

EXAMINING PSYCHOLOGICAL WELLBEING AS A MEDIATOR
BETWEEN GROWTH MINDSET AND ACADEMIC SELF-EFFICACY IN
FIRST-YEAR UNIVERSITY STUDENTS OF KOHAT UNIVERSITY OF
SCIENCE AND TECHNOLOGY (KUST)

Safiullah¹, Chand BiBi², Kifayat Ullah^{*3}

¹"Live Again" Rehab Center Kohat.

²Graduate Student

^{*3}Lecturer at Department of Psychology, kohat university of Science and Technology.

¹safiullahmrt191@gmail.com, ²mchandbibi4@gmail.com, ^{*3}kifayat.amanullah@gmail.com

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Corresponding Author: *

Kifayat Ullah

Abstract

The present study examined whether psychological wellbeing mediates the relationship between growth mindset and academic self-efficacy among first-year university students at Kohat University of Science and Technology (KUST), Khyber Pakhtunkhwa, Pakistan. Using a quantitative cross-sectional correlational design, data were collected from 228 first-year undergraduates (53.5% male, 46.5% female; age range 18–25 years) through three validated self-report instruments: Dweck's (1999) Implicit Theories of Intelligence Scale ($\alpha = .652$), the Hascher and Hagenauer (2022) Academic Wellbeing Scale ($\alpha = .716$), and Bandura's (1997) Academic Self-Efficacy Scale ($\alpha = .785$). Descriptive statistics, Pearson product-moment correlations, and Baron and Kenny's (1986) regression-based mediation procedure were performed using IBM SPSS Version 27. Results revealed a significant positive association between growth mindset and psychological wellbeing ($r = .195, p < .01$). A significant negative association was observed between psychological wellbeing and academic self-efficacy ($r = -.131, p < .05$), while the direct association between growth mindset and academic self-efficacy was not statistically significant ($r = .074, p > .05$). Mediation analysis confirmed that growth mindset significantly predicted psychological wellbeing ($\beta = .195, p = .003$) but did not significantly predict academic self-efficacy ($\beta = .074, p = .265$), precluding establishment of the proposed mediation. Gender differences were observed only in growth mindset, with female students scoring significantly higher than male students ($p = .013$, Cohen's $d = 0.33$). These findings suggest that growth mindset contributes to psychological wellbeing in Pakistani university students but does not directly enhance academic self-efficacy. Theoretical implications, limitations, and directions for future research are discussed.

INTRODUCTION

The first year of university study represents one of the most psychologically demanding transitions that students encounter, characterised by heightened vulnerability to academic disengagement, poor psychological adjustment, and dropout (Credé & Niehorster, 2012; Tinto, 1993). A growing body of research has identified growth mindset the belief that intelligence and abilities are malleable and can be developed through effort and effective strategies (Dweck, 1999, 2006) as a potentially protective psychological resource during this transition. Students who hold incremental theories of intelligence approach academic challenges with greater persistence, interpret setbacks as learning opportunities rather than evidence of fixed inadequacy, and demonstrate superior academic motivation relative to entity theorists who believe intelligence is fixed (Blackwell et al., 2007; Burnette et al., 2013; Yeager & Dweck, 2012).

Despite substantial evidence linking growth mindset to positive academic outcomes, the psychological mechanisms through which mindset beliefs translate into effective academic behaviour remain incompletely specified (Burnette et al., 2013; Yeager & Dweck, 2020). One theoretically and empirically plausible mechanism is psychological wellbeing. Students who approach academic difficulty with a growth orientation are less likely to experience ego-threat, academic anxiety, or learned helplessness states that undermine wellbeing and more likely to experience positive achievement emotions including engagement, curiosity, and perceived competence (Pekrun, 2006). These emotional and psychological states are in turn theoretically connected to academic self-efficacy the student's belief in their capacity to organise and execute the behaviours needed to achieve specific academic goals which is among the most reliable predictors of university academic performance, persistence, and adjustment (Bandura, 1997; Chemers et al., 2001; Robbins et al., 2004). Self-Determination Theory (Deci & Ryan, 1985, 2000) further proposes that psychological wellbeing follows from the satisfaction of basic

needs for autonomy, competence, and relatedness needs whose satisfaction is promoted by a growth mindset orientation toward academic challenge.

