

# Scholars and Leaders Program (SLP)



Preliminary Analyses of Effects of Leadership Interventions on Underrepresented STEM Students' Academic Motivation, Self-Efficacy in Major and Leadership Self-Efficacy

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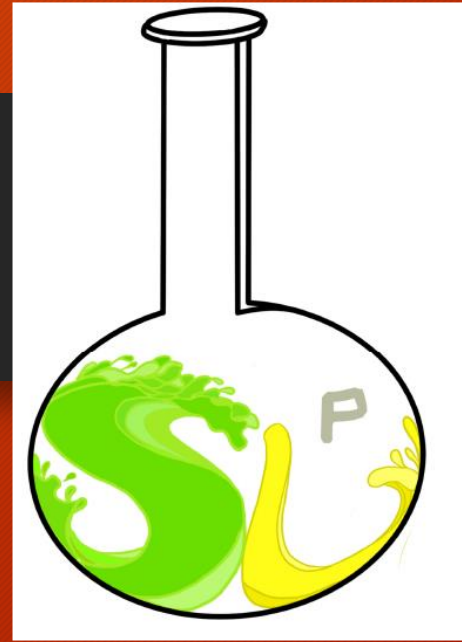
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# Learning Outcomes

- Learn about the Scholars and Leaders Program (SLP), a comprehensive academic and leadership program to recruit and retain students who are historically underrepresented in STEM majors and careers.
- Learn about the impact of leadership training and opportunities on Scholars' self-efficacy in STEM education and as future leaders in STEM careers.

# Objectives of SLP

- Objective 1: Recruit and enroll academically talented, first-year biology/biochemistry students with financial need.
- Objective 2: Retain SLP scholars by enhancing academic and student support services
- Objective 3: Implement deliberate **leadership-development strategies** to better prepare SLP scholars for careers or graduate-level study.
- Objective 4: Institutionalize the curricular and support practices that have the most impact on success in the biology or biochemistry major.



# Four components of SLP to foster leadership and self-efficacy

Formal Leadership  
Skill Building

Leadership Building  
Activities

Faculty and Peer  
Mentoring

Family  
connections

# Formal and Informal SLP Practices/Activities

- LEAD 101 Introduction to Leadership (2019-2020)
- Mentoring by senior biology or biochemistry students (2019-2020)
- Plan and lead workshops for FY biology/biochemistry majors on study strategies, advising, and imposter syndrome (ongoing)
- Develop and lead High School Connections Program (ongoing)
- SLP Family Celebration (virtual in 2021, in-person in 2022 & 2023)
- Travel money for students to present research or explore career opportunities (current emphasis)

# Leadership Study Design

*Does providing leadership training and opportunities to biology and biochemistry majors lead to greater academic motivation, self-efficacy in their major, perception of leadership ability, and willingness to assume leadership roles?*

Recruitment of Scholars and matched Non-scholars - matched on major, year entered USF, self-reported gender and race/ethnicity, first-generation status

- Cohort 1 - enrolled at USF in 2019-2023 (Scholars n = 4, non-scholars n = 4)
- Cohort 2 - enrolled at USF in 2020-2024 (Scholars n = 3, non-scholars n = 3)

# Leadership Study Design (continued)

## PRE-Survey - when entered program

- Past and present leadership experiences
- Academic Motivation Scale (Blaich & Wise, 2010)
- Major Self-efficacy Scale (Yoon & Sorby, 2020)
- Leadership Self-efficacy Scale (Bobbio & Manganelli, 2009)
- Demographics

