually with enhanced approval rates (Pascoe et al., 2020). Through their study Schunk and DiBenedetto (2021) showed that promoting students to develop positive educational viewpoints lowers their academic burnout while enhancing their academic performance. The researchers stressed that academic organizations need to create strategies which support students in their growth mindset development for educational success. According to Miller and his colleagues in 2022, students who identify specific educational objectives maintain fewer nervous feelings while growing more inspired towards better academic results. Students demonstrating value for education independently of career outcomes demonstrate better academic persistence and success (Zajacova et al., 2021).

A person experiences stress when their body reacts without distinction to perceived threatening environments which endanger their well-being; this produces immediate mental and physical setbacks (Salam et al., 2013). Periods of stress experienced by medical students show variations depending on these elements: the year of medical training (Garg et al., 2017), gender identity, family support status and past experience of depressive disorder. Stressful situations are interpreted differently by medical students because they have various cultural profiles and different personalities alongside their individual experiences and methods of coping. Academic psychosocial and environmental stressors (Anuradha et al., 2017) form the main groups of stressors that affect students along with academic stress which stands as the most significant obstacle to medical students' academic success (Alsulami et al., 2018).

Academic stress impacts students across all social classes worldwide and research on schoolchildren (Deb et al., 2015) and students majoring in medical or engineering holds limited prominence within Asian academic institutions. Research studies about this issue remain limited specifically when focused on college students and university students. The expressions of academic pressure create an especially concerning health challenge. Modern life requirements that affect both adults and young people have increased the prevalence of this condition among students and teenagers what leads to reduced academic achievements and performance. Research through particular writing demonstrates that academic pressure has focused into different college environments (Aselton, 2012) leading to various types and models. An investigation evaluated how future signs of daily pressure affect nervousness symptoms. The extent and level of educational stress varies between learners since neither the stand or grading system remains homogeneous across all students according to personal attributes (oh et al., 2013). Scalar characteristics affect how stressors impact learning-related emotional health of individuals (Pearlin et al., 2013).

Preciado-Serrano performed research in Mexico during 2010 to study how pressure profile affected burnout among Mexican college students through the implementation of a regression model which confirmed significant relational associations. The literature reviews link various aspects of education including recognition processes and life events with school activities as well as educational approaches and school achievement. Research data demonstrates that timely assessments help students by implementing productive intervention strategies to reduce anxiety levels and their distressing thoughts and prevent performance deterioration. Researchers have extensively studied academic stress because it creates negative effects on academic outcomes and mental health of students. The research by Pascoe revealed that academic stress produces significant anxiety which degrades academic results by reducing focus and destroying motivation

systems (Pascoe et al., 2020). According to Beiter and others in 2015, students with elevated stress are more likely to experience burnout alongside failing their courses.

Students experience academic stress from the psychological distress linked to their anticipations of academic failures and performance deadlines alongside academic standards. Students experience academic stress because of high schoolwork along with organizational and family-oriented pressures and individual goal-seeking. Research investigations from recent years have revealed essential knowledge about student stress effects. Zhang and his fellows conducted a time-spanning investigation to explore how academic stress interacts with motivation along with emotional intelligence as well as mindfulness in undergraduate students (Zhang et al., 2024). Research results show that rising academic stress levels directly result in reduced student motivation and higher psychological disturbances regardless of learning environment needs for increased support. Stress which students endure alongside time constraints, academic responsibilities and academic self-perception defines academic stress as described by Bedewy et al. (2015). The symptoms of academic stress include feelings of worry together with hopelessness and decreased exercise level and changes in eating habits and difficulty sleeping (Backović et al., 2012; Schraml et al., 2012). According to Regehr and other ones in 2013, mindfulness-based approaches help students decrease academic stress while improving their focus thus demonstrating how stress reduction techniques reduce academic stress negative effects (Regehr et al., 2013). Achievement scores become higher when students develop effective stress management abilities according to research by Schunk and Pajares (2021). The researchers of Miller et al. (2022) underscored the importance of university-backed support systems in stress reduction and academic success which indicates universities should establish broad programs to help students manage their stress.

