Fostering a Growth Mindset in Medical Laboratory Science Students

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SCAN ME

PROBLEM & PICOT

- Medical laboratory science (MLS) is a rigorous field of study
- College students find their established study habits are unable to support them through school
- Students place a heavy focus on grades instead of on learning and the knowledge deficits
- Students quickly move on to the next topic
  - Memorization
  - Passing the next exam
  - Fail to establish proficiency of the material
    - Behaviors characteristic of fixed mindsets

PICOT: In medical laboratory science students, how would mindset training impact student mindsets and learning?

AVAILABLE KNOWLEDGE & RATIONALE

- Stanford Psychologist, Carol S. Dweck, Ph.D., conceptualized mindset theory (Dweck, 2006)
  - *Fixed mindsets:* human attributes are static
  - *Growth mindsets:* human attributes are malleable
- Improved exam scores and GPAs related to growth mindset interventions (Bostwick & Becker-Blease, 2018; Broda et al., 2018; Yeager et al., 2019)

METHODS

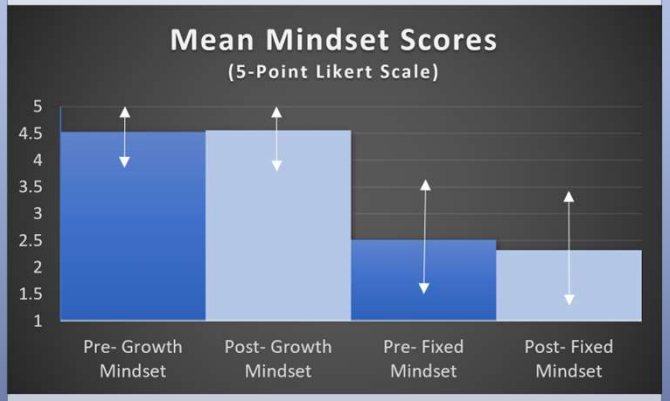
- Subjects were junior MLS students at a public Midwestern University
- Growth mindset intervention modeled after Lewis et al. (2020)
  - One-hour face-to-face growth mindset training in January
    - PowerPoint
    - Activity
    - Group discussion
  - Mid-semester touch base
- Mindset measured via Undergraduate Lay Theories of Abilities (ULTrA) Survey (Limeri et al., 2022)
  - Pre-intervention: start of Spring 2023 semester
  - Post-intervention: end of Spring 2023 semester
- Pre and post growth mindset intervention course outcomes (GPAs) collected to measure learning

DATA ANALYSIS

- All data was matched and deidentified
- Data analysis was performed using Microsoft Excel
- Descriptive statistics of collected data was calculated
- Relationships between mindsets and GPA were measured using Pearson correlation
- Dependent samples t-tests were used to measure differences between survey data and GPAs pre and post intervention

RESULTS

- Sample size of nine participants (n = 9)



Grade Point Average (GPA)		
	Fall 2022	Spring 2023
Mean GPA =	3.32 (0.42)	2.99 (0.54)
		$p < .02$

Post-Intervention Pearson Correlation	
Growth Mindset to GPA	r_{xy} = 0.42

DISCUSSION

- No statistically significant changes in growth or fixed mindset scores pre/post intervention
- Statistically significant decrease in participant GPA from Fall 2022 to Spring 2023, although this may be impacted by extraneous variables
- Moderate positive correlation between post-intervention growth mindset scores and post-intervention GPA
  - Consistent with previous mindset studies

Limitations

- Low sample size
- Increased course rigor with program progression may have been an extraneous variable impacting results

CONCLUSIONS

- Post-intervention Pearson correlation results support improved learning for those with growth mindsets

Recommendations for Future Investigations

- Measure effects of growth mindset intervention between two or more cohorts
- Assess growth mindset training on freshman MLS students
  - Explore the long-term effects throughout the program and beyond

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