

# Impact of Pre-Class Meditation on Learning Performance and Academic Self-Efficacy among Nursing Students in Uttar Pradesh

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## ABSTRACT

**Introduction:** Enhancing students' focus and engagement is essential for effective learning. Meditation has been associated with improved attention, memory, and emotional regulation. This pilot study evaluated the effect of pre-class meditation on learning performance and academic self-efficacy among BSc Nursing students. **Methods:** A quasi-experimental, non-equivalent control group design was adopted. Using non-probability purposive sampling, 50 fourth-year BSc Nursing students (25 intervention, 25 control) from two colleges in Mathura district, Uttar Pradesh, India, were selected. Data were collected through a structured knowledge questionnaire and a modified 5-point Likert scale on academic self-efficacy. Descriptive statistics and inferential tests, including paired and independent t-tests, Pearson correlation, and repeated-measures ANOVA, were used for analysis. **Results:** The intervention group demonstrated significant improvement in knowledge scores over time ( $p < 0.05$ ), though between-group differences were not significant ( $F = 0.314$ ,  $p = 0.57$ ). Post-test 2 scores were higher in the intervention group ( $21.48 \pm 5.51$ ) than in the control group ( $18.72 \pm 6.86$ ). Academic self-efficacy also increased significantly within both groups, with a stronger upward trend in the intervention group; however, between-group differences remained non-significant. No correlation was found between pre-test knowledge and self-efficacy. **Conclusion:** Pre-class meditation showed potential to enhance learning performance and academic self-efficacy, supporting its integration in nursing education. Implications for Holistic Nursing: Integrating meditation into nursing curricula may enhance students' cognitive readiness, emotional balance, and academic confidence.

**Keywords:** Meditation, academic self-efficacy, learning performance, nursing students, holistic nursing, quasi-experimental study

**How to cite this article:** Prof. Prabhu J, Dr. Sapna Singh: The Impact of Pre-Class Meditation on Learning Performance and Academic Self-Efficacy among Nursing Students in Uttar Pradesh, *Int J Drug Deliv Technol.* 2026;16(9s): 01-09

**Source of support:** Nil.

**Conflict of interest:** Nil.

## INTRODUCTION

Enhancing students' focus and engagement is essential for effective learning. Meditation has been associated with improved attention, memory, and emotional regulation. The effect of mindfulness on academic self-efficacy: a randomised controlled trial. A study demonstrated that a brief mindfulness intervention (four 30 minute meditation sessions) significantly increased academic self-efficacy and mindfulness in university students, with effects persisting at one month follow-up.

Mindfulness and Academic Performance of College and University Students: A Systematic Review — This review synthesized evidence on mindfulness and academic performance (including self-efficacy, engagement, stress) in higher education. It provides a broad overview of how mindfulness-based interventions and trait mindfulness relate to academic outcomes.

The impact of mindfulness intervention on the subjective well being of nursing students: an experimental study — A recent experimental study showing that a structured mindfulness based intervention significantly improved subjective well being (psychological resilience) among nursing students; relevant because well being and stress

reduction are often linked to academic self efficacy in nursing education contexts.

Enhancing Nursing Students' Compassion, Empathy and Communication Through Mindfulness-Based Meditation: A Mixed Methods Study — This mixed-methods study found that mindfulness-based compassion meditation significantly improved compassion competence, communication skills, and aspects of emotional empathy among nursing students — suggesting broader psychosocial benefits beyond just cognitive focus or academic scores.

The researcher found various gaps after an extensive review, like very few studies are conducted among Nursing students in Nursing colleges related to Meditation practice in the classroom, especially in India. No studies were found during the review of literature in the search engines so this study was conducted by the researcher.