Notwithstanding this theoretical coherence, direct empirical tests of the proposed mediation model are rare, and almost entirely absent from Pakistani higher education contexts. Pakistan's university system presents a distinctive set of contextual conditions intense academic competition, pronounced socioeconomic pressure on first-generation university students, and limited formal psychological support infrastructure that may modify the operation of psychological mechanisms documented in Western samples (Azeem & Naz, 2015; Saleem & Mahmood, 2013). The cross-cultural generalisability of mindset and self-efficacy research cannot be assumed (Heine, 2016); it requires direct empirical investigation in underrepresented contexts.

The present study addresses this gap by testing whether psychological wellbeing mediates the relationship between growth mindset and academic self-efficacy in a sample of first-year undergraduate students at Kohat University of Science and Technology (KUST), Khyber Pakhtunkhwa, Pakistan.

Method

Hypothesis:

H1: There is a significant positive relationship between growth mindset and academic self-efficacy among first-year university students.

H2: There is a significant positive relationship between growth mindset and psychological wellbeing among first-year university students.

H3: There is a significant positive relationship between psychological wellbeing and academic self-efficacy among first-year university students.

H4: Psychological wellbeing significantly mediates the relationship between growth mindset and academic self-efficacy among first-year university students.

Sampling: Participants were

228 first-year undergraduate students (122 male [53.5%], 106 female [46.5%]) enrolled at Kohat

University of Science and Technology (KUST) during the 2025–2026 academic year. Ages ranged from 18 to 25 years, with 75% of participants aged 22 to 25 years and 25% aged 18 to 21 years. Most participants (93.0%) were enrolled in their second semester; the remaining 7.0% were enrolled in their first semester. Participants were recruited using convenience sampling through departmental WhatsApp groups and university email lists. Of 247 surveys distributed, 228 met all inclusion criteria and were retained for analysis (completion rate = 92.3%). Nineteen responses were excluded due to missing data ($n = 11$), failure to meet inclusion criteria ($n = 5$), or implausible response patterns ($n = 3$). Sample size was consistent with Fritz and MacKinnon's (2007) recommendation of 160 to 200 participants for 80% power in mediation designs.

Measures

Growth mindset was assessed using Dweck's (1999) Implicit Theories of Intelligence Scale (ITIS), an eight-item measure rated on a six-point Likert scale. After reverse-scoring of four entity-theory items, higher total scores indicate stronger growth mindset orientation (range: 8–48). Internal consistency in the present sample was $\alpha = .652$, which is within the acceptable range for exploratory research (Cronbach's $\alpha = .80$ –.92 in normative samples; Burnette et al., 2013). Psychological wellbeing was measured using an adapted version of the Hascher and Hagenauer (2022) Academic Wellbeing Scale, comprising 17 items across five subscales: positive academic emotions, positive attitudes toward study,

academic enjoyment, absence of academic worries, and absence of social problems. Items were rated on a five-point scale from 1 (Not at all) to 5 (Completely), with higher total scores reflecting greater wellbeing. Cronbach's α in the present sample was .716, following removal of one item that reduced internal consistency. Published reliability coefficients range from .76 to .89 (Hascher & Hagenauer, 2022).

Academic self-efficacy was measured using an adapted version of Bandura's (1997) Academic Self-Efficacy Scale, comprising eight items rated on a five-point confidence scale assessing task-specific academic behaviours (preparing for examinations, completing assignments, concentrating in class, managing workload, persisting with difficult material). Cronbach's $\alpha = .785$ in the present sample, consistent with published estimates of .81 to .88 (Chemers et al., 2001).

