

From Belief to Practice: Investigating Growth Mindset as a Bridge Between Teacher Cognition and Student Experience in Mathematics

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Teacher beliefs are integral in shaping classroom culture as they affect the teacher-student relationship, students' learning-related processes, and learning outcomes (Wolf & Brown, 2023). Yeager et al. (2019) believes that embracing a growth mindset can enhance students' academic outcomes and teachers can cultivate growth mindset cultures in mathematics classrooms through specific practices and interactions (Murphy et al., 2021). Many students experience negative attitudes in math-related contexts, and these responses result from lack of confidence in solving mathematical problems, which has an impact on the student's motivation and learning (Aguilar, 2021; Metu et al., 2023; 2025). These negative responses could be impacted by the teacher's belief found to be associated with an educational system's overall efficacy (Li & Ma, 2025). Teachers with growth mindset are able to influence their pedagogical decisions and their classroom conduct (Laine & Tirri, 2023; Zhang & He, 2025). However, previous studies focused primarily on student-centered beliefs, while giving little attention to the teacher's role in shaping classroom behavior, especially in mathematics classrooms. Despite growing literature on the importance of growth mindset in classroom settings, there is limited literature on how undergraduate mathematics teachers' growth mindset influences students' belief, motivation and confidence. This study examined: (i) the beliefs teachers hold about the nature of mathematical ability and learning; (ii) the extent the teachers' growth mindset predicts students' beliefs, motivation, and mathematics confidence.

This study adopted a descriptive correlational research design, which allowed for both understanding the teacher's perception of growth mindset and determining the strength of the relationships between the teacher variable and the students' variables. The sample size included Seven (7) teachers and 181 first year students from the mathematics education unit, University of Nigeria, Nsukka. The instruments "Implicit Theory of Intelligence Scale (Dwerk et al., 1995)" for teachers and students growth mindset; "Student Opinion Scale (Sundre, 2000)" for motivation; and "General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995)" for students' confidence were all adapted. These surveys (with likert scale 1-5) were distributed and collected through the face-to-face approach. The collected data were analyzed using descriptive statistics and regression analysis.

Result showed that $Mean = 3.73$; $SD = 1.04$ was obtained about the teachers' belief. While the scores were moderately dispersed, the majority of the teachers leaned towards the growth mindset belief. This implies that the teachers support the principles of growth mindset that with practice and strategies, an individual's ability in mathematics can be developed. Regression analysis revealed that teachers' belief accounted for 14.4% of variation in students' growth mindset ($r = 0.38$), 21.2% of motivation ($r = 0.46$), and 2.9% of confidence ($r = 0.17$). Therefore, students are encouraged to seek out faculty with growth mindset attributes as they are more inclined to creating a supportive learning environment. This result will also encourage students to form peer groups that share a growth mindset, thus increasing their motivation and participation.

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