

Background

Undergraduate research provides students with the opportunity to authentically engage in a professional and established scientific process¹. Students who participate in experiential learning through contributions to off-campus projects were found to have enhanced communication, intrapersonal skills, leadership, self-efficacy and more compared to students who did not participate in such experiences². Off campus research experience can help better prepare students for post graduate endeavors such as career attainment or continued education and it can also act as a pathway for minority students into science careers^{3,4}.

Project Aims

- Elucidate UMR students' emotional ownership in the SRS program compared to a traditional lab and course-based undergraduate research experience.
- Survey UMR students' overall satisfaction with the SRS experience.

Methods

Survey Instruments

Modified from Hanauer and Hatful, 2015⁵ & Lopatto, 2004⁴

Participants

Students enrolled in CLI 4394

Sample Size

n = 11

Data Analysis

Student responses were summed & visually depicted

Results

Emotional Ownership: UMR's SRS Experience compared to a Traditional Laboratory Experience & Course-Based Undergraduate Research Experience

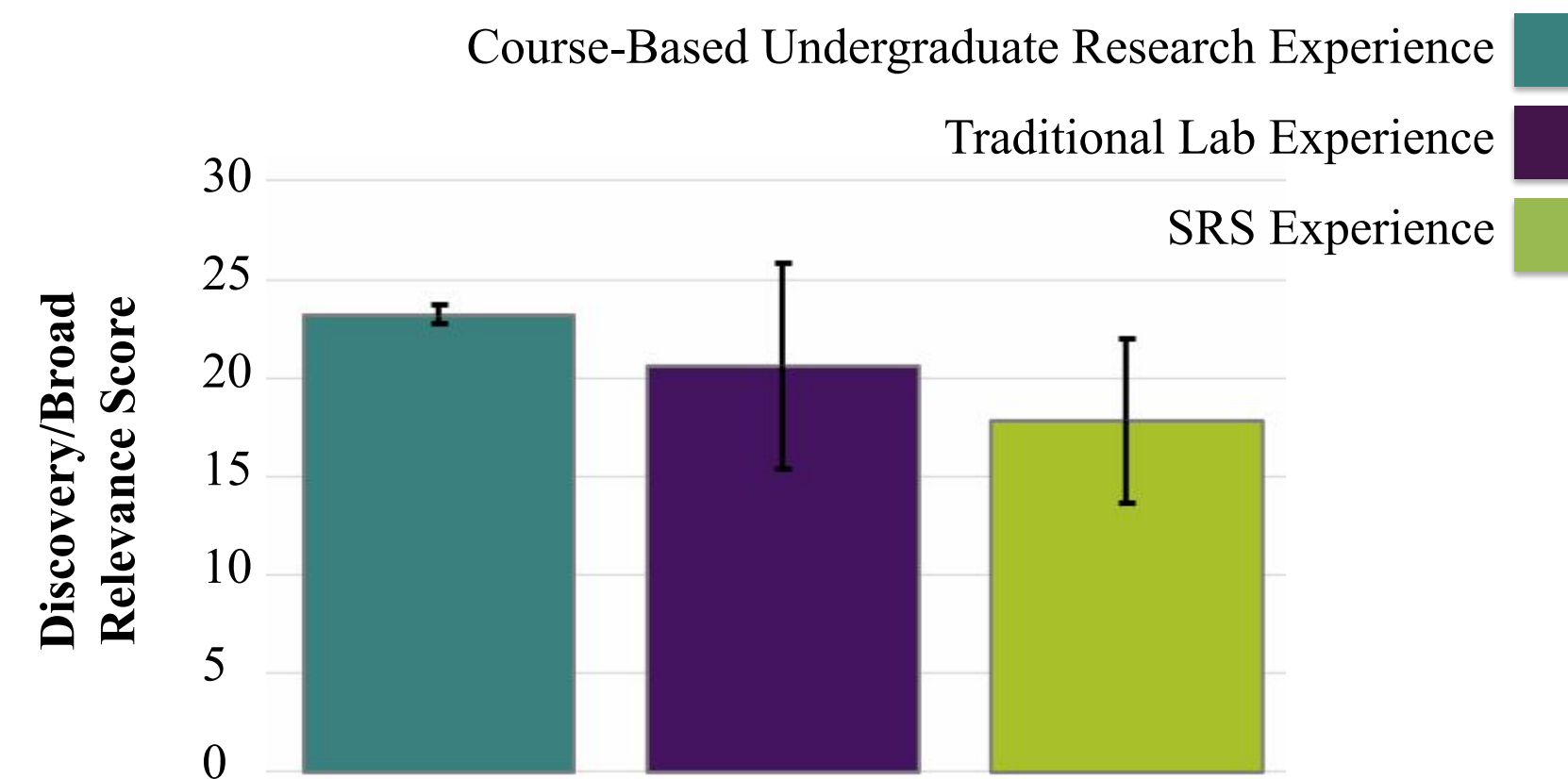


Figure 1. Comparing UMR's SRS experience to a CURE and traditional lab experience as reported within the University of Arizona on the Discovery/ Broad Relevance Score. A 5-point likert scale, with 1 being "strongly disagree" and 5 being "strongly agree" was employed. UMR n=11, CURE n=72, Traditional n=32. Error bars represent the samples' standard deviation.

