Students as Scholars Initiative

Longitudinal Assessment of Student Learning Outcomes

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National Academies of Sciences, Engineering, and Medicine Study on Strengthening Research Experiences for Undergraduate STEM Students

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George Mason University

- 33,000 total students, more than 20,000 undergraduates
- 198 degree programs at 3 distributed campuses, 75 undergraduate degree programs
- Diverse student population
- Undergraduate research was adopted as our Quality Enhancement Plan (QEP) initiative

Students as Scholars at Mason

Students as Scholars prepares students for the world through undergraduate research and creative activities.

We foster a culture of student scholarship through increased participation in, and celebration of, undergraduate scholarly activities.

Student learning is enhanced through a process of scholarly inquiry, where scholarship is valued as core practice of the Mason learning experience.

Primary Activities

Scholarship Development Grants – Courses, Curricula, and Projects	Federal Work-Study Research Assistantships
Research & Scholarship Intensive courses	Undergraduate Research Scholars Program (URSP)
Faculty Development and Support	Undergraduate Student Travel Fund (USTF)
Mason Celebrations of Student Scholarship	

Who Participates?

	BASIC PARTICIPANTS	INTENSIVE PARTICIPANTS
Academic Year 12-13	7,301	701
Academic Year 13-14	7,745	983
Academic Year 14-15	8,672	1,035
Since Fall 2012	17,655	2,625

- Basic Participants: Students participating in any OSCAR course or activity
- Intensive Participants: Students participating in RS courses, URSP, and USTF
- Unique Participants: Students are counted the first time they participate in an activity; determined for each analysis
  - About 35% of URSP students participate more than once
  - About 4% of RS students take a second RS course (often repeats)

Student Learning Outcomes

Universal Student Learning Outcome

- **Students will discover how they can engage in the process of scholarship**

Discovery of Scholarship

- Understand how knowledge is generated and disseminated through scholarship, and the importance of scholarship to society

Scholarly Inquiry

- Articulate a scholarly question; engage in key elements of the scholarly process; and situate the concepts, practices, or results of scholarship within a broader context

Creation of Scholarship

- Create an original scholarly or creative project
- Communicate knowledge from an original scholarly or creative project

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Learning Outcomes Assessment

Guided by the *Students as Scholars* program rubric

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Mason's Program Rubric

- Developed by faculty
- Levels of learning
- How it is used
  - Communicates the institution's expectations for programs, curriculum, and student learning
  - Guides assessment strategies for different levels
    - Development of survey instruments
    - Assessment of research courses
    - Collective student work

Rubrics for Program Development

- Rubrics for program planning and development gives structure to your program and expectations for performance (and resources)
  - By achieving consensus on criteria, program stakeholders have a shared vision and goals
  - The levels of quality can help us reflect on the progress of the program in meeting its goals
- A program rubric can define what it looks like to meet your program outcomes

Multiple Modes of Assessment

- Student Voices
  - Participation data
  - Assessment surveys
  - Interviews and focus groups
- Faculty and Curriculum Review
  - Course and curriculum assessment
  - Faculty evaluation of student work
  - Annual assessment reporting and academic program review

Survey Assessment

Using institutional and program surveys for longitudinal assessment

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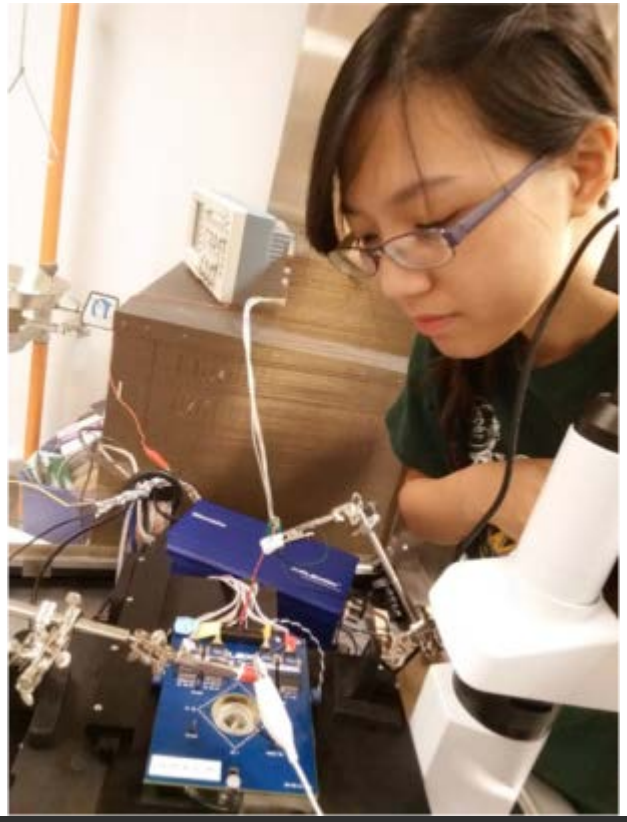
Coordinated Surveys

- Students self-report on learning, attitudes, goals, and satisfaction items
  - Coordinated items on institutional surveys
  - OSCAR Student Survey
- Responses are tracked by student identification number
- Multiple data points allow for
  - tracking student responses over time
  - identifying retrospective comparison groups