## 2.Theoretical Framework

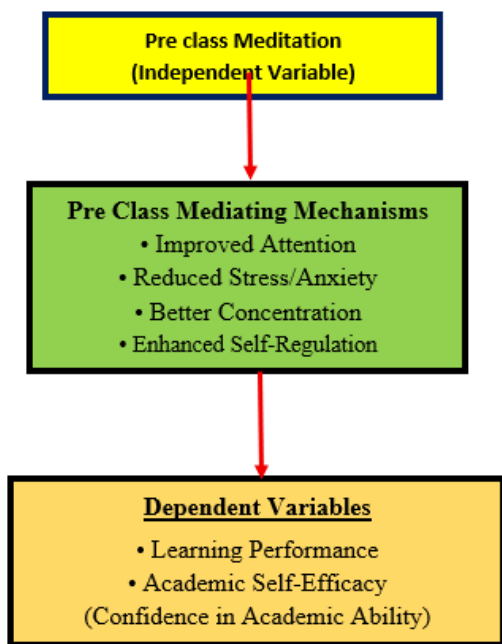
The present study is grounded in two major theories that explain how pre-class meditation may influence learning performance and academic self-efficacy among nursing students: Bandura's Self-Efficacy Theory and the Information Processing Theory. Together, these theories

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provide a conceptual foundation for understanding the cognitive and psychological mechanisms through which meditation affects academic outcomes.

This study was guided by Bandura’s Self-Efficacy Theory and Information Processing Theory, which explain how meditation may enhance focus, memory consolidation, and confidence in learning.

**FIGURE 1: CONCEPTUAL FRAMEWORK:**



**Figure 1-Illustrates The Conceptual Framework Demonstrating How Pre-Class Meditation Influences Learning Performance And Academic Self-Efficacy Through Improved Attention, Reduced Stress, And Enhanced Cognitive Processing.**

**Bandura’s Self-Efficacy Theory (1977)**

Bandura’s Social Cognitive Theory emphasizes that human behavior is guided by the interaction of personal factors, environmental influences, and behavioral outcomes. A central component of this theory is self-efficacy, defined as an individual’s belief in their ability to perform a particular task successfully.

According to Bandura, self-efficacy influences:

- The amount of effort a student invests in academic tasks
- Persistence when faced with challenges
- The emotional reactions associated with demanding tasks

Pre-class meditation may influence self-efficacy through two pathways:

**a. Reduction of Stress and Anxiety**

Meditation has been shown to lower physiological stress and emotional distress, making students feel more capable and confident in their academic abilities.

**b. Enhanced Self-Regulation and Focus**

Mindfulness improves attention and emotional regulation, enabling students to approach learning tasks with greater clarity and confidence.

In this study, increased academic self-efficacy is expected to arise from these meditation-induced changes.

**2. Information Processing Theory:**

Information Processing Theory explains learning as a series of cognitive steps involving sensory input, attention, encoding, storage, and retrieval of information. According to this theory, attention is the gateway to learning—information cannot be effectively processed if attention is weak or distracted.

Meditation supports this cognitive system in the following ways:

**a. Improved Attention and Working Memory**

Mindfulness practices increase sustained attention and the capacity of working memory, enabling students to better process classroom information.

**b. Reduction of Cognitive Load**

Stress and mental clutter reduce the brain’s processing efficiency. Meditation helps quiet internal distractions, freeing cognitive resources for learning tasks.

**c. Enhanced Sensory Awareness and Encoding**

By promoting present-moment awareness, meditation improves students’ ability to encode new information more accurately and retain it longer.

Thus, improvements in learning performance (e.g., quiz scores) can be understood through this cognitive mechanism.

**Integration of Theories with the Study:**

The two theories complement each other in explaining the expected outcomes of the meditation intervention:

- Information Processing Theory supports the cognitive side of learning, explaining how meditation enhances attention and memory, leading to better academic performance.
- Self-Efficacy Theory supports the psychological side, explaining how improved emotional regulation and reduced stress enhance students’ confidence and belief in their academic abilities.

Together, they provide a strong theoretical foundation for examining **how pre-class meditation influences both learning performance and academic self-efficacy** among nursing students.

**3. Methodology:**

**Study Design:** Quasi-experimental, non-equivalent control group design”

**Setting:** Brij Chikitsa Sansthan School of Nursing & Paramedical College Mathura, UP & Ravi School of Nursing, Mathura, UP

**Population**

**Population:** Students of Nursing colleges  
 Target Population: Students of Nursing College Uttar Pradesh.  
**Accessible population:** BSc Nursing 4th year students of selected Nursing college Uttar Pradesh who are fulfilling the inclusion and exclusion criteria.  
**Sampling technique:** Non-probability, Convenient sampling technique.  
**Sample size:** 50 (25 Interventional group + 25 Control Group).