## Leadership Activity Survey - annually in spring

## POST-Survey and Exit Interview - when graduated

# Results for Cohort 1: Quantitative data

## Pre-survey

**Scholars = Non-scholars** on all measures

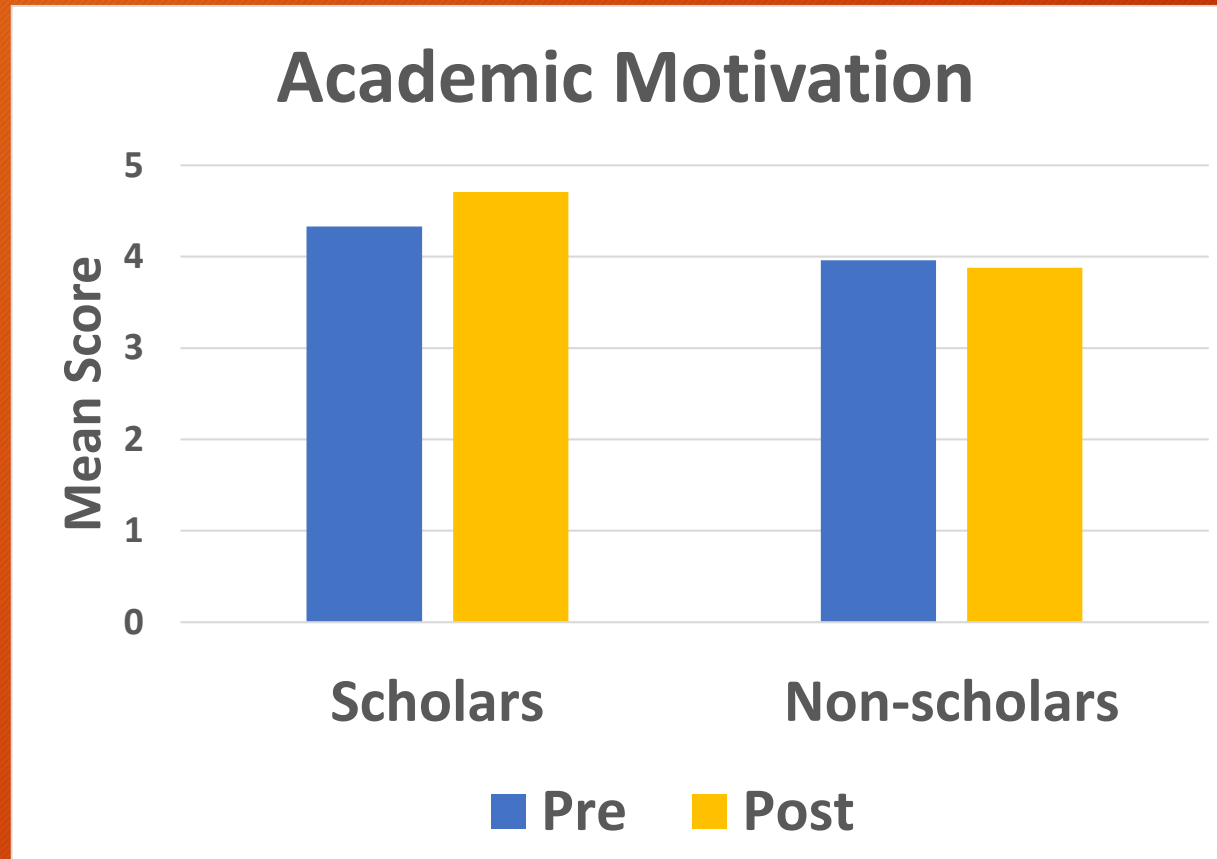
- academic motivation
- self-efficacy in major
- leadership self-efficacy
- leadership experience