Procedure

Ethical approval was obtained from the Research Ethics Committee of the Department of Psychology, KUST, prior to data collection. An online survey (Google Forms) was distributed during the spring semester of the 2025–2026 academic year. Participants provided voluntary informed consent. No identifying information was collected; data were stored on a password-protected drive accessible only to the researcher and supervisor. The survey remained open for 21 days, with reminder messages sent at 7-day and 14-day intervals. Mean completion time was approximately 15 to 18 minutes.

Results

Table:1 Demographic Characteristics of the Participants (N = 228)

Variable	Category	N	%
Gender	Male	122	53.5
	Female	106	46.5
Age (Years)	18-21	47	25

Variable	Category	N	%
Education	22-25	171	75
	BS 1 st semester	16	7.0
	BS 2nd semester	211	93.0

Note. N; number of individuals, %: percentage

Descriptive statistics indicated moderate to moderately high mean scores across all three variables. The mean Academic Self-Efficacy score was 31.67 (SD = 4.73), reflecting relatively high perceived academic capability. The mean

Psychological Wellbeing score was 48.39 (SD = 10.53), indicating moderate wellbeing. The mean Growth Mindset score was 19.70 (SD = 4.05), consistent with a moderate growth orientation.

Table 2

Pearson Correlation Matrix Among Study Variables (N = 228)

Variable	1	2	3
1. Academic Self-Efficacy	—		
2. Psychological Wellbeing	-.131*	—	
3. Growth Mindset	.074	.195**	—

Note. *p < .05. **p < .01.

Table 2 show that Growth mindset was positively and significantly associated with psychological wellbeing ($r = .195$, $p = .003$), indicating that students with stronger growth mindset orientations tended to report higher levels of psychological wellbeing. Psychological wellbeing was significantly and negatively associated with

academic self-efficacy ($r = -.131$, $p = .048$), a finding that ran counter to theoretical expectations. The association between growth mindset and academic self-efficacy was positive but did not reach statistical significance ($r = .074$, $p = .265$). These findings provided partial support for Hypothesis 1.

Table 3

Mediation Analysis: Psychological Wellbeing as Mediator Between Growth Mindset and Academic Self-Efficacy

Path	Relationship	B	SE	p
A	Growth Mindset → Psychological Wellbeing	.195	.507	.003
C	Growth Mindset → Academic Self-Efficacy	.074	.087	.265
B	Psychological Wellbeing → Academic Self-Efficacy (controlling for Growth Mindset)	-.152	.033	.025

D	Growth Mindset → Academic Self-Efficacy (controlling for Psychological Wellbeing)	.104	.088	.123
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Note. β = standardised regression coefficient; SE = standard error. c = total effect; c' = direct effect.

The Baron and Kenny (1986) regression procedure was used to test whether psychological wellbeing mediated the relationship between growth mindset and academic self-efficacy. Results are presented in Table 3. Growth mindset significantly predicted psychological wellbeing (Path a: $\beta = .195$, $p = .003$), satisfying the first condition of mediation. However, growth mindset did not significantly predict academic self-efficacy (Path c: $\beta = .074$, $p = .265$), violating the second and prerequisite condition required by Baron and Kenny's framework to establish mediation. Despite the fact that psychological wellbeing significantly predicted academic self-efficacy when entered alongside growth mindset in the regression equation (Path b: $\beta = -.152$, $p = .025$), the absence of a significant total effect (Path c) precluded formal establishment of the proposed mediation pathway. Hypothesis 2 was therefore not supported.

