

Transformative Effects of Comprehensive Faculty Development

Analyses show comprehensive faculty development courses have a positive impact on faculty self-efficacy and mindsets, suggest improvement in student mindset.

Faculty¹ teaching gateway courses at ten higher education institutions participated in comprehensive faculty development courses offered by ACUE in Effective Teaching Practices (ETP) or Effective Online Teaching Practices (EOTP) over two semesters. Analyses found that comprehensive faculty development positively influenced faculty's self-efficacy and mindsets (attitudes and beliefs toward teaching, learning, and students), and these effects were sustained. Analyses of the student surveys indicated perceived improvements in students' academic self-efficacy and growth mindset from the beginning to the end of the semester, suggesting that shifts in faculty beliefs can influence students.

The Faculty Self-Efficacy scale included three subscales and measured faculty's level of confidence in using various effective teaching practices, including engaging and motivating students, adjusting their instruction based on student feedback, and providing clear explanations and directions to students. The Faculty Mindset scale included five subscales and measured faculty's perceptions and attitudes toward students, teaching, and learning, including perceptions of teaching effectiveness, awareness of the influence their teaching has on students' learning, growth mindset, adoption of teaching improvement behaviors, and their enthusiasm for teaching.

Key Findings

Faculty Self-Efficacy

- Faculty who participated in comprehensive faculty development demonstrated **significant improvements in their overall teaching self-efficacy** from baseline to midpoint ($b = 0.34, p < .001$), endpoint ($b = 0.60, p < .001$), and follow-up ($b = 0.48, p < .001$).
 - These correspond to Cohen's d effect sizes of 0.61, 1.21, and 0.88, respectively.

¹ Throughout this brief, the term "faculty" is used to refer to all instructors irrespective of their academic rank or status. This was funded by the Bill & Melinda Gates Foundation. The views expressed are those of the author(s) and should not be attributed to the funder.

- Improvements were observed across all self-efficacy subscales: *Effective Teaching Practices*, *Adjusting Instruction*, and *Clarity in Instruction* (p 's < .001), with the largest improvements occurring in *Effective Teaching Practices* ($b = 0.74$, $p < .001$) at the endpoint.

Faculty Mindsets

- Faculty who participated in comprehensive faculty development showed **significant increases in their mindset ratings** from baseline to midpoint ($b = 0.07$, $p < .001$), endpoint ($b = 0.16$, $p < .001$), and follow-up ($b = 0.16$, $p < .001$).
 - These correspond to Cohen's d effects sizes of 0.24, 0.51, and 0.48, respectively.
- Significant improvements were observed across all time points on the *Perceived Teaching Effectiveness*, *Teaching Improvement Behaviors*, and *Teaching Enthusiasm* subscales (p 's < .05).
- The *Impact of Instruction on Students* subscale showed improvements at both endpoint and follow-up (p 's < .05), while the *Growth Mindset* subscale showed improvements at the follow-up assessment only ($p < .001$).

Student Academic Self-Efficacy

- There was a **significant increase in students' perceived academic self-efficacy** from the beginning to the end of the semester, reporting greater self-efficacy in their *Communication* (e.g., asking a question in class), as well as in their *Self-Monitoring* (e.g., keeping up to date with course work) (p 's < .001).

Student Growth Mindset

- There was a **significant increase in students' perceived growth mindset** from the beginning to the end of the semester ($p < .001$).

Methodology

The data for this study were collected through surveys administered to faculty members and students, focusing on faculty who teach and students enrolled in gateway courses at ten higher education institutions: Borough of Manhattan Community College; California State University, Northridge; Cincinnati State Technical and Community College; Cuyahoga Community College; Georgia Southern University; University of Hawai'i at Mānoa; University of Houston; Ivy Tech Community College; Lorain County Community College; and North Carolina A&T State University. Faculty members' self-efficacy and mindset were assessed at four time points: baseline (spring 2022), midpoint of the faculty development course (summer 2022), endpoint of the course (fall 2022), and one semester after the course ended (spring 2023). The self-efficacy and mindsets scales included in the surveys were presented as 5-point Likert scales.

Methodology Continued

The total faculty sample consisted of 1,633 unique faculty members, with 571 faculty members in the ACUE group and 1,062 in the comparison group. To examine changes among ACUE faculty, a longitudinal linear multilevel model was used, with clustering at the institution level. Instructor-level control variables included race/ethnicity, gender, academic discipline (STEM vs non-STEM), rank (tenure vs nontenure track), and level of experience (less than 5, 5–9, 10–14, 15–20, or 20+ years). The results from this primary model are reported above. In addition, robustness tests used a differences-in-differences (DID) approach to compare changes in faculty self-efficacy and mindset over time between ACUE faculty and the comparison group. The robustness tests showed the same pattern of significance as the primary model, confirming the main results and strengthening the reliability of the findings.

The student sample comprised 2,977 students who were taught by ACUE faculty and enrolled in gateway courses. Student surveys were administered at the end of both the spring 2022 and fall 2022 semesters, assessing academic self-efficacy and growth mindset retrospectively at the beginning and end of the semester. Analyses combined the spring and fall samples since results showed the same pattern across the two semesters. All items in these scales were presented as 5-point Likert scales. Paired *t*-tests were used to compare students' retrospective perceptions with their perceptions at the time of taking the survey, allowing for the assessment of any perceived changes over time.

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