## Post-survey

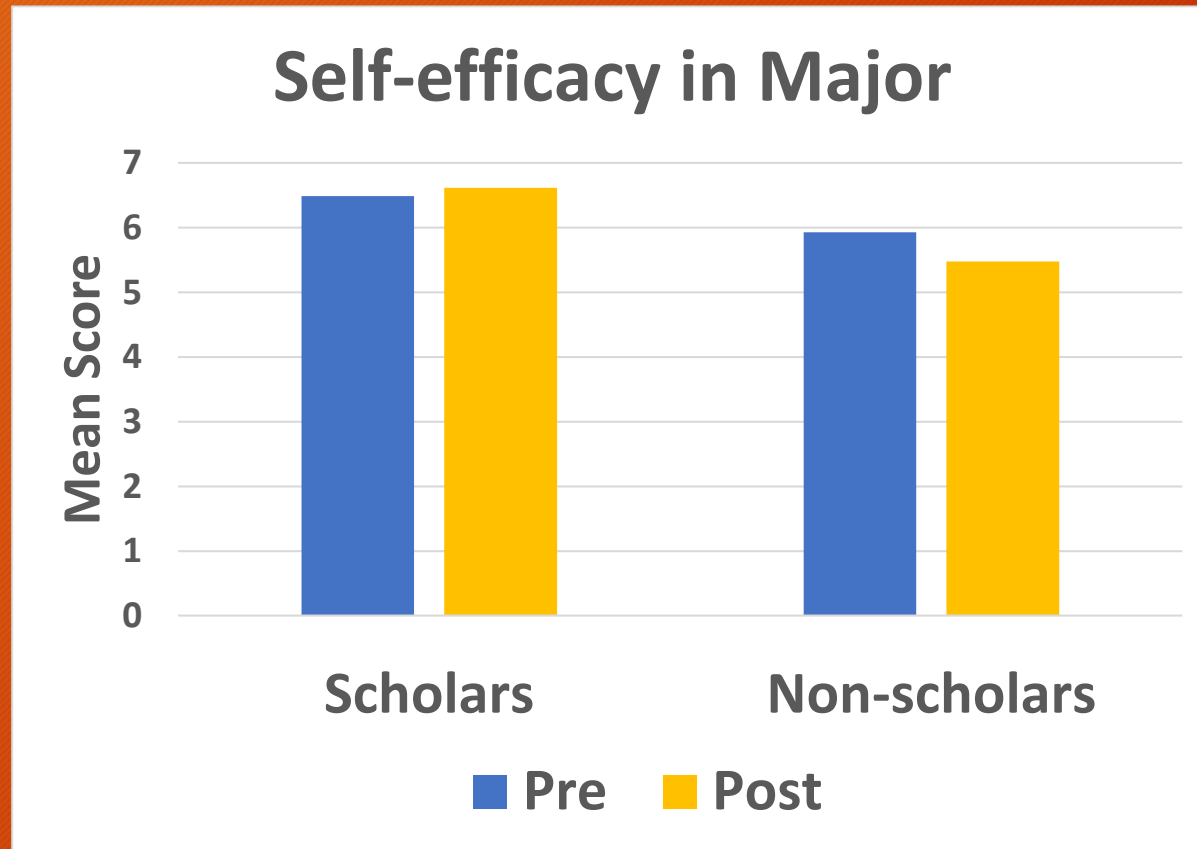
**Scholars > Non-scholars** on 3 of 4 measures



