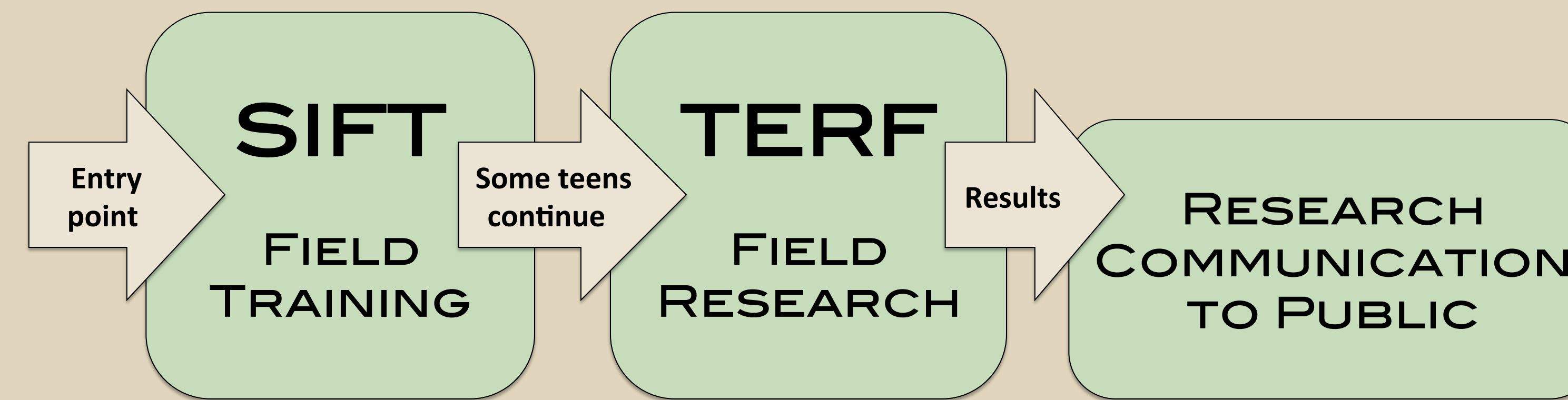


MAKING NATURAL CONNECTIONS: AN AUTHENTIC FIELD RESEARCH COLLABORATION

What does it take to support the interest of high school students in an environmental science research career?

The SIFT and TERF programs give St. Louis area high school students field skills, and then put those skills to use helping career scientists with real research.



SIFT PROGRAM SHAW INSTITUTE FOR FIELD TRAINING

Introductory field skills training program engages teens in scientific exploration of the natural world

- Five-day summer session with overnight at Shaw Nature Reserve
- Training in outdoor safety, biotic and abiotic measurement/observation, Missouri terrestrial and aquatic ecosystems, map and compass, GPS
- Saturday sessions in fall and spring, winter weekend with overnight
- Focus on collaboration, field skills acquisition, and science content
- Exposure to a variety of field projects and career field scientists

TERF PROGRAM TYSON ENVIRONMENTAL RESEARCH FELLOWSHIPS

More advanced field research internship program provides SIFT graduates with extended work experience on current research projects and training in scientific communication

- Four-week paid summer internship at Tyson Research Center
- Cultural apprenticeship in university-based research community
- Communication of research projects to high school classes and community audiences, design of research posters for public audiences



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National Science Foundation project DRL-0739874 provides a model for integration of informal science education into the research and restoration projects at biological field stations and nature reserves.

CHALLENGES

- Strategic recruitment to ensure a broad and diverse teen participant pool.
- Engagement of teen participants through both summer and academic year.
- Preparation for and execution of effective mentoring at all levels.
- Fostering a research community that is inclusive of younger students.
- Maintaining continuity during turnover of research community members.

TEEN PARTICIPANTS

Accepted participants come from a wide cross-section of the St. Louis, Missouri community including urban, suburban, and rural areas. As of fall 2014, seven cohorts have participated in SIFT and six cohorts have participated in TERF, for a total of 291 students from 64 separate high schools and homeschool.

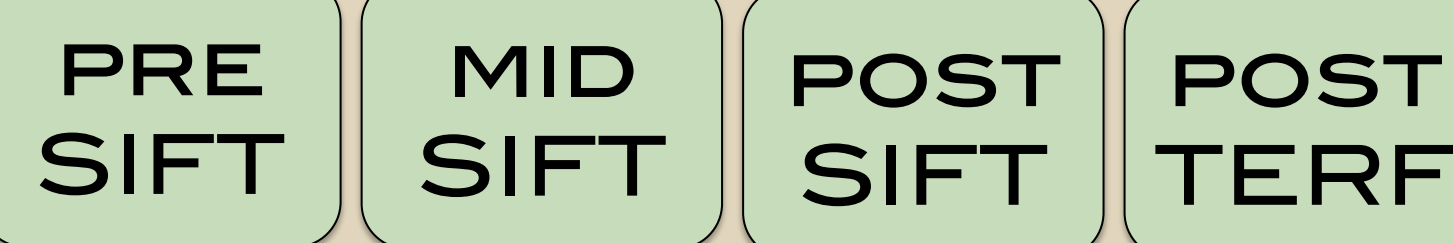


MENTORING SCIENTISTS

Participating researchers represent scientific careers at all levels, including near-peer undergraduate students, graduate students, post-doctoral researchers, technicians, staff scientists, and university faculty.