**Intervention / Procedure:**

Pre-class guided meditation (Deep breathing mindfulness: Deep breathing cycle (30 seconds each cycle) 10 - 12 seconds inhaling and holding for 5 seconds and then exhaling slowly for 10-12 seconds with natural background music (sound of Birds, wind waves, water waves in forest) for 10 minutes 5 Sessions of class on different topics for 5 consecutive days, each day one hour session class, including the meditation.

**Data Collection Instruments:**

- Socio-demographic variables, Structured knowledge questionnaire, 5-point Likert scale for academic self-efficacy (Standardized tool Source: Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' selfregulated learning and achievement: A program of quantitative and qualitative research. Educational Psychologist, 37, 91-106)

- Validity: Tool validation was done from 8 experts. The experts are from the field of Nursing (2 MSN, 2 Psychiatry, 4 Community H. Nsg). As per their suggestions and recommendations final tool were framed.

- reliability if available

**Data Collection Procedure:**

- Pre-test on Day1: Self-administered knowledge questionnaire & 5point likert scale on Academic self-efficacy, followed by pre-class Meditation for 10 mins and the session.
- Day-2 to Day-5 pre-class Meditation for 10 mins and the session.
- After Day 5, a gap of 7 days was given and instructed the teachers to follow the same method for teaching.
- Postest-1: On Day 7 (After the last session), Self-administered knowledge questionnaire & 5-point Likert scale on Academic self-efficacy,
- Postest-2: On Day 30 (After the post-test-1), Self-administered knowledge questionnaire & 5-point Likert scale on Academic self-efficacy,

**Statistical Analysis:**

- Tests used (paired t-test, independent t-test, repeated-measures ANOVA, Pearson correlation)
- Software used SPSS

**4. Results:**

**Section-I: Demographic Characteristics of Nursing Students:(N = 50)**

Table 1 shows demographic characteristics.

**TABLES & FIGURES**

**Table 1: Baseline Characteristics of Nursing Students**

Variable	Interventional Group (n = 25)	Control Group (n = 25)	$\chi^2$	p
Age (years)			-0.04	0.59 (NS)
19–21	9 (36%)	9 (36%)		
22–24	16 (64%)	16 (64%)		
Gender			0.001	1.00 (NS)
Male	15 (60%)	10 (40%)		
Female	10 (40%)	15 (60%)		

Variable	Interventional Group (n = 25)	Control Group (n = 25)	$\chi^2$	p
<b>Residence</b>			<b>2.23</b>	<b>0.13 (NS)</b>
<b>Urban</b>	<b>11 (44%)</b>	<b>14 (56%)</b>		
<b>Rural</b>	<b>14 (56%)</b>	<b>11 (44%)</b>		
<b>Monthly Income (₹)</b>			<b>2.68</b>	<b>0.61 (NS)</b>
<b>5000–20,000</b>	<b>8 (32%)</b>	<b>8 (32%)</b>		
<b>20,001–35,000</b>	<b>9 (36%)</b>	<b>11 (44%)</b>		
<b>35,001+</b>	<b>8 (32%)</b>	<b>6 (24%)</b>		
<b>Father Education</b>			<b>3.09</b>	<b>0.54 (NS)</b>
<b>Uneducated</b>	<b>3 (12%)</b>	<b>1 (4%)</b>		
<b>Below 12th</b>	<b>14 (58%)</b>	<b>15 (60%)</b>		
<b>Degree+</b>	<b>8 (32%)</b>	<b>9 (36%)</b>		
<b>Mother Education</b>			<b>4.53</b>	<b>0.33 (NS)</b>
<b>Uneducated</b>	<b>19 (76%)</b>	<b>14 (56%)</b>		
<b>Below 12th</b>	<b>4 (16%)</b>	<b>9 (36%)</b>		
<b>Degree+</b>	<b>2 (8%)</b>	<b>2 (8%)</b>		
<b>Meditation Training</b>			<b>0.09</b>	<b>0.92 (NS)</b>
<b>Yes</b>	<b>1 (4%)</b>	<b>2 (8%)</b>		
<b>No</b>	<b>24 (96%)</b>	<b>23 (92%)</b>		

**Note: NS = Not Significant**

( $p > 0.05$  Not Significant) NS: Non-Significant

Table 1 depicts the Frequency and percentage distribution of baseline background variables of Nursing students in the intervention and control groups were comparable across all variables. Most students in both groups were between 20–22 years of age, with no significant age difference observed between groups. A majority of the participants were female, reflecting the typical gender distribution in nursing programs.