OSCAR Student Survey

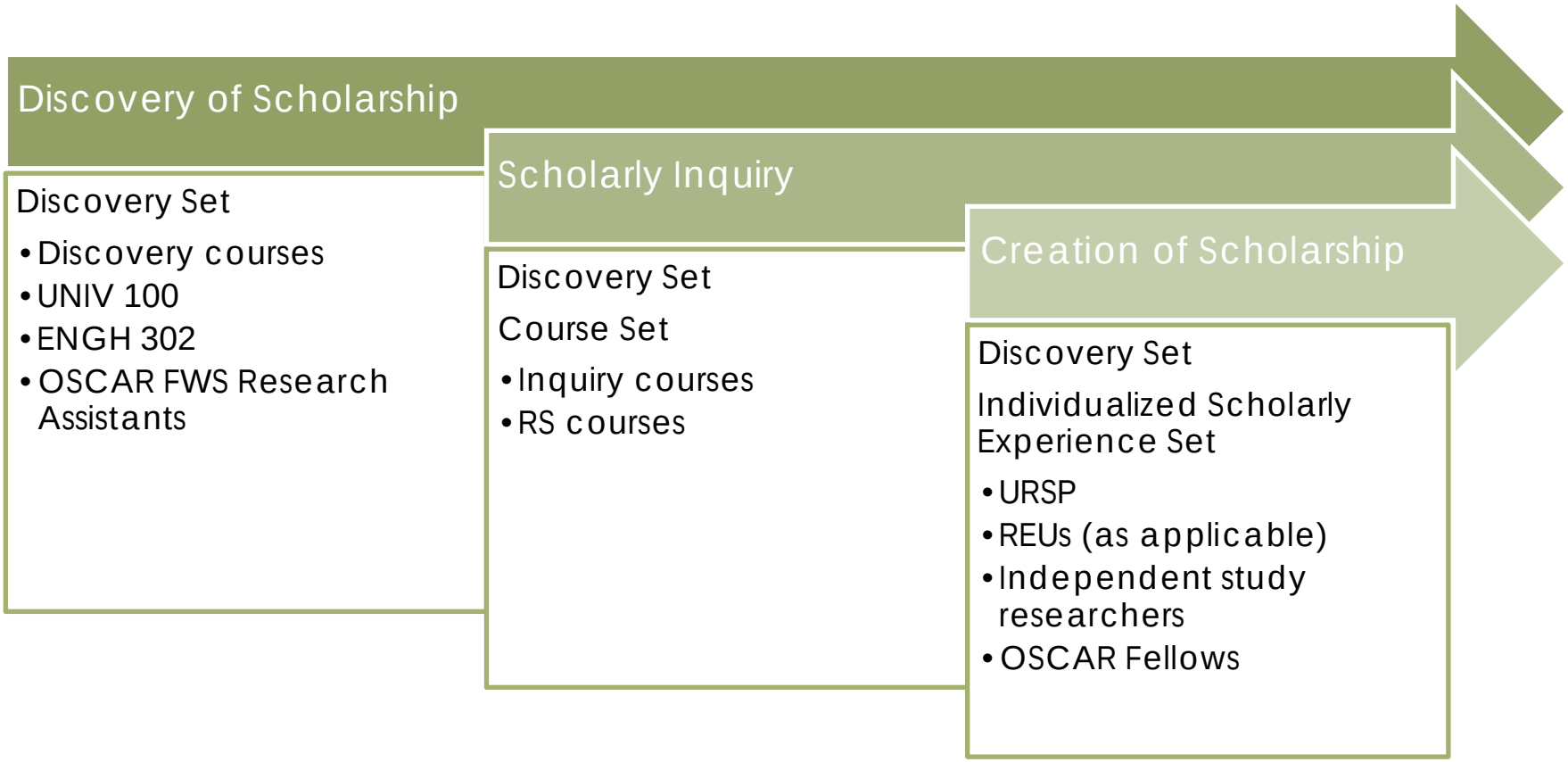
Survey Purposes & Development

- Purposes
  - Assessment of program and student learning outcomes
  - Understand bigger questions about the impact of undergraduate research on student development
- Development
  - Locally developed, based on existing institutional surveys, scholarly literature, and *Student as Scholars* outcomes
  - Pilot tested in two phases
  - Collaboration between *Students as Scholars* and Office of Institutional Assessment

Survey Design & Measurement

- Design
  - Longitudinal collection of student responses with retrospective comparison study
  - 3-part design corresponds to *Students as Scholars* outcomes
- Measurement
  - Attitudes and opinions about research and creative activities
  - Goals and plans for the future
  - Opportunities and motivation for undergraduate research
  - Learning: knowledge and skills; personal development
  - The research experience

Survey Design & Administration



Selected Results

Fall 2012-Spring 2015

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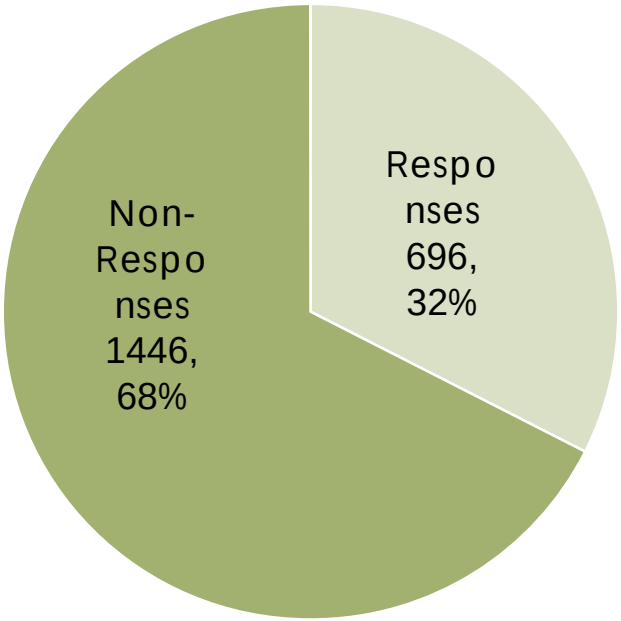
Comparing Programs

- Three years of participation and survey data:
  - Fall 2012 - Spring 2013
  - Summer 2013 – Spring 2014
  - Summer 2014 – Spring 2015
- Data comparison for two programs:
  - Undergraduate Research Scholars Program (URSP)
  - Research and Scholarship Intensive (RS) courses
- UNIV 100 (Fall 2012) for sample comparison