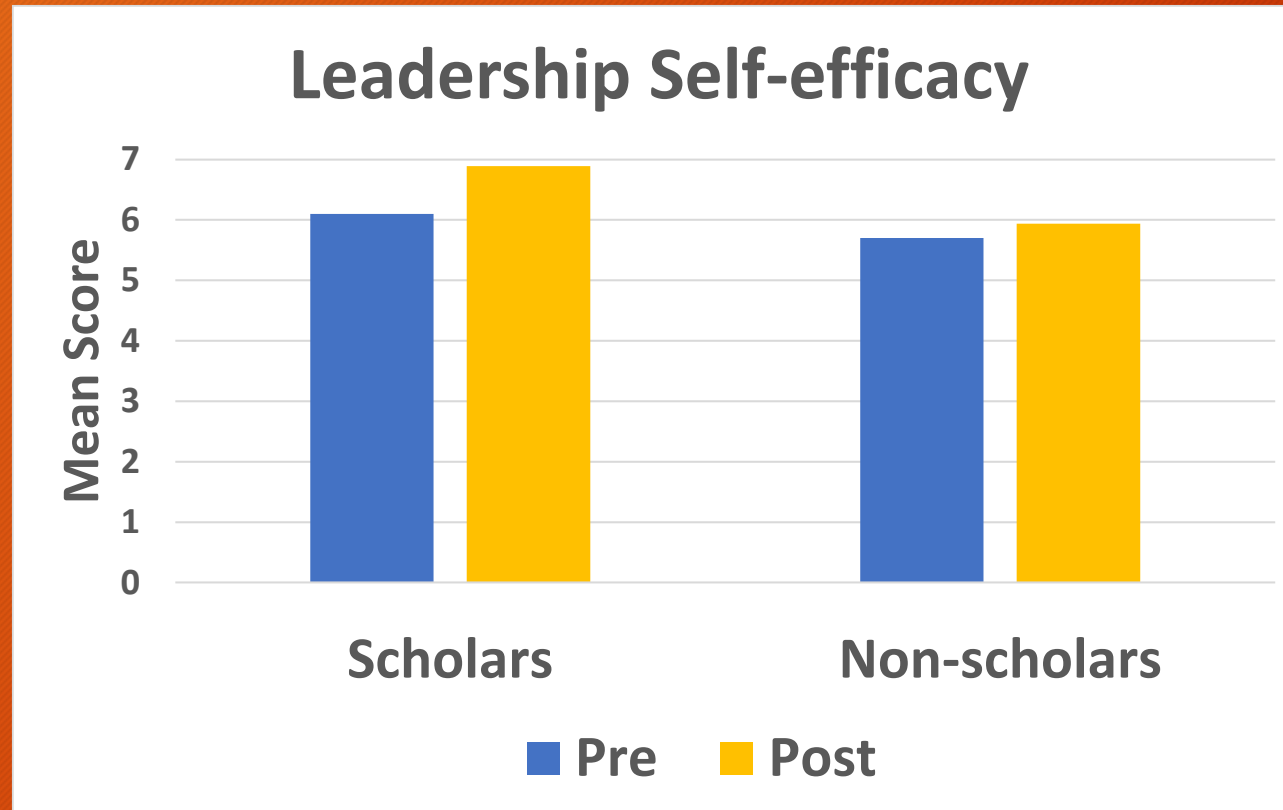
# Results for Cohort 1: Academic Motivation