Discussion

The present study examined the relationships among growth mindset, psychological wellbeing, and academic self-efficacy in a sample of 228 first-year undergraduate students, and tested whether psychological wellbeing mediated the link between growth mindset and academic self-efficacy. Overall, the pattern of results was more complex than initially hypothesized: two of the four hypotheses received support, one received only partial support, and the mediation hypothesis was not supported. These findings are discussed below in relation to existing theory and empirical literature. Hypothesis 1 predicted a significant positive relationship between growth mindset and academic self-efficacy. This hypothesis was only partially supported: although the correlation was in the expected positive direction, it did not reach statistical significance ($r = .074$, $p = .265$).

This result is somewhat unexpected given the substantial body of literature linking the two constructs theory of implicit beliefs about ability provides the theoretical basis for expecting this relationship, proposing that students who view intelligence as malleable rather than fixed are more likely to interpret effort and setbacks as opportunities for growth, which in turn should strengthen their confidence in their own academic capability. Consistent with this reasoning, growth mindset has been shown to relate positively to self-efficacy in several student samples, with researchers arguing that students who believe ability is fixed and innate tend to report lower self-efficacy because they see little value in effortful improvement (Komarraju & Nadler, 2013).

Similarly, experimental and cross-sectional work with school-aged populations has found that growth mindset enhances academic self-efficacy, and that this effect appears reasonably stable across different cultural contexts (Chen & Pajares, 2010, as cited in the growth-mindset literature reviewed above). Given this weight of prior evidence, the non-significant association observed here warrants interpretation rather than dismissal. One plausible explanation relates to sample characteristics: because 93% of participants were already in their second semester, most had already been exposed to the same academic demands and grading feedback, which may have consolidated self-efficacy beliefs that are relatively independent of general mindset orientation at this stage. It is also possible that in high-pressure, first-year academic transitions, self-efficacy is shaped more directly by concrete performance feedback (e.g., grades, test results) than by broader beliefs about the malleability of intelligence, a pattern noted in research showing that self-efficacy is heavily influenced by mastery experiences and immediate performance

feedback rather than dispositional beliefs alone. Cultural and contextual factors may also matter: much of the foundational growth-mindset literature was developed in Western educational contexts, and the strength of the mindset-self-efficacy link may be attenuated in educational systems, such as Pakistan's, that place heavy emphasis on rote performance and high-stakes examinations rather than effort-based feedback. Taken together, the partial support for H1 suggests that growth mindset may be a necessary but not sufficient condition for academic self-efficacy, operating alongside other proximal influences such as prior performance and social feedback.

Hypothesis 2 was supported: growth mindset was significantly and positively associated with psychological wellbeing ($r = .195, p = .003$). This finding aligns closely with previous research. In a large sample of Chinese primary and middle school students, Zeng and Peng (2016) found that higher growth mindset predicted higher psychological wellbeing, an effect that operated in part through enhanced resilience. Likewise, work with university populations has found that students who endorse growth mindset beliefs report higher psychological wellbeing across dimensions such as autonomy, personal growth, purpose in life, and self-acceptance, compared with students who view intelligence as fixed. From a theoretical standpoint, this pattern is consistent with self-determination theory, which suggests that a growth mindset supports wellbeing by helping individuals interpret challenges as growth opportunities rather than threats, thereby satisfying basic psychological needs for competence and autonomy rather than provoking the helplessness or ego-threat responses associated with fixed mindsets. The present findings extend this literature to a Pakistani first-year university sample, suggesting that the protective association between growth mindset and wellbeing generalizes beyond the East Asian and Western contexts in which it has predominantly been studied.

Hypothesis 3 predicted a positive relationship between psychological wellbeing and academic

self-efficacy; instead, a small but statistically significant *negative* association was found ($r = -.131, p = .048$), a result that ran counter to theoretical expectations and was strengthened further in the mediation model ($\beta = -.152, p = .025$). While counterintuitive at first glance, this pattern is not without precedent in the literature. Research on self-efficacy has repeatedly documented that very high confidence in one's own ability can, under certain conditions, be maladaptive rather than protective.