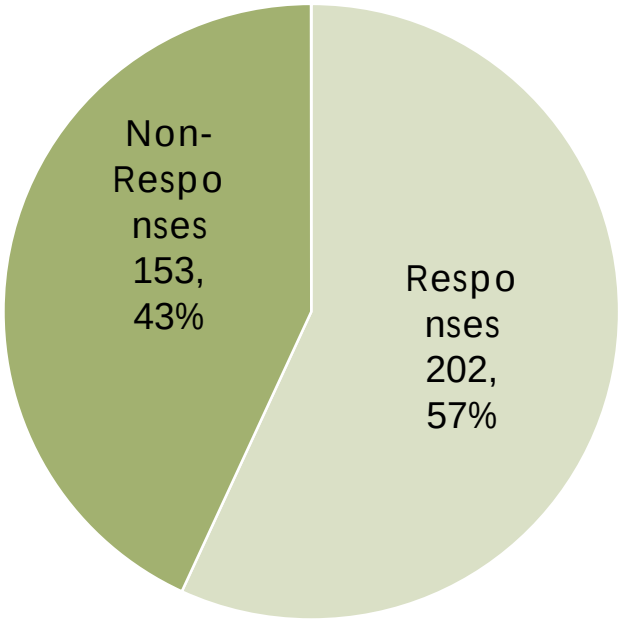
Response Rates

RS Courses



Unique participants, n = 2,142

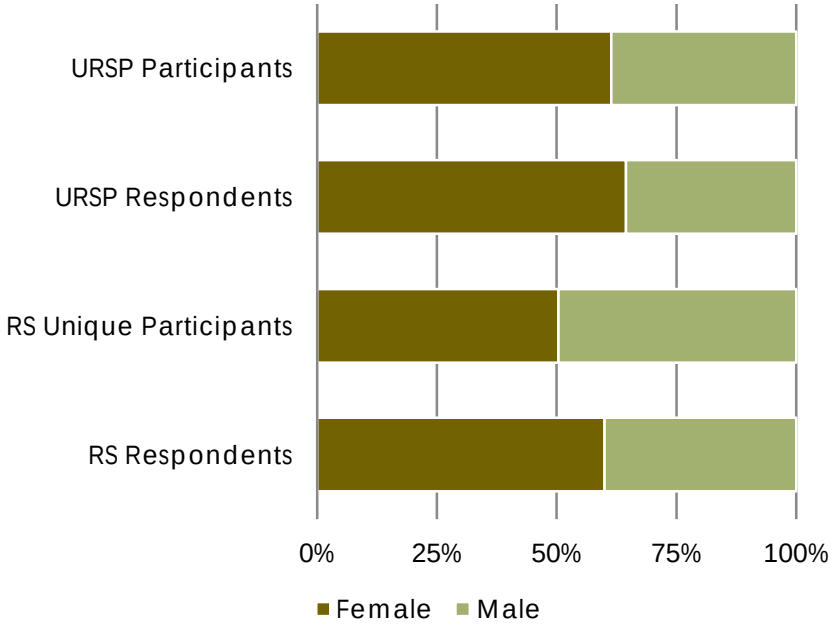
URSP Students



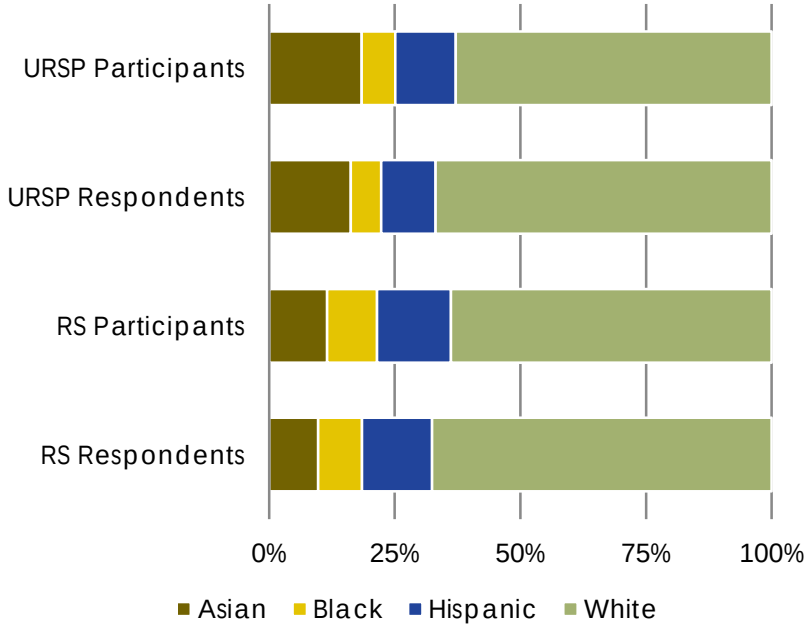
Unique participants, n = 355

The *Students as Scholars* Population