Regarding residential background, students were evenly distributed between **urban and rural areas, with no notable group differences**. Most participants reported parents with secondary or higher secondary education, and a similar pattern was observed for both mothers' and fathers' occupations, indicating comparable socioeconomic backgrounds across groups.

Chi-square test was computed to test the homogeneity of baseline background variables of Nursing students, and it

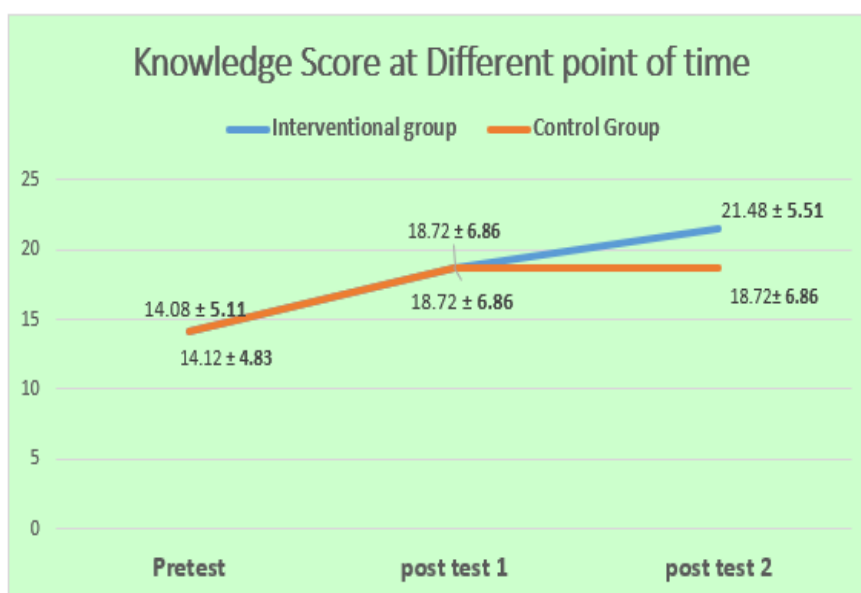
was found that both groups were similar in their baseline background variables ( $p>0.05$ )

**Effect of Meditation on Knowledge Scores**  
**Table 2-Baseline Outcome Variables (Knowledge and Academic Self-Efficacy)**

**Section 2: Comparison of baseline outcome variables of Nursing students between the interventional group and the control group (N=50)**

Outcome Variable	Interventional Group (n = 25) Mean ± SD	Control Group (n = 25) Mean ± SD	t	p
Knowledge	14.08 ± 5.11	14.12 ± 4.83	0.02	0.97 (NS)
Academic Self-Efficacy	66.76 ± 17.64	67.32 ± 16.67	0.11	0.90 (NS)

NS = Not Significant



**Fig. 2: Knowledge score at different point of time.**

Table-2 & Figure 2 show that the mean pre-test (baseline) knowledge scores of Nursing students in the interventional group and control group were 14.08±5.11 and 14.12±4.83, respectively, and the mean pre-test (baseline) Academic self-efficacy scores of Nursing students in the interventional group and control group were 66.76±17.64 and 67.32±16.67, respectively. To test the homogeneity of the outcome measures at baseline, an independent t-test was computed, and it was found that both groups were similar at their baseline measures ( $p>0.05$ )

**Section 3: Effectiveness of pre-class Meditation on selected topics of learning performance among Nursing students in the interventional group and control group**

**Section 3.1:** Comparison of outcome variables (knowledge and Academic self-efficacy) among Nursing students within and between the interventional and control groups. The comparison of knowledge scores at different time points among Nursing students in the interventional group and the control group.

A paired t-test was computed to find out the significant mean differences. It reveals that there was a statistically significant difference noted in the mean knowledge scores at  $p<0.05$  between pre-test and post-test 1 and post-test 2 Nursing students in the interventional group.

Similarly, in the control group, there was a statistically significant difference noted in the mean knowledge scores at  $p<0.05$  between pre-test and post-test 1 and pre-test and post-test 2.

