Center for Adaptive Optics
Education and Human Resources Program

Evaluation Highlights

2003 Akamai Short Course and Internship

Julie Shattuck & Associates
Program Evaluation, Research, and Policy Studies
1205 Pacific Avenue, Suite 206
Santa Cruz, CA 95060
831/457-0313
julieshattuck@post.com

Prepared February 23, 2004

Evaluation Highlights

Center for Adaptive Optics
2003 Akamai Short Course and Internship

Goals

CfAO's Akamai internship program offers Hawaiian students an opportunity to work for two months in science and technology organizations involved with adaptive optics research. The primary goals are to:

- engage community college students and undergraduates from 4-year universities in an eight-week summer research experience with an emphasis on adaptive optics research
- provide support and professional opportunities to prepare participants to pursue their educational and research career goals
- support participants in preparing and presenting their research at a student symposium at Maui Community College and at a fall national conference

Evaluation Activities

Two evaluation activities were carried out to document the accomplishments and benefits of the Akamai internship program as a whole, and to identify opportunities for program improvement. These activities included:

- Internship Short Course survey distributed on May 24, 2003 at the conclusion of the 5-day pre-internship orientation program
- Post internship questionnaire distributed on July 30, 2003 at the conclusion of student internships

The CfAO staff has designed a tracking system for alumni in the program, and is reporting the results separately.

Evaluation Highlights

Akamai Internship Short Course

Overview

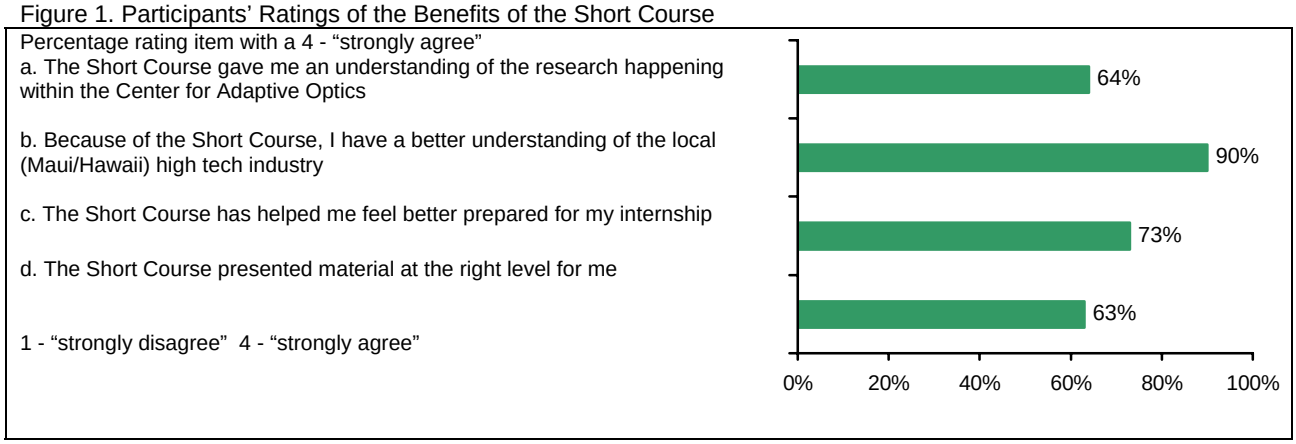
The Short Course, held at the Maui Community College (MCC) was designed to prepare interns for their 8-week internship placements in Maui. The 5-day course was facilitated by MCC faculty, CfAO staff, and graduate students, and ran from May 20 - 24. Participants were recruited through MCC faculty and the Maui Economic Board. Most students were currently enrolled in the Electronic, Computer, and Technology program at MCC with plans to work in technology-related fields in Maui.

The primary components included lectures, labs and science inquiry activities, mentor talks, and a field trip to Amos Research Labs. Activities emphasized research in Adaptive Optics (AO). Eleven individuals participated in the Short Course and ten completed full internships.

Overall Assessment of the Short Course

The primary goals for the Short Course were achieved for the majority of the participants as Figure 1 illustrates below. Ratings show the percentage of participants who responded with the highest rating, "4" indicating they "strongly agreed" with the item. The remaining participants gave ratings of "3." There were no ratings below 3 on any of the items.

Figure 1. Participants' Ratings of the Benefits of the Short Course



Short Course Design

- The 40-hour Short Course developed and facilitated by CfAO members included lectures, facilitated labs and inquiry activities, mentor talks, and a field trip to Amos.

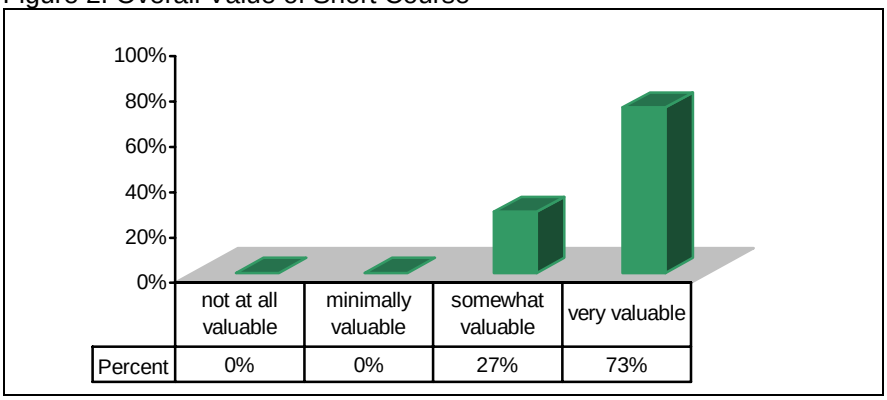
- Similar to findings from the Mainland internship, participants rated the labs and inquiries as the most useful activities offered during the Course. Ten of the eleven participants (90%) gave them the highest rating of "very useful." About three quarters (73%) of the participants gave the highest rating to the lectures and field trip to Amos, with the rest (27%) rating them "fairly useful."