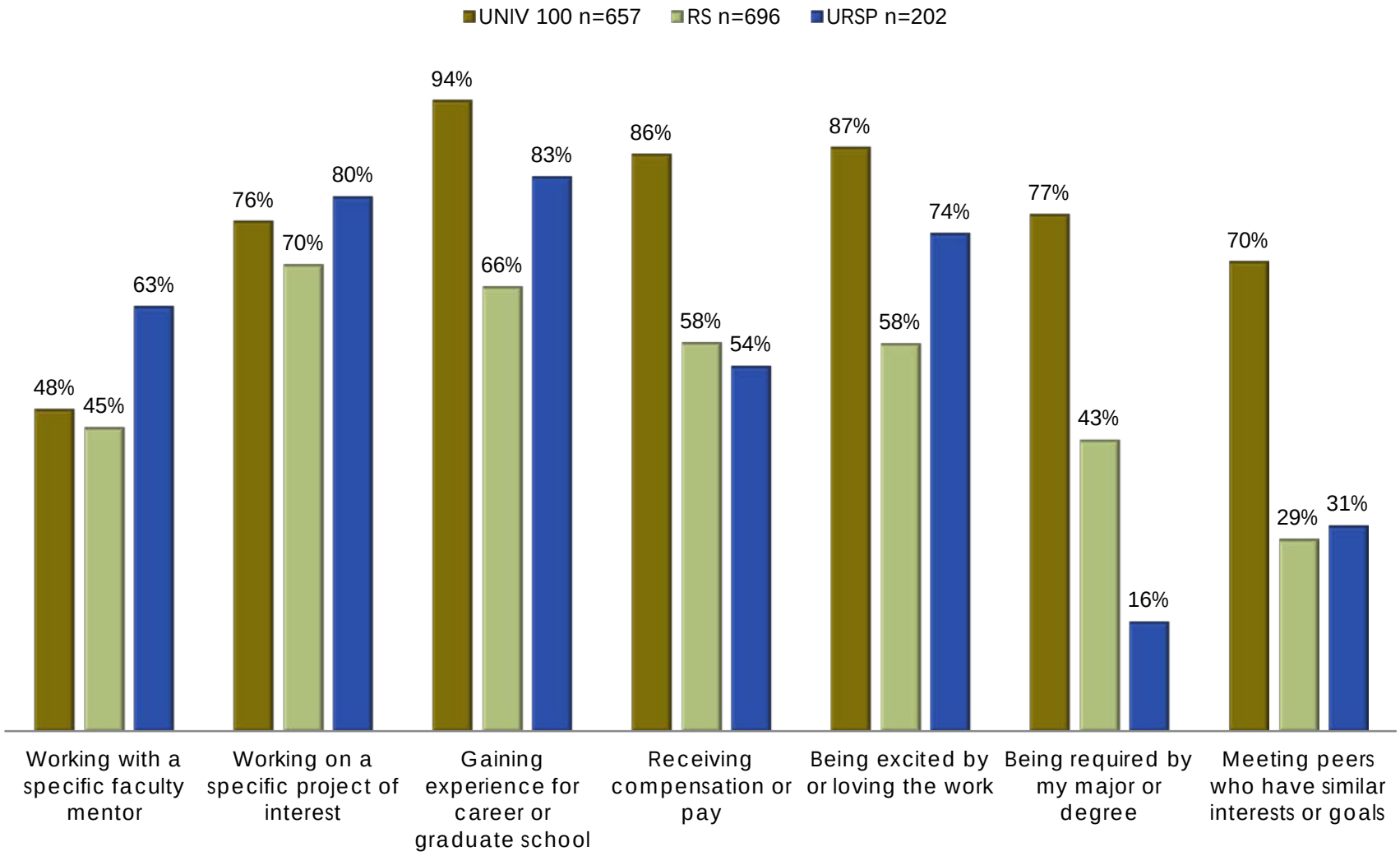
Sex Composition



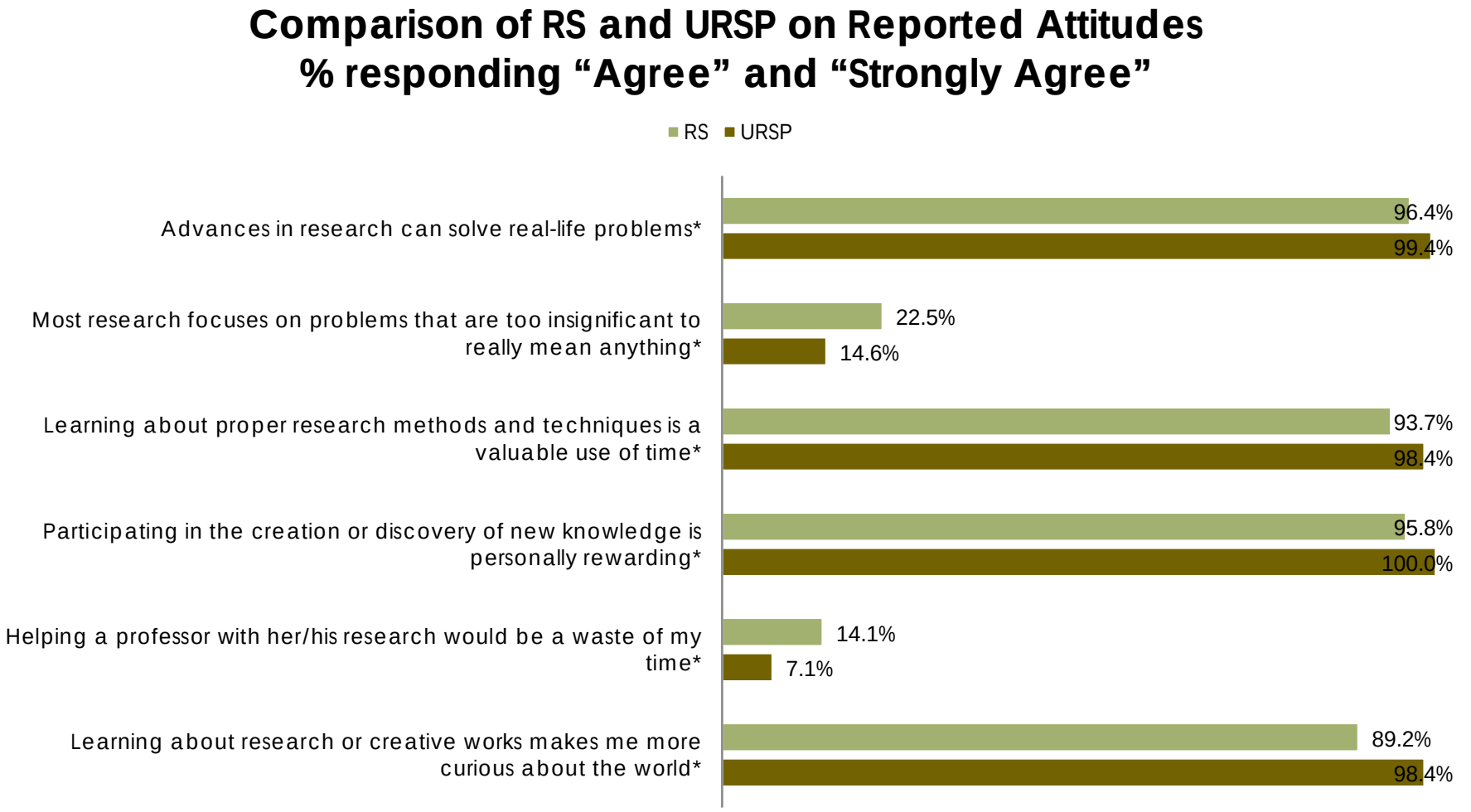
Racial Composition



Motivations: Comparing Groups

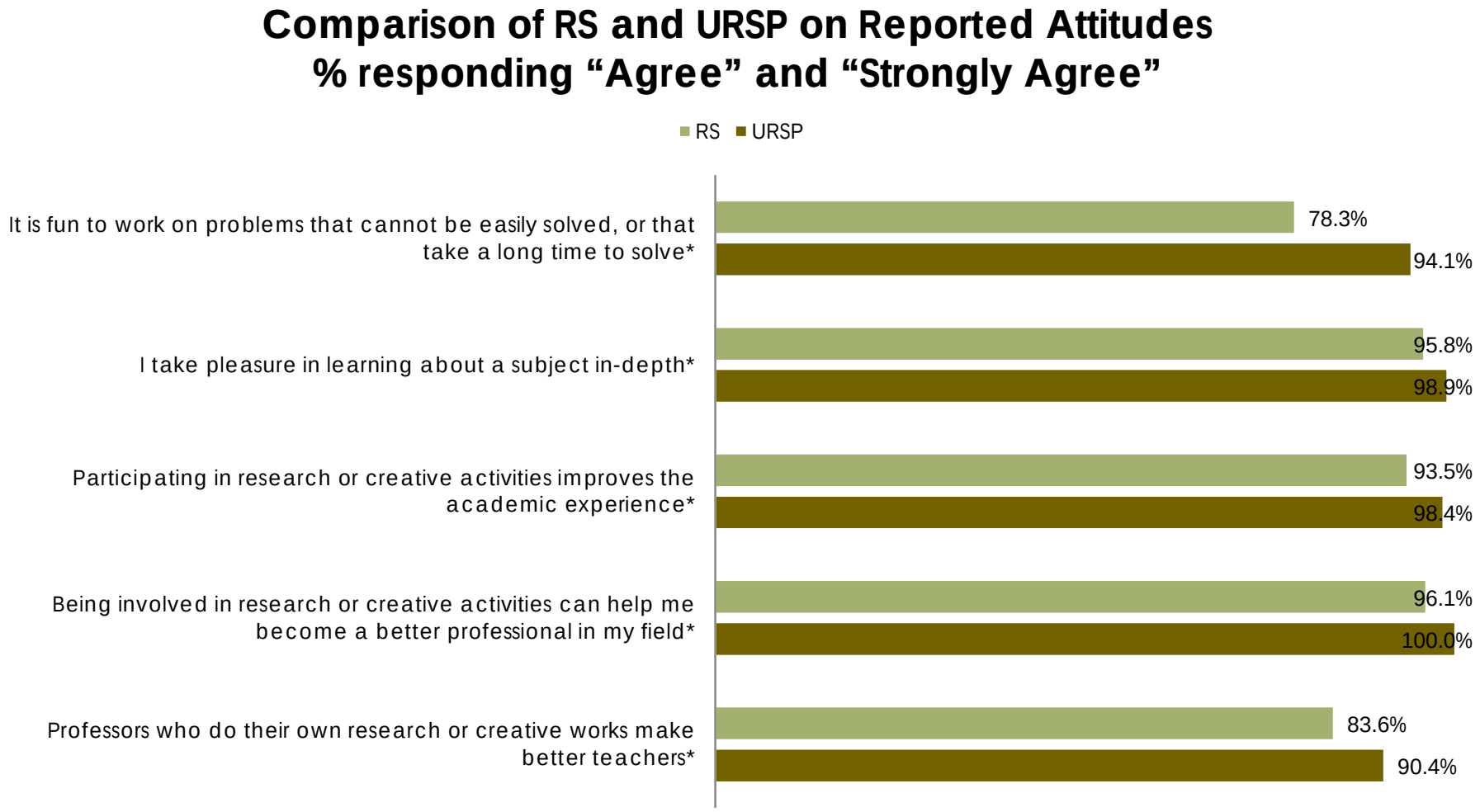


Attitudes about Research