Moore and Chang (2009) demonstrated that individuals who were overconfident in their self-efficacy beliefs showed a negative relationship between initial self-efficacy and subsequent performance, a phenomenon they linked to complacency: once learners feel highly capable, they may reduce the effort and vigilance that sustain performance and adaptive functioning. Related work has similarly noted that elevated self-efficacy is not uniformly beneficial and can, in some circumstances, be associated with heightened psychological or physiological stress responses rather than protection from them. It is plausible that a comparable dynamic occurred in the present sample: students reporting higher psychological wellbeing may have felt less academic pressure or urgency, which in a competitive, examination-driven system could translate into somewhat lower vigilance about their own academic capability, or conversely, students with lower wellbeing (e.g., higher anxiety about performance) may paradoxically report inflated self-efficacy as a coping or defensive appraisal. Cross-sectional design limits causal interpretation of this pattern, and future longitudinal or experimental work would be needed to disentangle whether wellbeing is genuinely suppressing self-efficacy, whether self-efficacy is influencing wellbeing in ways not captured by a single time point, or whether an unmeasured third variable (e.g., academic stress, self-critical perfectionism) accounts for the inverse association.

Hypothesis 4, that psychological wellbeing mediates the relationship between growth mindset and academic self-efficacy, was not

supported. Using the causal-steps approach outlined by Baron and Kenny (1986), mediation requires, as a prerequisite, that the predictor (growth mindset) significantly predict the outcome (academic self-efficacy) in the absence of the mediator – the so-called total effect. Because this total effect was non-significant in the present data ($\beta = .074$, $p = .265$), the formal conditions for mediation specified by Baron and Kenny (1986) were not met, even though growth mindset significantly predicted psychological wellbeing (Path a) and psychological wellbeing significantly predicted academic self-efficacy when growth mindset was controlled. It is worth noting, however, that more recent methodological work has questioned whether a significant total effect should be treated as a strict prerequisite for mediation.

Hayes (2009) argued that an indirect effect can exist even when the total effect of X on Y is not statistically significant, particularly when competing or suppressive pathways are present, and this position has since gained considerable traction in the mediation literature. Under this more contemporary view, the pattern observed here – a significant Path a and Path b, alongside a non-significant Path c – would not automatically rule out an indirect effect, and a bootstrapped test of the indirect effect (e.g., via the PROCESS macro; Hayes, 2013) might have yielded a different conclusion than the classical causal-steps test applied in this study. The present findings, then, should be interpreted as indicating no evidence of mediation under the traditional Baron and Kenny framework, rather than definitive proof that psychological wellbeing plays no role in linking growth mindset to academic self-efficacy. Future research using bootstrapped indirect-effect estimation would provide a more sensitive and contemporary test of this pathway.

Limitations

Several limitations should be considered when interpreting these findings. First, the cross-sectional design precludes causal inference; the unexpected negative association between

wellbeing and self-efficacy, in particular, would benefit from longitudinal replication to clarify directionality. Second, convenience sampling from a single university limits generalizability to other institutional and cultural contexts. Third, all variables were measured via self-report, raising the possibility of shared-method variance and social desirability effects, particularly for wellbeing and self-efficacy measures. Finally, the relatively narrow demographic profile of the sample (largely second-semester students aged 22–25) may have restricted the variability needed to detect the hypothesized effects, especially for H1. Future studies should consider longitudinal designs, multi-institutional sampling, and bootstrapped mediation analysis to build on and clarify the present findings.

Conclusion

This study found that growth mindset was meaningfully related to psychological wellbeing, consistent with prior theory and research, but its relationship with academic self-efficacy was weaker than expected and the hypothesized mediating role of psychological wellbeing was not supported under the classical Baron and Kenny (1986) framework. The unexpected inverse relationship between psychological wellbeing and academic self-efficacy underscores the need for more nuanced models of student adjustment that account for the possibility that wellbeing and confidence-related constructs do not always move in the same direction, particularly in high-stakes academic environments

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