**Table 3 Comparison of knowledge scores at different time points among Nursing students in the interventional group and control group. (N=50)**

Group	Time Point	Mean ± SD	Paired t	p
Interventional	Pre-test	14.08 ± 5.11	12.75	0.001 (S)
	Post-test 1	18.72 ± 6.86		
	Post-test 2	21.48 ± 5.51	5.34	0.001 (S)
Control	Pre-test	14.12 ± 4.83	6.61	0.001 (S)
	Post-test 1	18.72 ± 6.86		
	Post-test 2	18.72 ± 6.86	6.61	0.001 (S)

S = Significant

Table-3 indicates the interventional group, the mean pre-test knowledge score was 14.08 ± 5.11. After the intervention, the mean score increased to 18.72 ± 6.86 in post-test 1. The paired t value was 12.75 with a p value of 0.001, indicating a statistically significant improvement in knowledge following the intervention. Further improvement was observed in post-test 2, where the mean score increased to 21.48 ± 5.51. The paired t value was 5.34 with a p value of 0.001, which also shows a statistically significant increase in knowledge over time.

In the control group, the mean pre-test knowledge score was 14.12 ± 4.83, which increased to 18.72 ± 6.86 in post-test 1. The paired t value was 6.61 with a p value of 0.001, indicating a statistically significant difference between pre-test and post-test 1. However, the mean score in post-test 2 remained the same (18.72 ± 6.86), suggesting no further improvement in knowledge in the absence of intervention.

Overall, the results indicate that the interventional group showed greater and sustained improvement in knowledge scores compared to the control group. The p value of 0.001 indicates that the differences observed are statistically significant.

**Section 3.2: Comparison of Academic self-efficacy scores at different time points among Nursing students in the interventional group and the control group. (N=50)**

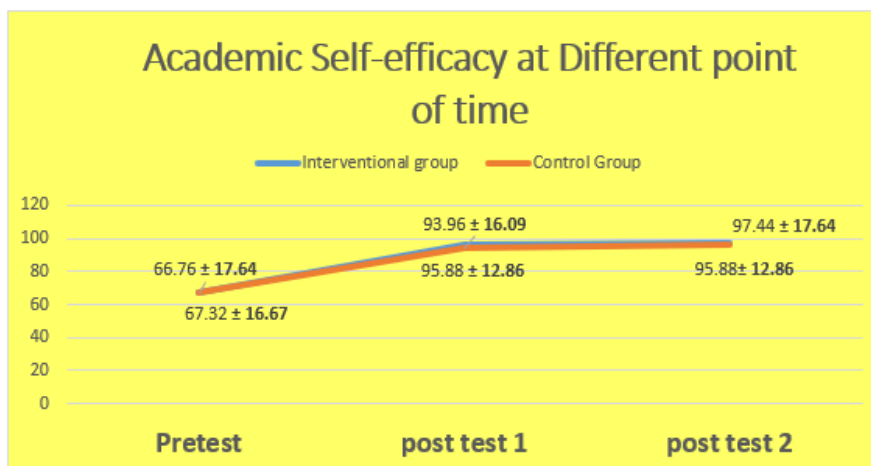
**Effect on Academic Self-Efficacy**

Both groups showed significant within-group improvement...

Table 3 and Figure 3 present Academic self-efficacy changes.

**Table 3: Academic Self-Efficacy Scores at Different Time Points**

Group	Time Point	Mean ± SD	Paired t	p
Interventional	Pre-test	66.76 ± 17.64	7.58	0.001 (S)
	Post-test 1	95.88 ± 12.86		
	Post-test 2	97.44 ± 17.64	9.07	0.001 (S)
Control	Pre-test	67.32 ± 16.67	6.53	0.001 (S)
	Post-test 1	93.96 ± 16.09		
	Post-test 2	95.88 ± 12.86	7.06	0.001 (S)



**Fig. 3: Academic Self-efficacy at different point of time.**

Table 3 & fig 3 shows that comparison of Academic self-efficacy scores at different time points among Nursing students in the interventional group and control group. A paired t-test was computed to find out the significant mean differences. It reveals that there was a statistically significant difference noted in the mean Academic self-efficacy scores at  $p < 0.05$  between pre-test and post-test 1 and post-test 2 Nursing students in the interventional group. Similarly, in the control group, there was a statistically

significant difference noted in the mean Academic self-efficacy scores at  $p < 0.05$  between pre-test and post-test 1 and pre-test and post-test 2.