* A chi-square test indicated that the differences between groups were significant, χ^2 (3, N = 853) $p < .01$

Attitudes about Research



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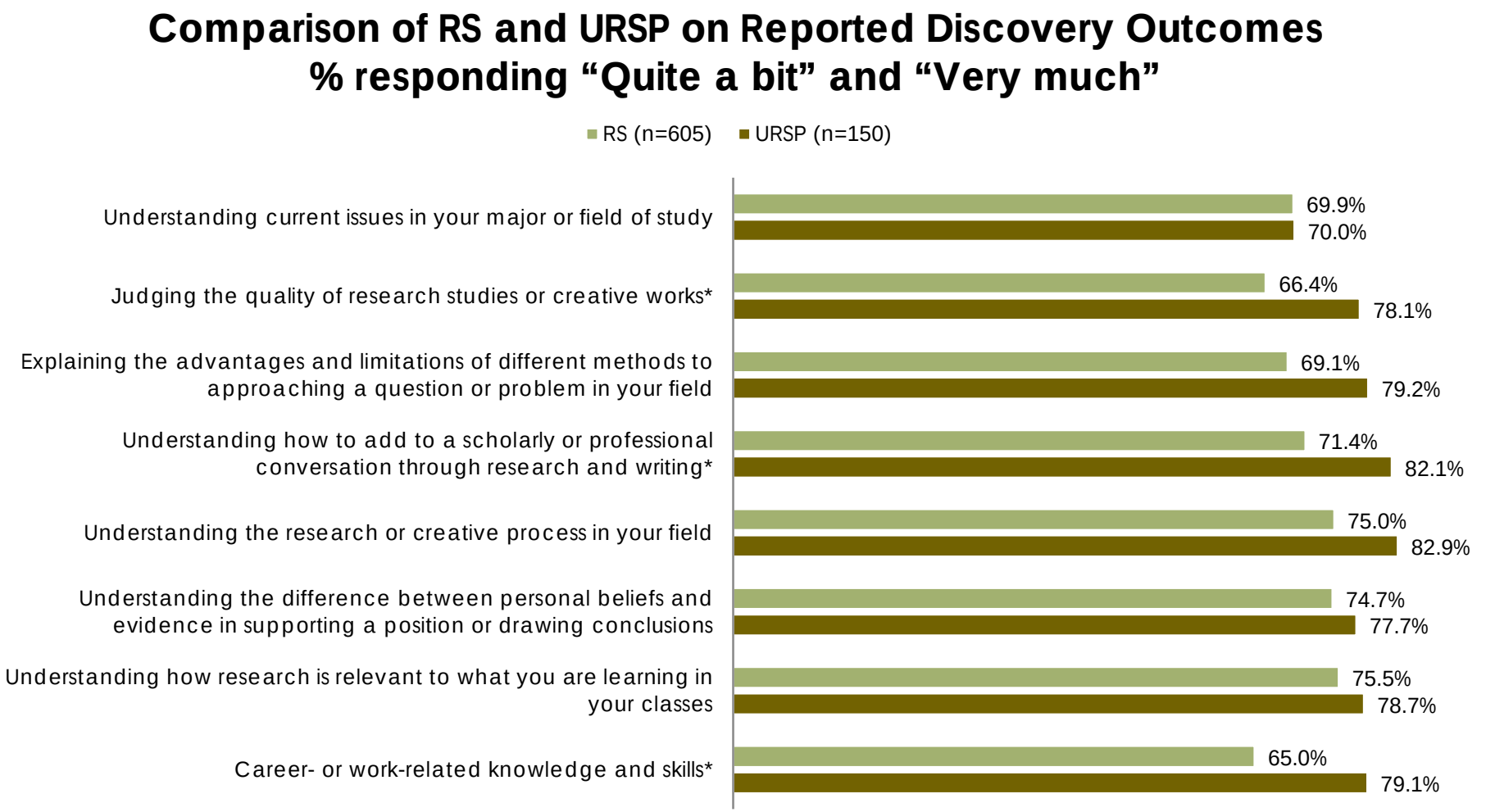
Learning Outcomes: Discovery



