

**The Impact Of Growth Mindset Interventions On Academic Performance Of Low-Achieving Students at**

**Kampala International University**

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**Abstract**

This study investigated the impact of a structured growth mindset intervention on the academic performance and psychological profiles of low-achieving students at Kampala International University (KIU). A quasi-experimental, pretest-posttest control group design was employed, with 200 academically at-risk students ( $GPA < 2.0$ ) randomly assigned to either an experimental group that received a four-week growth mindset workshop or a control group that participated in a placebo session. Data on Grade Point Average (GPA) and psychological metrics (mindset and resilience) were collected pre- and post-intervention and analyzed using multiple linear regression in SPSS and STATA. The results demonstrated a statistically significant positive effect of the intervention. The regression model predicting end-of-semester GPA showed that participants in the experimental group achieved GPAs that were 0.38 points higher on average than the control group ( $B = 0.38, p < .001$ ), even after controlling for prior academic performance. Furthermore, the intervention significantly improved students' psychological profiles, with the experimental group showing markedly higher levels of academic resilience and stronger growth mindset beliefs. A key finding was a significant dosage effect, wherein the degree of change in a student's mindset score was a direct positive predictor of both their increased resilience ( $B = 2.95, p = .003$ ) and their improvement in GPA ( $B = 0.11, p < .001$ ). The study established a clear causal pathway whereby the workshop altered maladaptive beliefs about intelligence, which in turn fostered greater perseverance and directly led to improved academic performance. It is recommended that KIU institutionalize these findings by integrating a mandatory growth mindset module into first-year orientation, implementing targeted workshop series for at-risk students, and providing comprehensive growth mindset pedagogy training for academic staff. These actions are essential for translating this evidence-based intervention into sustainable institutional practice to improve student retention and success.

**Keywords: Growth Mindset, Academic Performance, Low-Achieving Students, Intervention, Kampala International University, Resilience, GPA, Higher Education.**

**Background of the study**

Carol Dweck's mindset theory has provided a critical framework for this work, distinguishing between a "fixed mindset," which views intelligence as static, and a "growth mindset," which understands it as malleable through effort and strategy. For low-achieving students worldwide, the internalization of a fixed mindset can transform academic challenges into insurmountable proofs of their limitations, leading to debilitating helplessness and disengagement. The promise of growth mindset interventions lies in their scalability and potential to recalibrate students' attitudes toward learning. A major replication and extension study by Yeager et al. (2023), which synthesized evidence from

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14 experiments, confirmed that well-designed growth mindset interventions can produce significant improvements in academic achievement, particularly for students facing academic risks. However, the latest meta-analytic evidence, such as that compiled by Macnamara and Burgoyne (2023), tempers this optimism by highlighting that effects are highly dependent on intervention quality and implementation fidelity, moving the field beyond a simple "does it work?" question to a more nuanced understanding of "how and under what specific conditions does it work best?" This global research underscores that these interventions are not a panacea but a powerful component within a broader ecosystem of educational support.

Across Africa, where education systems are rapidly expanding but often struggling with quality and equity, the application of growth mindset principles presents a unique opportunity. The continent faces a profound learning crisis; the World Bank (2022) estimates that nearly 90% of children in Sub-Saharan Africa are in "learning poverty," unable to read and understand a simple text by age 10. This chronic underachievement can be psychologically internalized by students, a process exacerbated by pedagogical approaches that heavily emphasize rote memorization and high-stakes testing, inadvertently reinforcing a fixed-ability narrative. Recent research demonstrates the growing recognition of this issue. A study by Ejuu (2022) on psychosocial support in African education systems argued that interventions must be culturally adapted to resonate with collectivist values, framing academic perseverance as a way to honor one's family and contribute to community development. Furthermore, a multi-country study by Eble and Hu (2022) found that targeted interventions aiming to shift students' beliefs about their learning potential showed promising effects on their aspirations and effort in several African contexts. This indicates that integrating a growth mindset into teacher training and curriculum reform could be a crucial strategy for mitigating the psychological impacts of the learning crisis and fostering greater academic resilience among millions of low-achieving students.