The educational organizations evaluate student intellectual work through grades together with tests scores and educational outcomes to determine academic achievement. The results serve to disclose student cognitive performance together with their educational paces and their potential educational and professional achievements in the future. Different evaluation methods enable the measurement of academic achievement by expressing specific educational achievement characteristics. The associations between school performance and predictor variables including intelligence and motivation and personality shift based on which measurement techniques researchers apply according to research findings and synthesis studies. Different evaluative measures of academic success require separate identification because they assess separate elements of academic performance. Geisinger (2013) delivers extensive research about testing methods for academic achievement evaluation. Grade Point Average (GPA) represents a commonly researched predictor that successfully predicts future achievement outcomes. Standardized achievement tests serve as more direct academic knowledge measures because they are constantly used for college admissions and demonstrate accurate predictions regarding tertiary education outcomes. The admission tests receive extensive treatment from Camara et al. (2013) in their analysis of educational assessment.

The link between parental achievement pressure alongside academic stress and insomnia and life satisfaction levels in high-achieving students was analyzed by Haspolat and Ağırkan (2024). The research demonstrated that parents who put greater pressure on their children resulted in higher levels of academic stress and this correlation triggered more severe insomnia and decreased life satisfaction. The researchers established that students fail to function properly after being subjected to too much academic stress because it drains their mental energy. Scientists now investigate the various factors which affect student performance in modern educational institutions. The investigation conducted by Kristensen and other researchers analyzed the time-based associations between academic stress, academic self-efficacy and psychological distress levels in adolescents.

In the studied group higher education-related stress levels resulted in lower student-centered efficacy beliefs and psychological distress leading to compromised academic results. The research data demonstrates that reduction of academic stress and improvement of self-efficacy abilities leads to better academic results (Kristensen et al., 2023).

Education means distinct things to different people because of their cultural background combined with their social status and individual experiences. The meanings students hold about education influence both their academic behaviors and their motivational level and academic achievement (Eccles et al., 2020). The extent to which people value education affects their cognitive and emotional engagement that serves as critical elements determining achievement outcomes (Ryan et al., 2017). Students face poor academic results mainly because of psychological elements that lead to academic stress. Academic stress serves as a mediator supported by Lazarus and Folkman's Transactional Model of Stress and Coping framework in 1984. This model shows stress develops when people judge their capabilities insufficient for handling what they need to do. Academic settings often elevate the stress of students who perceive education meaningfully which decreases their academic achievement according to Putwain and Daly (2014). Evaluating the Self-Determination Theory (Deci et al., 1985) provides evidence that intrinsic and extrinsic motivation functions as a supporting element for this theoretical framework in educational contexts. Student academic achievement tends to improve because students who find value in their learning experience self-regulated motivation. Academic stress exceeding moderate levels produces negative consequences that hinder the positive relationship (Schaufeli et al., 2002).

Numerous scientific investigations have built upon previous research which analyzes meanings of education as well as student stress and optimism measurements. Academic achievement remains a commonly studied subject in independent research yet there is insufficient evidence showing the pathway from student education perception to academic outcomes through stress aspects. Students' personal educational meanings affect academic achievement yet academic stress plays a vital role according to this study which addresses an academic research gap by examining these factors. The researchers made an original discovery by proving a linear connection between meanings of education students apply and psychological together with academic components. The current research analyzes undergraduate university students as its primary subject base while other studies mainly studied high school students. The researcher decided to explore university students because they consistently face increased academic stress when dealing with advanced coursework and increased independence alongside career preparation. This investigation links students' educational understanding to their academic pressure levels with academics performance to provide comprehensive factors leading to educational success.

Method

Research Objectives

1. To see the association of meanings of education with academic stress and academic achievement.
2. To investigate the mediating role of academic stress between meanings of education and academic achievement.

Research Hypotheses

1. There is a significant positive association among meanings of education, Academic stress and academic achievement.

2. There is significant mediating role of academic stress between meanings of education and academic achievement.

Demographic Variables

The research required participants to provide information about their educational levels together with Grade Point Average (GPA) and age and gender.