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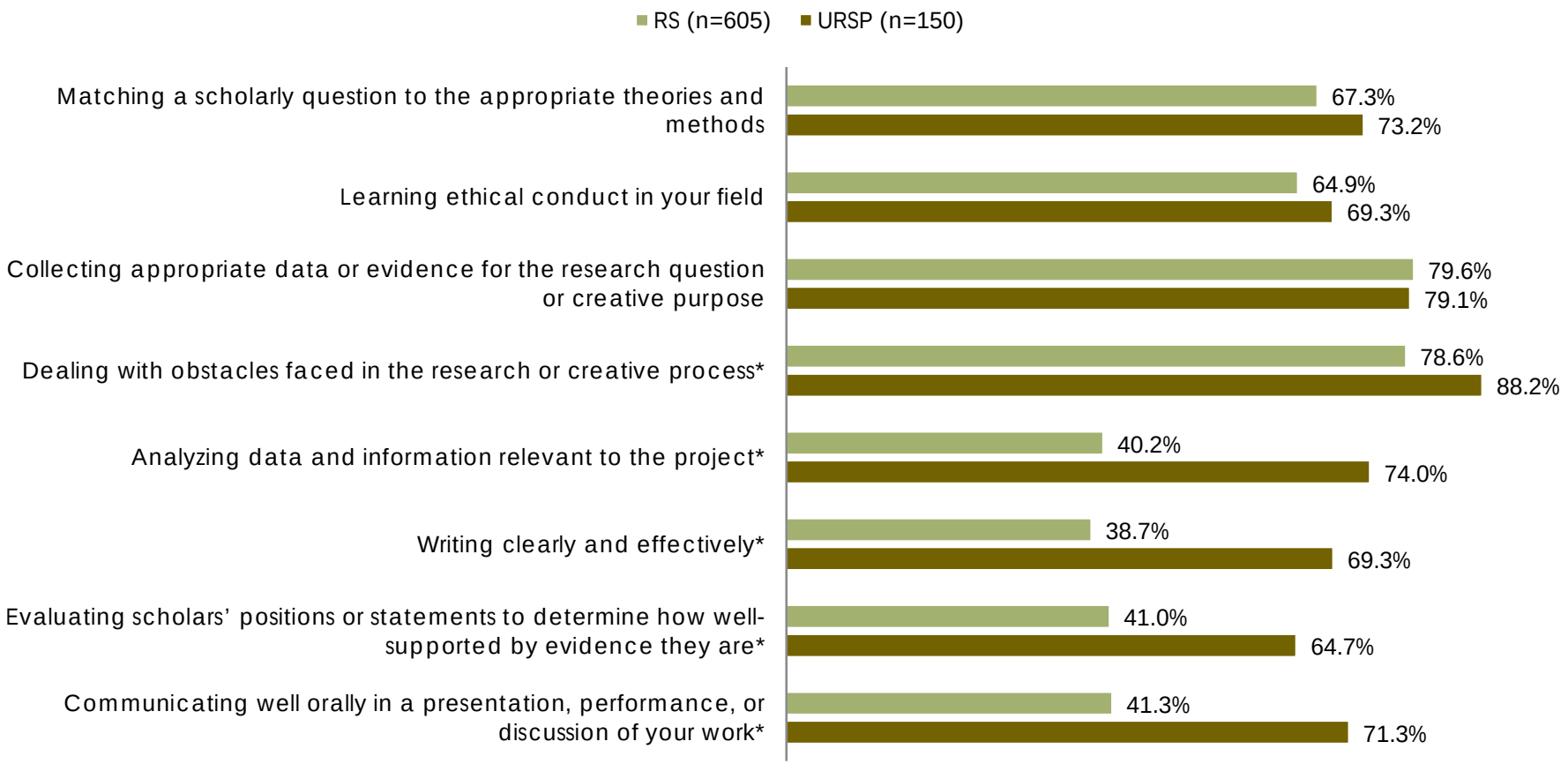
Learning Outcomes: Inquiry

Comparison of RS and URSP on Reported Inquiry Outcomes
% responding "Quite a bit" and "Very much"