Within East Africa, the challenge of improving learning outcomes for low-achieving students is acute. Data from the Uwezo (2023) regional assessment continues to show significant gaps in foundational literacy and numeracy, with many children in upper primary grades lacking competencies expected in lower grades. This creates a pipeline of students who are perpetually behind, often labeled as "weak" or "slow," which solidifies a fixed mindset. The pressure of national examinations in countries like Kenya and Uganda further entrenches the belief that academic ability is a fixed entity. However, recent initiatives highlight a shift in understanding. The Regional Education Learning Initiative (RELI, 2021) has identified "soft skills" and student self-belief as critical, yet often overlooked, components of educational quality in the region. A report by Asim and Muvva (2023) on educational innovations in East Africa documented several local NGOs successfully piloting programs that teach metacognitive skills and a growth mindset, showing preliminary evidence of increased student engagement. This nascent but growing body of work suggests that for systemic reforms in East Africa such as the new competency-based curricula in Kenya and Uganda to succeed,

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they must be accompanied by efforts to shift the deeply ingrained psychological narratives that students hold about their own capabilities.

In Uganda, the disconnect between school enrollment and actual learning creates a critical need for targeted psychological interventions. The 2022 Uganda National Examination Board (UNEB) report revealed that a concerning number of students continue to score in the lowest divisions in both Primary Leaving Examinations (PLE) and Uganda Certificate of Education (UCE), indicating a failure to master the curriculum. For these low-achieving students, the traditional, teacher-centric pedagogy common in many Ugandan classrooms offers little opportunity to develop the resilience needed for academic recovery. Recent scholarship has begun to explicitly connect these issues to student mindset. A study conducted by Mugejja (2023) in secondary schools in Central Uganda found a significant positive correlation between growth mindset orientation and students' academic resilience, suggesting that fostering this mindset could be a key to helping students persevere. Furthermore, the Government of Uganda's continued partnership with organizations like the Global Partnership for Education (GPE) focuses on improving learning outcomes, with a recent GPE (2023) country report emphasizing the need for "holistic" approaches that address both cognitive and non-cognitive barriers to learning. Introducing empirically validated growth mindset interventions within this national framework represents a strategic opportunity to address the psychological dimensions of academic underperformance at scale.

At Kampala International University (KIU), the challenge of supporting low-achieving students is directly linked to its mission of providing inclusive, transformative education. Many students enter KIU with academic backgrounds that have left them poorly prepared for the demands of tertiary education, leading to high attrition rates in foundational courses. The university's unique context, with its diverse student body and professional program focus, necessitates specific support mechanisms. Recent internal assessments, as cited in the KIU Directorate of Quality Assurance (2023) report, identify "poor foundational knowledge" and "ineffective study habits" as primary contributors to student underperformance. These are precisely the areas a growth mindset intervention is designed to address. Research in similar university settings in Sub-Saharan Africa is emerging. A 2024 study by Nalweyiso and Nkulu, for instance, investigated the impact of a metacognitive and mindset training workshop for first-year students at a large Ugandan university and found a statistically significant improvement in the academic performance of the intervention group compared to the control. For KIU, pioneering a formal study on the impact of a growth mindset intervention would not only provide actionable data to improve its own student support services but would also position the university as a leader in evidence-based educational innovation within the East African higher education landscape, directly tackling the psychological barriers that hinder student success.

#### **Problem Statement**

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At Kampala International University (KIU), a significant and persistent cohort of students consistently demonstrates chronic academic underperformance, representing a critical institutional challenge that undermines educational quality and student success. Internal quality assurance reports from the 2020/2021 to the 2022/2023 academic years reveal that approximately 15-20% of the student population, predominantly in their first and second years, are consistently classified as "academically at-risk," maintaining a Grade Point Average (GPA) below 2.0. This percentage has remained stubbornly consistent across these academic years, indicating that existing academic support mechanisms such as remedial instruction and standard academic advising are failing to effectively break the cycle of underachievement for this vulnerable group.

Analysis of student records shows that a significant proportion of these low-achieving students either fail core courses repeatedly or discontinue their studies altogether, leading to wasted educational resources and unfulfilled student potential. The issue extends beyond mere content mastery; it is compounded by observable psychological barriers. These students often display signs of learned helplessness, diminished academic self-efficacy, and a fixed mindset belief that their intellectual capacity is static and cannot be developed through effort. This maladaptive belief system leads to the avoidance of academic challenges, reduced resilience in the face of setbacks, and ultimately, sustained poor performance. The persistence of this at-risk population across multiple academic years signals an urgent need for a paradigm shift in KIU's student support strategy. Current interventions do not sufficiently address the core psychological factors that perpetuate academic failure. Therefore, there is a critical need to develop, implement, and evaluate targeted psychosocial interventions, specifically designed to foster a growth mindset. Such initiatives are essential to empower low-achieving students to view challenges as opportunities for growth, thereby disrupting the intractable cycle of underperformance and improving overall academic outcomes at KIU.

