

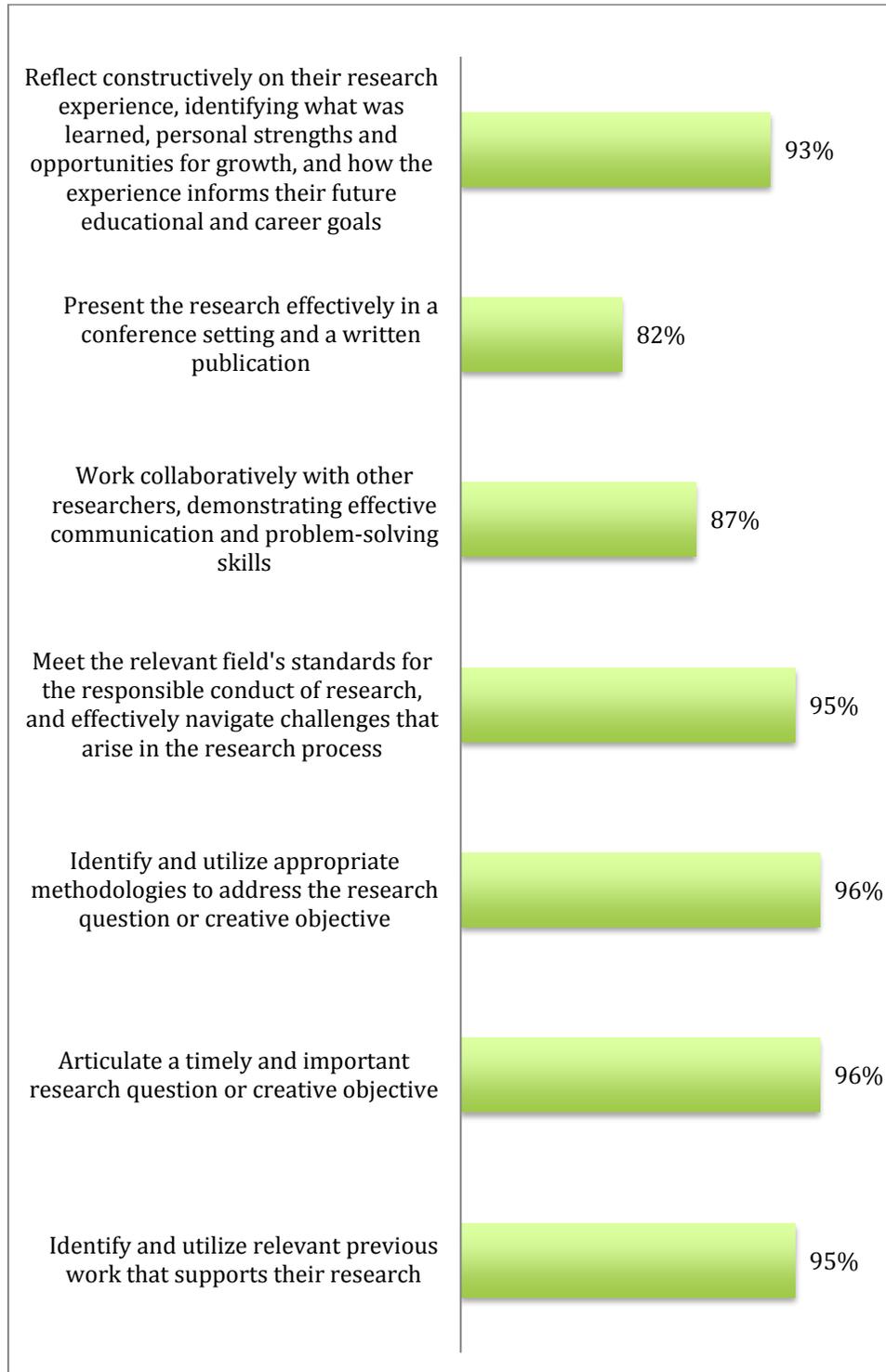
### **Undergraduate Research Learning Outcomes**

- Identify and utilize relevant previous work that supports their research
- Articulate a timely and important research question or creative objective
- Identify and utilize appropriate methodologies to address the research question or creative objective
- Meet the relevant field's standards for the responsible conduct of research, and effectively navigate challenges that arise in the research process
- Work collaboratively with other researchers, demonstrating effective communication and problem-solving skills
- Present the research effectively in a conference setting and a written publication
- Reflect constructively on their research experience, identifying what was learned, personal strengths and opportunities for growth, and how the experience informs their future educational and career goals

**Data collected thus far:** Summer 2015 UROP recipients assessed their UROP experience with respect to the above learning outcomes. They responded to the prompt “Indicate your agreement/disagreement with each of the following. In my opinion, my UROP experience has helped me to...”, with the following response options: Strongly Disagree, Disagree, Agree, Strongly Agree. The data collected included students in both their initial semester of UROP funding and the second (renewal) semester of UROP funding; due to a much smaller number of responses from second-semester students, here we present only the data from the first-semester students (n = 55; response rate of 81%).

*It is important to note that these learning objectives are designed for the entirety of a student's experience in undergraduate research, up to the point of graduation. For this reason, we do not expect high agreement rates for all objectives, in particular the objective concerning presentation and publication, as students are unlikely to have presented or published their work by the end of the first semester of UROP participation.*

The following presents the proportion of respondents who responded either “strongly agree” or “agree” by learning objective (n = 55).



**Observations so far:** Students tend to see their UROP experience as supporting the learning objectives. The lowest agreement score is associated with the presentation and publication objective. This is unsurprising, given that students normally are not ready to present or publish their work by the end of their first semester of UROP participation. On the other hand, that the score is so high (at 82%) may be due to the availability of Undergraduate Research Education events offered by our office on topics related to abstract writing, poster creation and presentation, etc.

**Limitations:** The most substantial limitation of this data is that it comes only from self-reports by students. Another limitation is that we have only thus far collected this data from UROP participants during a single semester, and due to the smaller number of responses from second-semester students, we report only data from first-semester students. A strength of the data is that because we have built this particular assessment into a required final report for UROP recipients, we have a very high response rate (81%).

**Next steps:** We continue to develop metrics for assessing undergraduate students' research experiences with respect to our learning outcomes. While self-report data provides valuable insight into students' perceptions, we are currently developing additional ways of assessing student achievement in undergraduate research.