RESEARCH

Cohorts 1-4 were consented participants in a longitudinal research study including interviews, observations, and a repeated measures science career survey at four time points.



Career survey data analysis is underway on the following factors:

- Level of interest in environmental science activities
- Level of confidence in environmental science activities
- College degree steps
- Importance of career outcomes
- Level of agreement that environmental science degree will allow achievement of desired career outcomes
- Level of perceived barriers to pursuit of environmental science career
- Level of confidence in overcoming barriers to pursuit of environmental science career
- Pursuit of environmental career path

Figure 1. College majors

Teens who participated in both SIFT and TERF changed their minds about college majors from before participation in SIFT to during college, with an increase in the number of individuals choosing pursuit of environmental science (+11%).

Responding TERFers' college major choices
Pre SIFT to Actual, Cohorts 1-4 (N=70)

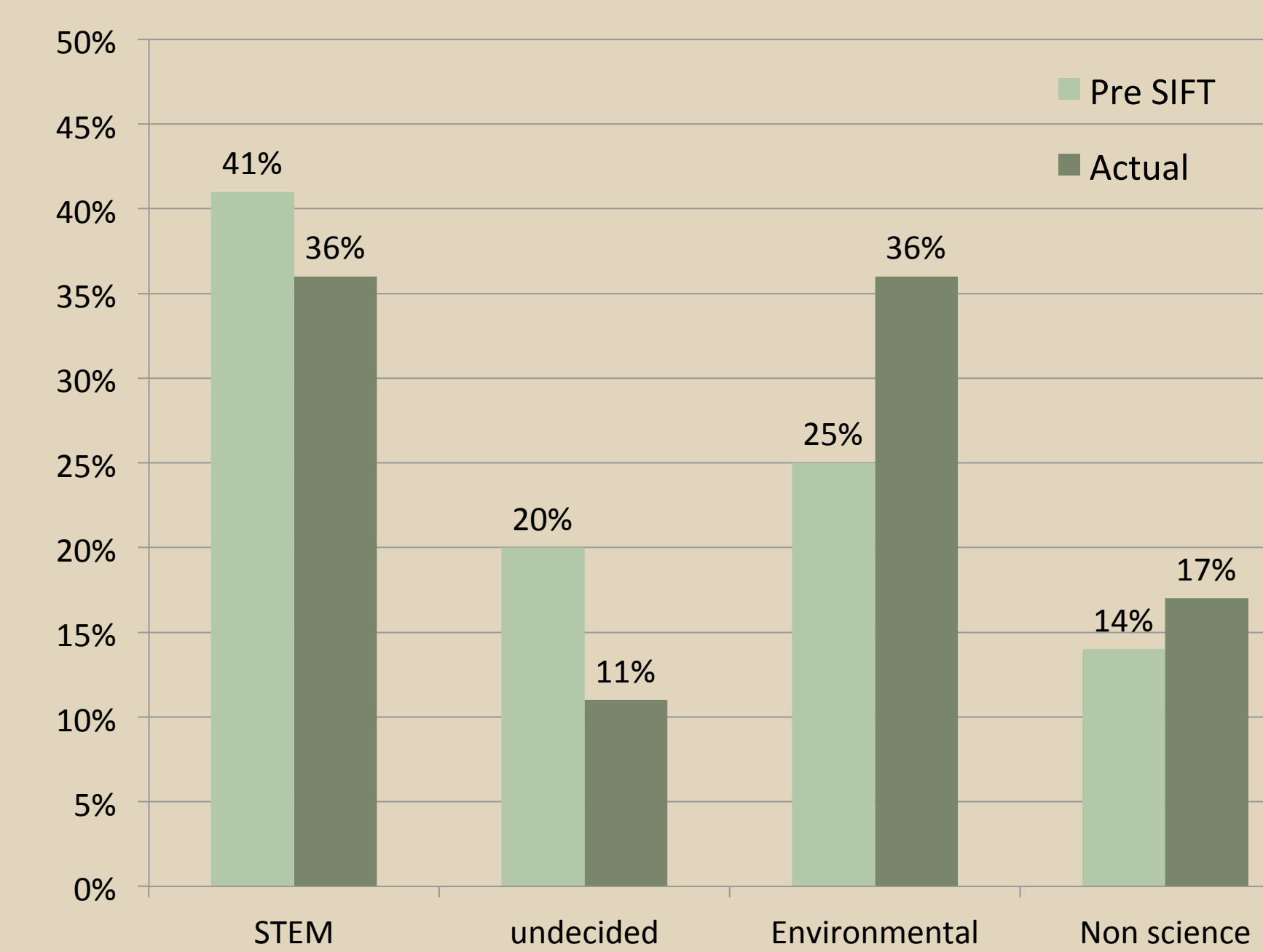


Figure 2. Program benefits

SIFTers and TERFers place different values on program benefits when looking back on their experiences, with TERFers valuing more career-oriented impacts. Both groups place high value on knowledge of environmental field research.

Rankings of top 3 benefits, 1-4 years later, Cohorts 1-4