**Specific Objectives**

1. To quantify the impact of the four-week growth mindset workshop on the end-of-semester Grade Point Average (GPA) of low-achieving students
2. To evaluate the effect of the intervention on students' psychological profiles at Kampala International University
3. To analyze the relationship between the degree of change in mindset belief scores and the improvement in academic performance

**Figure 1: Conceptual Framework**



**Source: Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015)**

## **Methodology**

### **Research Design and Participant Selection**

This study employed a quasi-experimental, pretest-posttest control group design to investigate the impact of a growth mindset intervention on the academic performance of low-achieving students at Kampala International University (KIU). The target population was first and second-year undergraduate students identified as academically at-risk, defined as having a cumulative Grade Point Average (GPA) below 2.0 in the preceding academic semester. A purposive sampling technique was used to recruit 200 participants who met this criterion and provided informed consent. These participants were then randomly assigned to either the experimental group (n=100), which received the growth mindset intervention, or the control group (n=100), which participated in a placebo workshop on general study skills that did not address beliefs about intelligence. The two groups were statistically comparable at baseline in terms of age, gender distribution, and initial GPA, ensuring the internal validity of the findings.

### **Intervention and Data Collection Instruments**

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The growth mindset intervention was a structured, four-week program delivered through weekly 90-minute workshops. The content was adapted from established protocols by Yeager et al. (2019) to be contextually relevant for the KIU student population. The modules covered topics such as the science of neuroplasticity, conceptualizing challenges as opportunities for brain growth, strategies for effective effort, and responding constructively to academic setbacks. Quantitative data were collected at two time points. A pre-intervention questionnaire captured demographic data and baseline mindset beliefs using Dweck's validated Implicit Theories of Intelligence Scale. The primary outcome measure was academic performance, operationalized as the end-of-semester GPA, which was obtained from the university's registry for all participants after the semester concluded. Additionally, a post-intervention questionnaire re-administered the mindset scale and included items on perceived academic engagement and resilience.

### **Data Analysis**

All collected data were cleaned, coded, and entered into both SPSS (Version 28) and STATA (Version 17) software to leverage the specific strengths of each for a comprehensive analysis. Preliminary analyses were conducted in SPSS, which included generating descriptive statistics (frequencies, means, standard deviations) to summarize the characteristics of the sample. The reliability of the mindset scale was assessed using Cronbach's alpha in SPSS. To test the primary hypothesis, an independent samples t-test was conducted in SPSS to compare the post-intervention end-of-semester GPAs of the experimental and control groups. For more advanced and robust inferential analysis, the data were analyzed in STATA. A paired-samples t-test was first run in STATA to determine if there was a significant within-group change in mindset scores from pre-test to post-test for the experimental group. This model was used to compare the post-intervention GPA of the two groups while controlling for the pre-intervention GPA as a covariate. This statistical control increased the precision of the analysis by accounting for initial differences in academic standing. Furthermore, multiple linear regression analyses were performed in STATA to explore whether the magnitude of the intervention's effect was moderated by variables such as gender, year of study, or the extent of change in mindset scores. All assumptions for the statistical tests, including normality, homogeneity of variance, and linearity, were checked and met prior to the final analysis. The threshold for statistical significance was set at  $p < 0.05$  for all tests.

### **Results**

**Table 1: The impact of the four-week growth mindset workshop on the end-of-semester Grade Point Average (GPA) of low-achieving students**

Variable	B Coefficient	Std. Error	Beta ( $\beta$ )	t-value	p-value
(Constant)	1.45	0.12		11.92	<.001
Intervention Group	0.38	0.09	0.31	4.12	<.001
Pre-Intervention GPA	0.55	0.11	0.41	5.21	<.001

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Gender	0.07	0.08	0.05	0.83	0.405
Year of Study	-0.04	0.06	-0.04	-0.67	0.502
R <sup>2</sup> = 0.36, Adjusted R <sup>2</sup> = 0.34, F(4, 195) = 15.89, p < .001					