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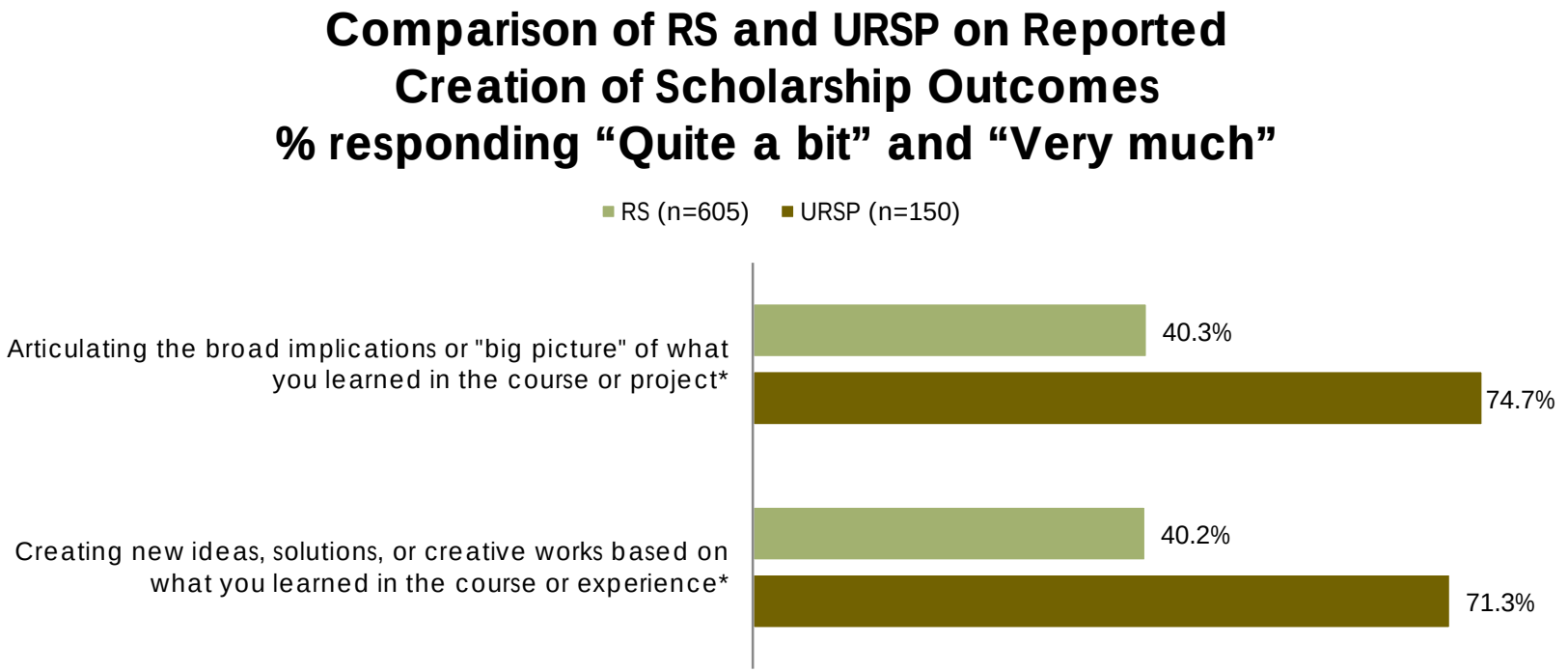
Learning Outcomes: Creation



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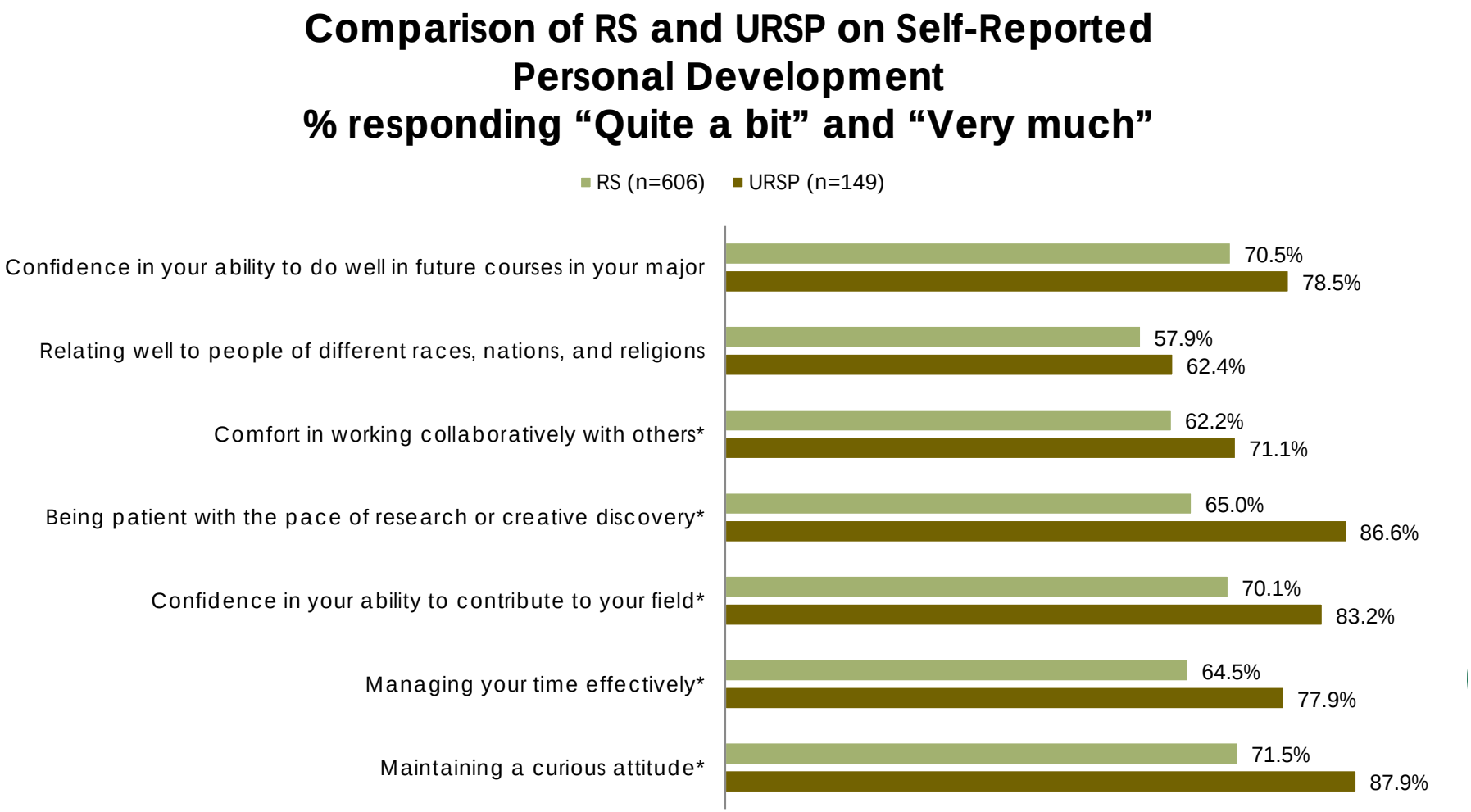
Personal Development



