HHMI Internship Program 2013: Survey Analysis

Courtney Hoff
choff@umn.edu
Survey Information

• The data from the survey was downloaded on 5/28/2013
• This survey was administered on 5/13/2013

• 32 HHMI Interns Surveyed; 26 started the survey
  • 20 finished the entire survey (76.9% of the total)
  • 1 duplicate response was eliminated
• 25 Mentors Surveyed; 24 started the survey
  • 23 finished the survey (95.8% of the total)
  • No duplicate responses
Describing Scientists
Higher Affiliation to CBS than UMN

More HHMI Interns Feel Affiliated to CBS than the University of Minnesota as a Whole

- College of Biological Sciences: 65.22%
- University of Minnesota: 34.78%
95.65% of HHMI Interns reported that the College of Biological Sciences’ Research Reputation was “important” or “very important” in their decision to attend the University of Minnesota, College of Biological Sciences.

“Not important” was an option to select; however, no intern selected this option.
CORE SURVEY RESULTS

• The core survey is based on a variety of published works to better understand students’ attitudes and confidence toward science after an experience or critical time in their academic career.

• We also ask questions to gauge their professional identity with CBS and their ability to adapt and work with others.
Interns perceive a positive change in all categories.
Interns rate themselves more often as “excellent” in every category AFTER their HHMI Internship experience.
Mentor vs. Intern Perceived Progress

**Interns' Perceived Progress of Science Skill Set**

- Conduct research in a lab setting
- Work with others in a lab setting
- Think critically about problems
- Analyze data
- Read primary research literature
- Design my own experiments
- Present research orally
- Present research in writing
- Discuss scientific research with my peers
- Discuss scientific research with experts

**Mentors' Perceived Progress of Interns' Science Skill Set**

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Proud and Pleased to Attend CBS

Highest scores were for the statements, “I feel proud that I attend CBS,” and “I am pleased to be a part of the University of Minnesota.”

Lowest scores were for the negative statements, “I am reluctant to admit that I go to the University of Minnesota,” and “I try to hide that I attend CBS.”

The variation in responses were to the statements, “I have strong ties to CBS,” and “I have many things in common with other students in CBS.”

This survey question was taken from the Professional Identity Scale (Adams, et al., 2006), (Brown, et al., 1986), (Coster, et al., 2008).
Cognitive Flexibility

After the HHMI Internship, interns display high levels of cognitive flexibility. They “almost always” or “frequently” feel they can be themselves and feel confident trying different ways to interact with a group.

This survey question is based on the Cognitive Flexibility Scale (Adams et al., 2006; Martin & Rubin, 1995).
HHMI Interns have a strong understanding and perception of the importance of group work and being a team member.

This survey question is based upon the Team Scale (Adams et al., 2006; Rentsch, 1993).
Survey Respondents most often “Strongly Agree” or “Agree” that: science is valuable for society, getting personal satisfaction solving scientific problems, and that they will be able to use scientific thinking to solve problems.

Survey Respondents most often “Strongly Disagree” or “Disagree” that: creativity doesn’t play a role in science and that if an experiment shows something doesn’t work the experiment was a failure.

The statement that survey respondents were most often “not sure” about was: “Scientists don’t follow the scientific method in a straight line.”

This survey question was taken from the Survey of Undergraduate Research Experience (Lopatto, 2004).
Confidence in Science Literature

Confidence in Science Data and Design

There was a higher average influence rating of the program than the average confidence rating. However, as seen in previous slides, positive changes in confidence in science skills were seen.

Relationship With Mentor

These questions were to better understand the relationship between mentor and intern, the frequency of their communication, and their perception of their duties in the lab.
In person and email communication were done “a great deal.”
Many students did not communicate by phone with their mentor.
Comparison of Communication Perspectives

• Mentors reported lower frequency of communication in all categories than interns reported.
HHMI Interns’ Time in the Lab

- 52.38% interns responded saying they spent 6-10 hours on a weekly basis.
Higher percentage of mentors responded that their interns worked less hours than the interns reported.
• The largest difference was seen in the 0-5 hour category. 26.09% of mentors said that their interns worked 0-5 hours, but only 4.76% of interns reported working 0-5 hours.
Perception of Mentor’s Role

Each role had 4 statements. These 4 statements were scored on a scale of 0-5 (5 being the most positive score). Then an average was found of these four statements to give a score on each “role.” These scores range from 4.49-4.88 which is a range from statements being Agree or Strongly Agree. All statements were positively based so a high score reflects a positive role/relationship. This survey question was taken from an assessment instrument measuring students' perceptions of the effectiveness of their mentors (Suen & Chow, 2001).
Higher Ratings by Interns of Mentor Performance

In all mentor roles, interns on average scored the mentors higher than the mentors did themselves.

The lowest score was for the “counseling role” from both the mentors and interns.

This survey question was taken from an assessment instrument measuring students' perceptions of the effectiveness of their mentors (Suen & Chow, 2001).
Higher Ratings by Interns of Mentor Performance

- In all categories, interns rate mentors higher than the mentors rate themselves.
- All questions were worded according to the audience. For mentors the statement was, “I was accessible.” For interns the statement was, “My mentor was accessible.”
- This survey question was taken from an article regarding mentoring relationships (Berk, et al., 2005).
18 Interns out of 21 reported “performing hands-on research”

- Most common roles were “performing hands-on research,” “analyzing data”, and “setting up experiments.”
- The least common roles were, “lab service,” “reading scientific literature,” “observing others work.”
Interns Report More Roles/Duties in the Lab

- In all categories except “lab service,” interns more often said they performed a job/duty during their time in the lab.
Gratitude from the Interns
Bibliography: Core Confidence and Attitudes Survey


Bibliography: Mentor Effectiveness