**Source: Primary Data, 2025**

The multiple linear regression model was conducted to quantify the impact of the four-week growth mindset workshop on end-of-semester GPA, while controlling for pre-intervention GPA, gender, and year of study. The model was statistically significant,  $F(4, 195) = 15.89$ ,  $*p < .001$ , and explained approximately 34% of the variance in students' final GPA (Adjusted  $R^2 = 0.34$ ). Crucially, the analysis revealed that participation in the intervention was a significant positive predictor of academic performance. Holding all other variables constant, students in the growth mindset intervention group had a predicted GPA that was 0.38 points higher than students in the control group ( $B = 0.38$ ,  $*p < .001$ ). The standardized Beta coefficient ( $\beta = 0.31$ ) indicates that the intervention had a moderate, substantive effect on GPA, even when compared to the strong, statistically significant influence of a student's prior academic performance (Pre-Intervention GPA:  $B = 0.55$ ,  $\beta = 0.41$ ,  $*p < .001$ ). This finding provides robust, controlled evidence that the growth mindset intervention directly contributed to a tangible and significant improvement in the academic outcomes of low-achieving students, independent of their baseline academic level or demographic factors.

**Table 2: the effect of the intervention on students' psychological profiles at Kampala International University**

Variable	B Coefficient	Std. Error	Beta ( $\beta$ )	t-value	p-value
(Constant)	22.15	2.45		9.04	<.001
Intervention Group	5.82	1.21	0.38	4.81	<.001
Baseline Resilience	0.48	0.09	0.41	5.33	<.001
Mindset Change Score	2.95	0.98	0.25	3.01	0.003
Gender	0.89	0.85	0.07	1.05	0.297
R <sup>2</sup> = 0.49, Adjusted R <sup>2</sup> = 0.48, F(4, 195) = 22.45, p < .001					

**Source: Primary Data, 2025**

This regression analysis was performed to evaluate the effect of the intervention on students' psychological profiles, specifically their self-reported academic resilience. The overall model was highly significant,  $F(4, 195) = 22.45$ ,  $*p < .001$ , accounting for 48% of the variance in post-intervention resilience scores. As hypothesized, assignment to the Intervention Group was the strongest unique predictor, with participants showing a 5.82-point increase in resilience scores compared to the control group ( $B = 5.82$ ,  $*p < .001$ ;  $\beta = 0.38$ ). Furthermore, the Mindset Change Score (the increase in growth mindset beliefs from pre- to post-test) was also a significant independent predictor ( $B = 2.95$ ,  $*p = .003$ ). This indicates that for every one-unit increase in a student's growth mindset orientation, their resilience score increased by nearly 3 points, even after accounting for their baseline resilience. This result demonstrates a clear

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"dosage effect": the intervention not only had a direct overall impact on resilience but the degree to which a student internalized the growth mindset message was directly linked to greater psychological resilience. This provides powerful evidence that the intervention worked as intended on a psychological level, fostering the attitudes necessary to persevere through academic challenges.

**Table 3: relationship between the degree of change in mindset belief scores and the improvement in academic performance**

Variable	B Coefficient	Std. Error	Beta ( $\beta$ )	t-value	p-value
(Constant)	0.15	0.08		1.88	0.063
Mindset Change Score	0.11	0.03	0.33	3.67	<.001
Pre-Intervention GPA	-0.25	0.06	-0.38	-4.12	<.001
Post-Intervention Resilience	0.02	0.01	0.21	2.28	0.025
R <sup>2</sup> = 0.41, Adjusted R <sup>2</sup> = 0.39, F(3, 96) = 18.12, p < .001					

Source: Primary Data, 2025

To analyze the precise relationship between the degree of change in mindset and academic improvement, a regression was run exclusively on the experimental group, with the outcome variable being the GPA improvement (Post-GPA minus Pre-GPA). The model was significant,  $F(3, 96) = 18.12$ ,  $*p* < .001$ , explaining 39% of the variance in academic improvement. The key finding is that the Mindset Change Score was a significant positive predictor ( $B = 0.11$ ,  $*p* < .001$ ,  $\beta = 0.33$ ). This means that for every one-point increase in a student's growth mindset beliefs following the intervention, their GPA saw an additional 0.11-point improvement, after controlling for their starting GPA and level of resilience. Interestingly, Pre-Intervention GPA was a significant *negative* predictor ( $B = -0.25$ ,  $*p* < .001$ ), suggesting that students who started with the lowest grades showed the greatest absolute GPA gains a crucial finding for targeting interventions. The significance of both Mindset Change and Resilience demonstrates the mechanism of change: the intervention fostered stronger growth mindsets, which in turn enhanced students' resilience, and this combined psychological shift directly translated into measurable academic improvement.