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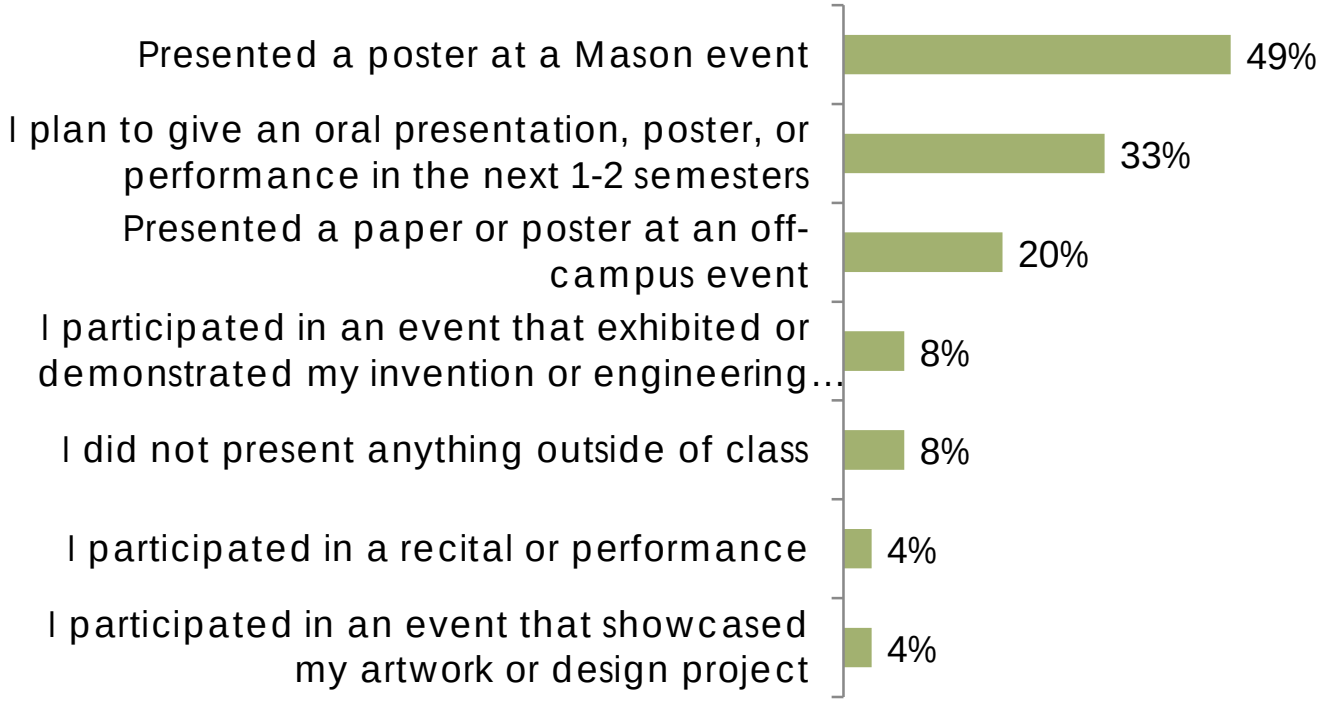
URSP Presentation of Research

While you were a student at Mason, did you present your research or creative project outside of class in any of the following ways? Check all that apply.
(n = 202)



Graduating Senior Survey AY14

- Graduating seniors who had done research or creative work reported a significantly higher level of satisfaction on the following four measures than those who had not:
  - Sense of Belonging
  - Overall Satisfaction
  - Education Received in the Major
  - Involvement in Campus Activities

Strengths of the Survey

- Locally developed and focuses on Mason's learning outcomes
- Provides formative assessment data for faculty and program staff
- Longitudinal assessment
  - Examines change over time
  - Ability to match with institutional surveys
- Broad student sample
  - General student population
  - Variety of courses and experiences

Limitations of Survey Assessment

- Ceiling effect for attitudes
  - Will there be enough variability to determine relationships?
- Causality versus maturation effects
- Response rates (39-43% each semester)limit true longitudinal analysis
- Limitations to institutional data
  - Multilingual students not identifiable
  - First generation students are not identifiable
- Shortened time and limited contact with transfer students

Qualitative Studies

Deepening our understanding of the student experience

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Student experience doing research

- History senior seminar focus group (2013)
  - Anxieties and fears about doing research, writing, and success
- URSP curiosity interview study (2014)
  - Curiosity is an essential element to participation in UR
  - UR contributes to developing competence, identity, purpose, and sense of connection or community
- Inquiry course case study (2015)
  - Students enjoy research but do not identify with research
  - Action contributes to making positive change
- RS course interviews (in progress)
  - How do students define and articulate their experience and learning? What meaning(s) do they make?

Future Directions & Questions

- Assessment of program effectiveness in reaching outcomes
- Improved integration of
- Working with faculty on using results to improve instruction
- Focused research
  - Immersion in scholarly inquiry and research experiences may improve socialization in the field (Thiry et al., 2011), which could have a particularly strong influence on first generation college students
  - Impact of institutional changes on faculty scholarship, and the resulting impact on the student experience
  - Improving access and experience for transfer students

Discussion and Questions

Assessment materials available at

assessment.gmu.edu

Students as Scholars

oscar.gmu.edu