UMR Students' Overall Satisfaction with the Off-Campus Research Experience

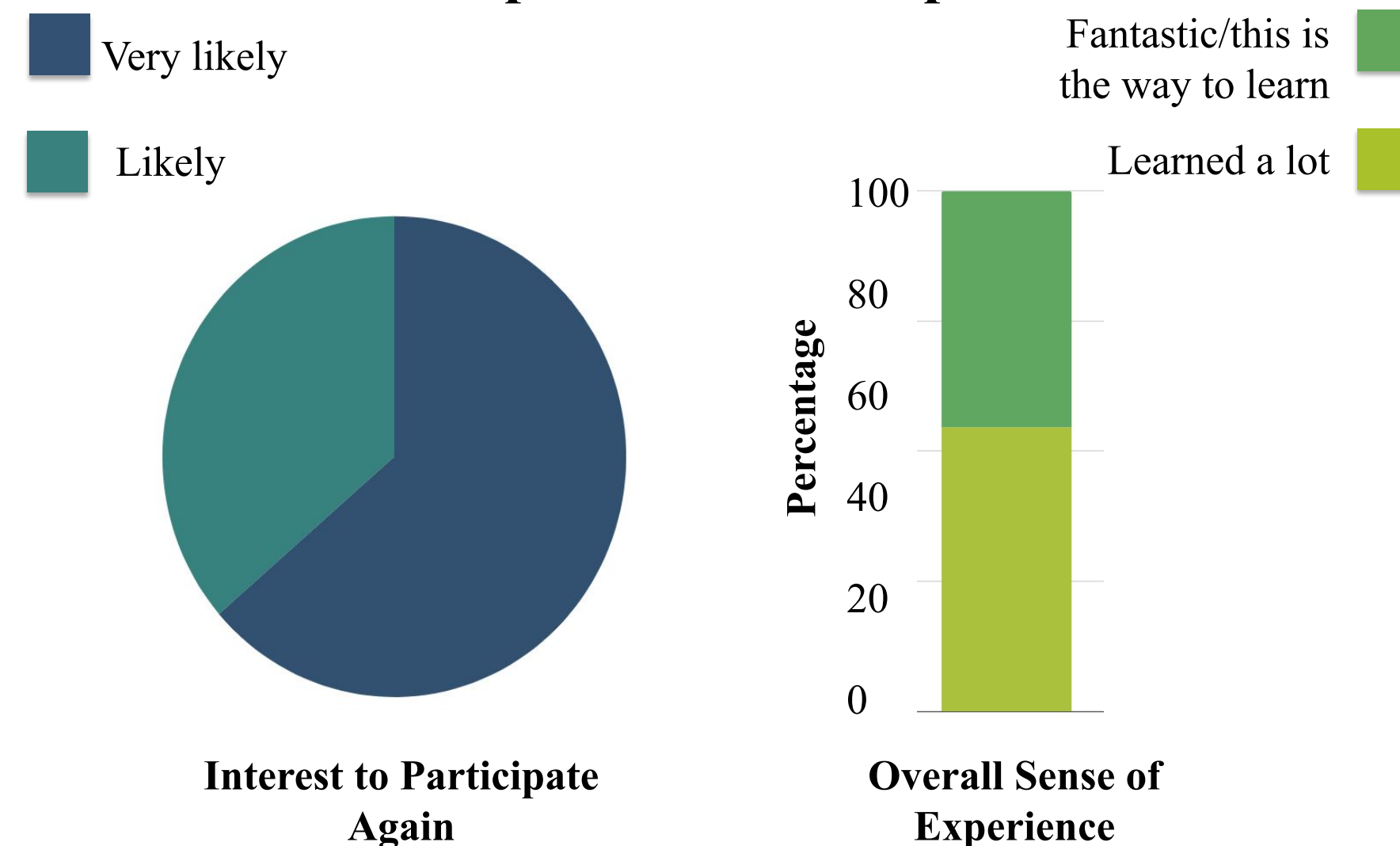


Figure 2. Student declaration of interest to participate in the SRS experience again (left) and overall sense of the experience (right). A 4-point likert scale [no, unlikely, likely and very likely] was employed to assess interest in participation. A 5-point likert scale [waste of time, didn't learn a lot, neutral, learned a lot, fantastic/this is the way to learn] was employed to assess sense of experience⁵.

Conclusions

Several students reported that they were able to participate in unexpected opportunities including but not limited to:

- Leading presentations
- Gaining admittance into future research programs
- Contributing to projects presented at conferences

When asked,

- 64% of students indicated they did not experience any unexpected issues within their SRS placement.
- 18% experienced transition in their lab supervisor/mentor due to various reasons

UMR students involved in the SRS program have greater emotional ownership than students contributing to research in a traditional lab and CURE

Final Thoughts

- Student research is a valuable experience; even when things do not proceed as expected.
- Invaluable skills are learned and practiced in the research setting that are advantageous in a wide variety of professional careers

References

- 1) Seymour, E., et.al. (2004). Science education, 88(4), 493-534.
- 2) Vaz, R., & Quinn, P. (2014). In 2014 IEEE Frontiers in Education Conference (FIE) Proceedings (pp. 1-5). IEEE.
- 3) Hathaway, R. S., et.al. (2002). Journal of College Student Development, 43(5), 614-631.
- 4) Lopatto D. (2004). Cell biology education, 3(4), 270-277.
- 5) Hanauer, D. & Hatful, G. (2015). CBE Life Sci Educ. 2015 Winter;14(4):ar38.