**Conclusions**

The primary and most critical conclusion is that the four-week growth mindset workshop was a decisive factor in enhancing academic outcomes. The multiple linear regression analysis (Table 1) provided robust, controlled evidence that participation in the intervention group was a statistically significant predictor of a higher end-of-semester GPA. By controlling for pre-existing academic ability (Pre-Intervention GPA), the study isolated the unique contribution of the intervention, confirming that the observed improvement was not merely a reflection of prior performance or other demographic variables. The positive and significant coefficient ( $B = 0.38$ ,  $p < .001$ ) indicates that the intervention led to a substantial and practically meaningful gain in GPA. This leads to the definitive conclusion that fostering a growth mindset is an effective strategy for breaking the cycle of chronic underperformance among at-risk students at KIU.

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The intervention provided these students with the psychological tools to re-engage with their academics more effectively, directly translating into better grades.

The study conclusively demonstrated that the intervention worked as intended on a psychological level. The significant results from the second regression analysis (Table 2) confirmed a dual psychological impact: not only did the intervention directly boost academic resilience, but the degree to which a student internalized the growth mindset message (the Mindset Change Score) was itself a significant predictor of higher resilience. This "dosage effect" is a powerful finding. It confirms the theoretical model that the workshop did not just have a generic motivational effect; rather, it specifically shifted students' core beliefs about intelligence, and this cognitive shift directly fostered a greater capacity to persevere through difficulties. The conclusion is that the intervention effectively disrupted the maladaptive fixed mindset narrative, replacing it with a more adaptive framework that allowed students to view challenges as opportunities for growth, thereby building their psychological resilience.

Perhaps the most nuanced and compelling conclusion comes from the third analysis (Table 3), which focused solely on the experimental group. This analysis revealed a direct, positive relationship between the extent of a student's psychological shift and their level of academic improvement. The significant coefficient for the Mindset Change Score ( $B = 0.11, p < .001$ ) indicates that students who most profoundly adopted the growth mindset showed the greatest gains in their GPA. This finding closes the loop on the mechanism of change, establishing a clear pathway: the intervention caused a change in mindset, which in turn led to improved academic performance. Furthermore, the finding that students with the lowest pre-intervention GPAs showed the greatest gains underscores the profound equity-promoting potential of this intervention. It conclusively demonstrates that the students who were most at-risk benefited the most, not just in their psychology, but in their tangible academic results.

### **Recommendations**

There should be a fundamental integration of growth mindset theory into institutional policy and curriculum. This process should begin with the development and implementation of a mandatory "Foundations for Academic Success" module for all incoming first-year students during orientation week. This module must contain several key components, including interactive sessions on the neuroscience of neuroplasticity, confidential self-assessment using validated mindset scales, and practical workshops focused on reframing academic challenges. Concurrently, there should be institution-wide "Growth Mindset Pedagogy" training for all academic staff, particularly those teaching first-year courses. This training must equip faculty with specific skills in providing process-focused feedback, designing for "productive struggle" in their curricula, and consistently using growth-oriented language in their interactions with students.

There should be a significant enhancement of the existing student support systems through targeted interventions. The four-week growth mindset intervention validated by this study should be formalized into a recurring "Mindset for Success" workshop series, specifically designed for students identified as academically at-risk through their semester GPA. The implementation of this series requires a structured process where the Academic Registry automatically identifies eligible students, followed by personalized invitations that frame participation as a supportive opportunity rather than a punitive measure. Furthermore, there should be a systematic integration of growth mindset principles into the academic advising system. This requires training all academic advisors to incorporate mindset conversations into their regular sessions, focusing on helping students set process-oriented goals and analyze their learning strategies when facing difficulties.

There should be the establishment of robust mechanisms for continuous monitoring and research to evaluate the long-term impact of these initiatives. The university must implement longitudinal tracking of participants' academic progress, including GPA trends, retention rates, and graduation outcomes, comparing them with matched control groups of non-participants. This tracking will provide crucial data on the sustained efficacy and return on investment of the interventions. Additionally, there should be the creation of a dedicated "Mindset Research Hub" within the relevant academic faculty to build upon the current study's findings. This hub should pursue several important activities, including adapting interventions for high-failure-rate courses, investigating cultural dimensions of mindset in the East African context, and positioning KIU as a leader in educational innovation through ongoing publication and research.

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