**Section-IV: Correlation between outcome variables pre-interventional scores (knowledge and Academic self-efficacy) among Nursing students in the intervention group and control group (N=50)**

**Table 5: Correlation Between Knowledge and Academic Self-Efficacy (Pre-test Scores)**

Group	Knowledge Mean ± SD	Self-Efficacy Mean ± SD	Pearson r	p
Interventional	14.12 ± 4.83	67.32 ± 16.67	-0.17	0.39 (NS)
Control	14.08 ± 5.11	66.76 ± 17.64	-0.14	0.47 (NS)

Table-5 shows the correlation between outcome variables pre-interventional scores (knowledge and Academic self-efficacy) among Nursing students in the intervention group and the control group. Pearson correlation “r” was computed to find the correlation. It shows that there was no correlation found between knowledge and Academic self-efficacy.

**5. Discussion**

The present study aimed to evaluate the effectiveness of pre-class meditation on knowledge acquisition and academic self-efficacy among BSc Nursing students. The findings indicated that students in the interventional group demonstrated a gradual improvement in both knowledge scores and academic self-efficacy compared to the control group. Although the between-group differences were not statistically significant, the upward trend suggests a potential positive influence of meditation on students’ learning performance and self-perception of academic abilities.

**Effect on Knowledge Scores**

Within-group analysis revealed a statistically significant increase in knowledge scores over time in both the intervention and control groups. This finding aligns with previous research showing that meditation and mindfulness practices can enhance attention, focus, and cognitive functioning, which are critical for learning and knowledge retention (Frontiers in Education, 2023; IERJ, 2024). The absence of statistically significant between-group differences may be attributed to the short duration of the intervention, the limited sample size, or the single-session nature of the meditation practice. Studies suggest that sustained or repeated mindfulness interventions are more likely to produce significant differences in cognitive outcomes (ScienceDirect, 2019; MDPI, 2023).

**Effect on Academic Self-Efficacy**

Similar to knowledge outcomes, academic self-efficacy scores improved significantly over time within both groups, with the intervention group showing a slightly higher incremental trend. This finding is consistent with previous

literature indicating that mindfulness and meditation can enhance self-efficacy, resilience, and psychological readiness for learning (BMC Medical Education, 2024; MDPI, 2024). Although the between-group differences were not statistically significant, the results suggest that pre-class meditation may strengthen students' confidence in their ability to manage academic tasks and cope with learning challenges.

#### Potential Mechanisms

Meditation and mindfulness practices are thought to improve cognitive performance and self-efficacy through several mechanisms. They enhance attentional control, working memory, and emotional regulation, which facilitate better concentration during learning (Frontiers in Psychology, 2024). Additionally, mindfulness promotes psychological adaptability and resilience, which may indirectly support academic performance (BMC Medical Education, 2024; MDPI, 2024). The lack of correlation between pre-test knowledge and academic self-efficacy in this study suggests that improvements in self-efficacy may not immediately translate into measurable academic gains, but could support long-term learning outcomes.

#### Comparison with Existing Literature

The findings of this study are in line with research showing that brief meditation interventions can improve cognitive and psychological aspects of learning, even if immediate knowledge gains are modest (ScienceDirect, 2019; MDPI, 2023). Similar studies in undergraduate and health education settings have reported improved focus, attention, and academic confidence following meditation or mindfulness interventions, supporting the gradual improvements observed in this study (IERJ, 2024). Variability in outcomes across studies may result from differences in intervention duration, frequency, sample characteristics, and assessment tools.

#### Implications for Nursing Education

Although the differences between groups were not statistically significant, the trends suggest that pre class meditation may be a feasible, low-cost strategy to support learning performance and self-efficacy among nursing students. Incorporating regular meditation sessions into the curriculum could enhance students' cognitive readiness, emotional well-being, and overall academic engagement. Future studies with larger sample sizes, longer intervention periods, and objective academic performance measures are warranted to confirm these effects.

#### Limitations

The study had several limitations, including a small sample size, short intervention duration, and reliance on self-reported measures for academic self-efficacy. The use of two separate colleges for intervention and control groups may also introduce potential confounding variables related to institutional differences. These factors may have contributed to the lack of statistically significant between-group differences.

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