Meanings of Education

Education means the continuous acquisition of new knowledge from your environment to reach enlightenment which will simplify your life path. Success depends on this path which guides you toward reaching your goals in any chosen life path.

Among all the secrets that lead to success education stands as the most crucial. Education provides value through gaining educational expertise and understanding your universe position while developing practical knowledge. The system contains complete sets of elements which improve personal life while offering specialized knowledge that will impress family members and professional colleagues alike. Through highly valuable education one learns how to do job work while developing abilities to prepare for making a living while building a prosperous future. Through formal education people learn how to resolve important problems while gaining a specific career direction together with clear career guidelines. People with valuable educations possess both high-ranking job prospects and comfortable lifestyles. Old age progress requires this condition for success. Professional skills follow after achieving the essential abilities for the workplace. A person learns continuously in their environment to discover enlightenment through knowledge thus creating a more straightforward existence in life. This path leads to achievement in personal goals and it depends heavily on education according to Schunk and DiBenedetto (2020). People with high-valued education can get jobs and develop skills before they prepare for their work and create financial success (Eccles et al., 2020).

Academic Stress

Academic stress also leads to the development of frustration in every area of life, especially in fields similar to academics that enable them to feel confused and stressed. Their lives appear to be out of control with enough difficulty, discomfort, fear, and guilt over how awful they are experiencing due to the significant contribution to the new educational ideas and topics, practice for assessment, abundance of homework, and the level of educational information, which demands that they perform well at the same time. The combination of academic demands leads to frustration throughout different areas of students' existence. Students face complete life immaturity because of educational obstacles along with social expectations while handling evaluations and extended assignments under academic stress (Putwain et al., 2014).

Academic Achievement

Standard of education that a person generally has productively achieved plus ability to be successful in his / her education is what academic achievement refers to. Most likely, this one is evaluated based on Grade Point Average. Achievement outputs, also referred to as academic achievement are basically the outputs that will signify the level to which a student is able to fulfill specific objectives and goals and this is the target of all educational context practices in the classrooms, campuses or the universities. Education success and educational drive make up

academic achievement according to Wentzel and Miele in 2016. The evaluation process uses Grade Point Average (GPA) as well as standardized performance assessments to gauge student achievement. It represents the successful outcomes of learning objectives which educational institutions focus on in their educational practices at the classroom level through university campuses (Zimmerman et al., 2011).

Sample

Data was collected from the sample given to get some information related to our requirements, which was about four hundred undergraduate's students of Bahauddin Zakariya University, Multan. The four hundred students employed in the study are sampled using convenient procedure of sampling.

Research Design

In this research study format used was surveyed structure whereby, the questions sheet was planned and provided to the responders with a purposeful sampling method in aim to achieve information.

Instruments

Meanings of Education Scale

Henderson-King and Smith constructed the Meanings of Education Instrument (2006) to evaluate the meanings of education. It has eighty-six statements and 10 segments. Every section reveals a distinct feature of educational meanings, and receiving high scores on each of those parts suggests that a student places a premium on that aspect. The instrument's components include finding direction for the future (3 items), independence (5 items), learning (10 items), taking the next step (3 items), making social connections (12 items), self-development (11 items), changing the world (8 items), escape (11 items), stress (12 items), and career preparation (11 items). Respondents responded on a 10-point Likert scale to each of the eighty-six statements ranging from one to ten and the reliability value of this instrument ranges from 0.77 to 0.91 (Isazadegan et al., 2009).

Academic Stress Scale

Arip, M.B, and other collaborators designed this test to determine the stress level of university students. This instrument has forty negative statements to investigate four components of this measure, including academic (10 items), interpersonal (10 items), physical (10 items), and environmental element (10 items). This tool is a four-point likert scale (1-4), with options for 'Never', 'Somewhat frequent', 'often', and 'Always'. It will most likely take at least 15 to 20 minutes to deploy with responses. The equipment mentioned above was used to acquire information from participants. The reliability value of this questionnaire is greater than 0.7 (Nor et al., 2011).