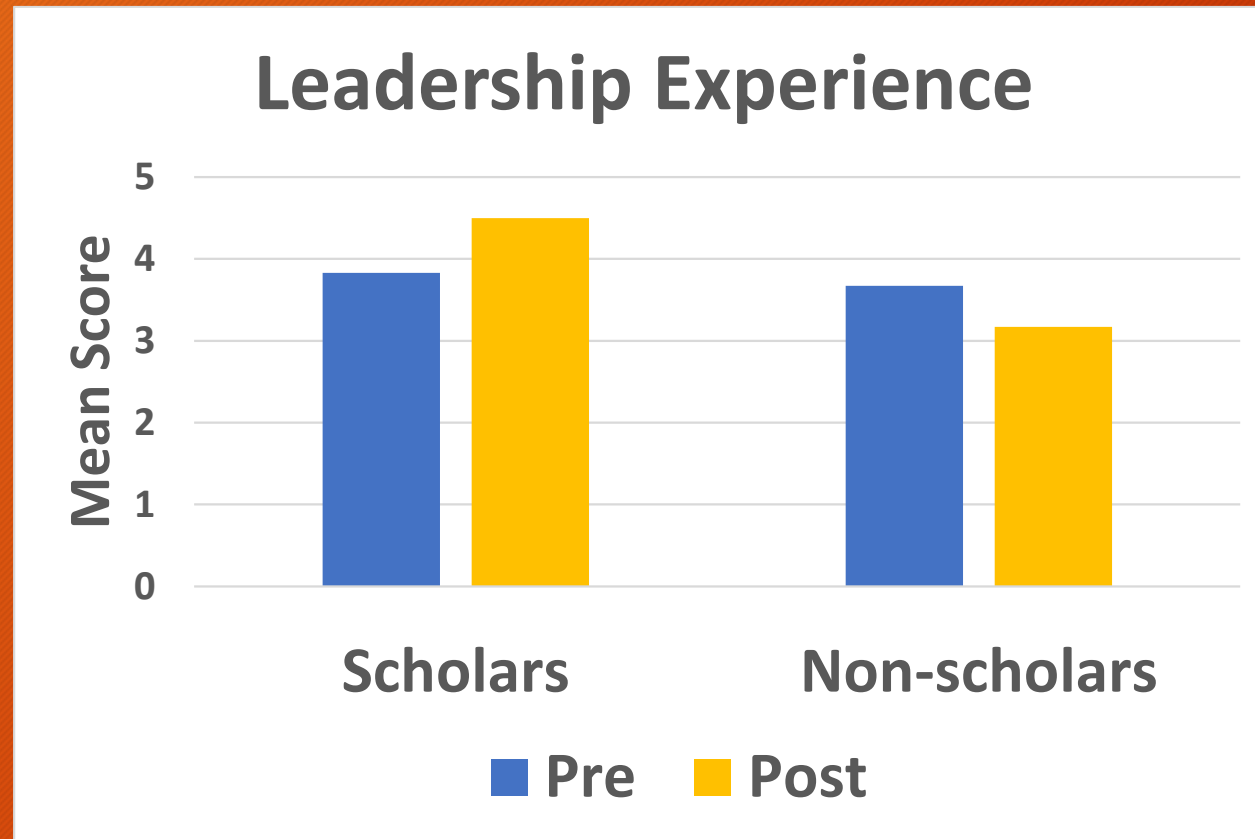
# Results for Cohort 1: Self-efficacy in Major



# Results for Cohort 1: Leadership Self-efficacy



# Results for Cohort 1: Leadership Experience



# Results for Cohort 1: Qualitative data

Scholar comments on LEAD 101 (Leadership Activity Surveys):

*In what ways has this course helped you see yourself as a leader? Are you more likely to pursue leadership activities after taking LEAD 101?*

- “I am minoring in Leadership Studies and would be taking leadership courses to further solidify my skills and knowledge. I see myself as a leader in programs in graduate school and in my future career.”
- “I definitely feel more confident in going out of my comfort zone and applying for leadership positions in organizations rather than just as a participant.”
- “I see the knowledge I learned in LEAD 101 making me feel more comfortable taking on leadership roles, especially in the workplace and after I graduate.”
- “In the future, I think that it would be a great opportunity to be a mentor for someone else because I would be able to help them and still learn more myself. At work, I also hope to seek more leadership activities such as being the lead CNA on the floor.”

# Discussion: Program and Study Challenges

**Recruitment** - do not have a full allotment of 12 scholars - some difficulty finding academically talented students, interested in STEM careers, with financial need

**Retention** - lost two scholars from first cohort to major change, and two from second cohort to grades and transfer, respectively

**High school outreach program** - intended to start in 2020-2021 - delayed due to COVID and change in targeted high school

**Travel money to support students** - delayed due to COVID and lack of scholars involved in research

## Discussion: How we plan to use the data

- To determine what effective leadership training and experiences to offer STEM students at the University of St. Francis
- To incorporate leadership training and experiences in other existing STEM scholarship programs

# References

Blaich, C., & Wise, K. (2010). Wabash National Study of Liberal Arts Education 2006-2009: Overview of findings from the first year. *Wabash College Center of Inquiry*

Yoon, S. Y., & Sorby, S. A. (2020). Rescaling the longitudinal assessment of engineering self-efficacy v3. 0 for undergraduate engineering students. *Journal of Psychoeducational Assessment, 38(2)*, 209-221.

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