Procedure

The demographic data has been shuffled uniformly through the scales mentioned above. It was obtained through a questionnaire. A word was told to the respondents that it was about the study intention. Study should be avidly participated in. With the explanation of the field of analysis, approval was obtained from students from several departments to collect information. Then we gathered consent data. They were then provided with appropriate details and recommendations on the tool, then the method it is to be attempted, and filled in the response sheet. In this present work,

academic stress was studied through meanings of education at different scales. Demographic information was taken for all scales. Grade point average (GPA) of the student is measured as an academic achievement. These guidelines were given and asked to answer as per the said guidelines and they were asked to respond honestly. It was analyzed with Statistical Package for Social Sciences after data collection was done.

Results

In this section, we will use the process macro approach (version 3.3) for SPSS version 23 for assessing statistical data from acquired research. They run a correlation to establish that there is an interrelationship between the various predictive factors. The mediator analysis was conducted to determine the influence of the independent variable on the dependent variable through the mediator.

Table 1: Characteristics of whole Demographic Variables (sample =400)

Demographic Variable	F	P	M	SD
Age			1.82	.772
18-20	160	40.0		
21-23	150	37.35		
24-26	90	22.5		
Gender			1.34	.474
Female	270	67.5		
Male	130	32.5		

Above said table shows that there is a large percentage of female students that then contribute to this study in comparison to male students. This research has participated in more students; the students involved in this investigation, are in the age range of 18-20 years.

Table 2: Cronbach's alpha of measurement tools

Scale	Cronbach's Alpha	Items No.
Meanings of Education	.79	86
Academic Stress	.76	40

The measuring instruments are trustworthy and adequate for use in a student-based investigation.

Table 3: Correlation Analysis among predicting variables

Variables	1	2	3	M	SD
Grade Point Average	1			3.4496	.35639
Meanings of Education	.593**	1		69.9145	12.86150
Academic Stress	.323**	.299**	1	66.5392	19.35910

*p< .05 **p< .01

The results reveal a significant positive correlation between GPA and Meanings of Education, $r = .593$, $p < .01$, indicating that higher levels of meanings attributed to education are associated with

higher GPAs. Similarly, a significant positive correlation was found between GPA and Academic Stress, $r = .323$, $p < .01$, suggesting that as academic stress increases, GPA tends to increase as well. There is also a significant positive relationship between Meanings of Education and Academic Stress, $r = .299$, $p < .01$, indicating that individuals who attribute greater meanings to their education also tend to experience higher levels of academic stress.

Table 4: Mediating Role of Academic Stress between Meanings of Education and Academic Achievement (GPA) (N = 400)

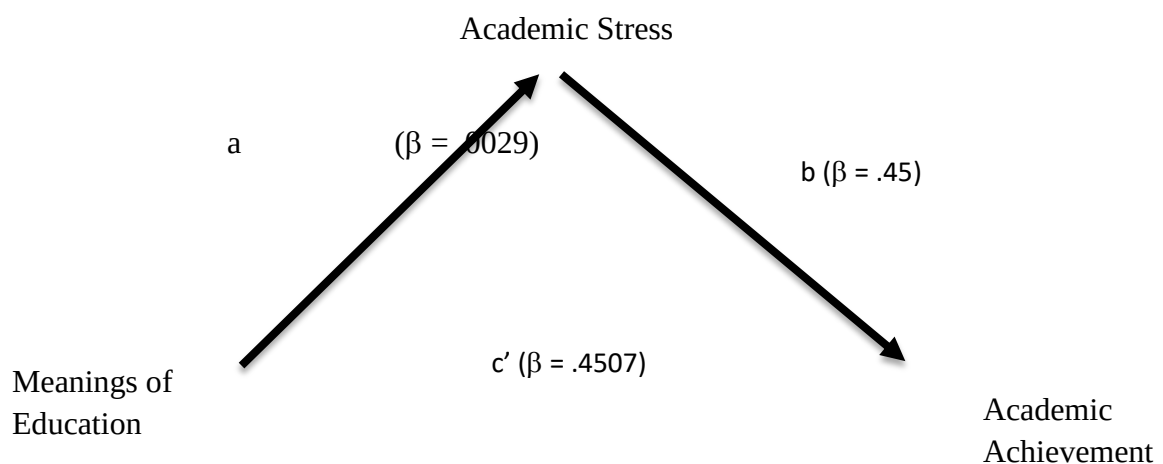
Variable	<i>B Coefficient (effect)</i>	<i>SE</i>	<i>P- Value</i>	95% CI	
				LL	UL
Indirect effect (a*b)					
Meanings of Education → Academic Stress → Academic Achievement	0.0029***	.001	.001	0.0015	0.0044
Direct effect (c')					
Meanings of Education → Academic Achievement	0.4507***	.001	.001	0.0128	0.0173
Total effect (c)					
Meanings of Education → Academic Achievement	35.0301***	2.1984	.001	2.0375	2.3592

Note. B = Unstandardized coefficient $p < .001$.

The study reported that academic stress functions as a critical mediator connecting meanings of education to Academic Achievement results ($B = 0.0029$). A positive relationship exists between academic stress as it links meanings of education to grades. Meanings of education produce a direct significant influence on student Academic Achievement scores indicating student GPA improvement from rising educational meanings. The direct and indirect statistical paths of meanings of education generate a strong impact on Academic Achievement ratings with a significant statistical association ($B = 35.0301$, $p < .001$).

Figure 2

Path Diagram of Mediating Role of Academic Stress between Meanings of Education and Academic Achievement



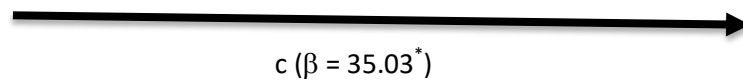


Figure 2 indicates how Academic Stress mediates the link between Educational Meanings and Academic Achievement. The direct and total effects of Life Satisfaction on Mental Well-being were found to have p-values smaller than .05.

Discussion

The study's goal is to investigate the impact of educational meanings on academic success through academic stress. Their academic scores are used to assess them. For the initial time, this study contributes to the meanings of education and academic accomplishment, allowing future researchers to investigate its further dimensions. Our study was planned to be conducted among undergraduates rather than school-aged youngsters. The results demonstrate students' goals for the future and stress-related areas of the meanings of education, but earlier research has shown that student priorities are more influential in job preparation.

The initial research proposal predicted that meanings of education demonstrate both academic stress and academic achievement significance. Analysis of correlation statistics shows that education meanings and GPA demonstrate a strongly positive connection. Students with deeper Meanings of Education in their perceptions tend to perform better academically. The link between personal meanings in education and academic accomplishment was previously studied by both Park and Peterson (2018) and Steger (2019) as well as this research. Research results show that academic stress has a statistically significant positive relationship with meanings of education. Students who give profound meanings to their education appear more likely to face academic stress since they demonstrate elevated motivation and academic competition. The scholarly investigation conducted by Schunk & DiBenedetto (2021) backs up the current study which reveals that intense dedication to academic learning leads to academic stress. The link between academic stress and GPA confirms that limited education stress can boost student performance as described in the Yerkes and Dodson theory (2019).

Academic stress exists as a significant mediator which links meanings of education to academic achievement levels. Results from mediation analysis proved the direct link between meanings of education and Grade Point Average through academic stress was statistically important. Academic stress plays an important explanatory role which demonstrates the connection between meanings of education and academic success. The direct path effect produced a statistically significant relationship. Students who attach personal significance to their studies end up facing academic stress according to multiple earlier studies (Feldman & Snyder, 2020; Pekrun, 2022). The stress levels of students function as motivational tools yet severe stress presents itself as burnout which disrupts their academic achievement according to Seaward (2021).

Implications and Future Directions

The research findings affect how educational institutions and those setting policies should operate. Educational institutions should create environments that promote student meanings making in education because this connection improves academic achievement alongside stress management effectiveness. Educational establishments should implement academic stress management and

study resilience programs to assist students with superior outcomes without severe anxiety pressures.

Future research needs to investigate which coping methods reduce the impact of academic stress on academic achievement results. Research extending over time would better explain how the process of assigning personal value to learning practices continues to affect educational outcomes.

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