- The mentor talks received slightly lower ratings, with 18% rating them "minimally useful," 27% "fairly useful" and over half, (55%) "very useful." One reason for the slightly lower ratings may be that some the talks were pitched at a level that was too high for several of the participants.

Perceptions of the Value of the Short Course

- Figure 2 indicates that almost three quarters of the participants rated the Short Course as "very valuable" with the remaining third rating it "somewhat valuable."

Figure 2. Overall Value of Short Course



Akamai Internship

Overview

Ten of the eleven participants completed the 8-week internship experience. Student internship placements included Boeing, Institute for Astronomy, Oceanic, Maui Technical Computer Performance Center, Trex, and W.M. Keck Observatory.

Overall Assessment

For the most part, participants had very positive experiences at their internship sites. Most were very satisfied with the working environment and the support and supervision they received. In the cases where participants had less than optimal experiences, they indicated that there were some difficulties with communications within their research group and/or problems with equipment or computer availability.

> *Very professional…I feel it prepared me for a professional science environment. I especially enjoyed sitting in on meetings.*
>
> *Everything I needed was within reach.*

- Half of the participants indicated that their original goals for their internships were well met, while the other half said they were partially met. Some reasons participants gave were that their projects were not planned out ahead of time, there were communications disconnects with their research advisor, or they were disappointed in their work assignments or routine once they got on site. These are logistical issues that should be able to be resolved by staff prior to the 2004 internship program.

> *My goal was to gain the hands-on experience in working on research projects and learning techniques that are used in the lab setting. I achieved that this summer at Oceanit.*
>
> *The goals that I had for this internship were met because I got to work in a technical facility, work with engineers, and most of all gain valuable work experience.*
>
> *I imagined being very busy either working with electronics or computer-related work all through the internship, but I was disappointed. There wasn't enough work to do, and it seemed that the mentors were too busy with their own work that they couldn't bother with us.*

- Staff received very good reviews on their communication and support throughout the internship program. Almost all of the participants (90%) were satisfied with the timeliness and quality of the information they received before the program began. The same number (90%) felt their needs and questions were responded to promptly throughout the program. This finding is consistent with the Mainland internship program.

    They were prompt in fixing a problem I had.

    They were very good in answering all of my questions. Thanks!

Benefits of the Internship Experience

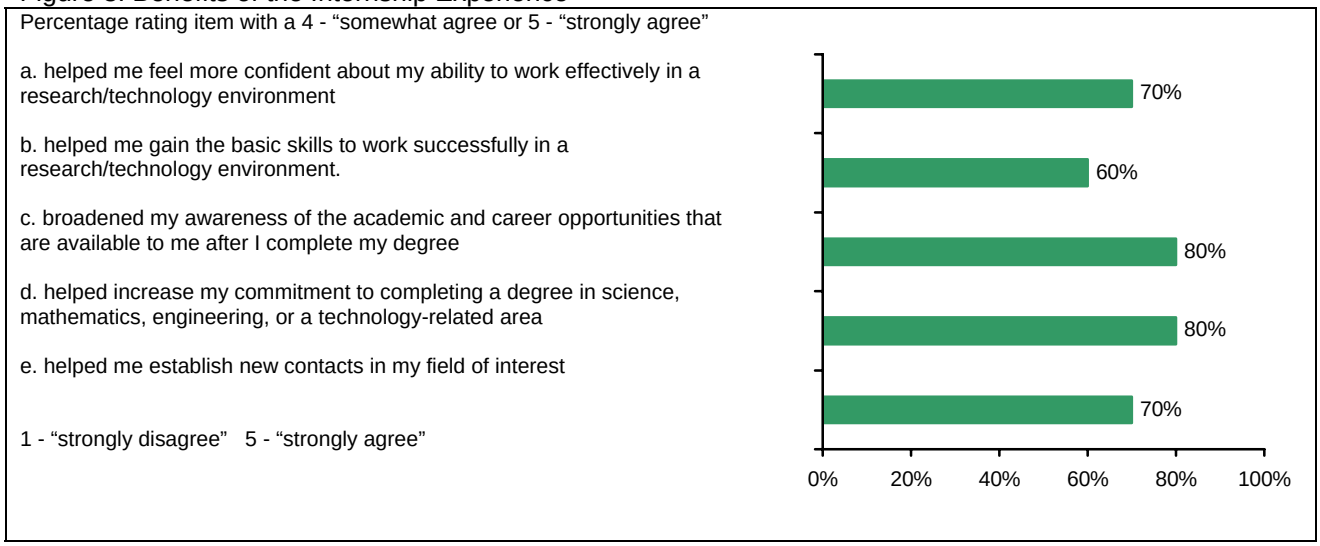
Interns reported multiple benefits from their internships, including new research skills, more professional contacts, and increased confidence in a science research environment (see Figure 3).

- The two areas that received the highest ratings from interns (80% respectively) were a higher level of awareness of educational and career opportunities and an increased commitment to pursuing a degree in a science or technology-related area.

- The program also received positive ratings (70%) from interns in two additional goal areas: increased confidence in their ability to navigate in a research technology environment and a developing a broader pool of professional contacts in the field.

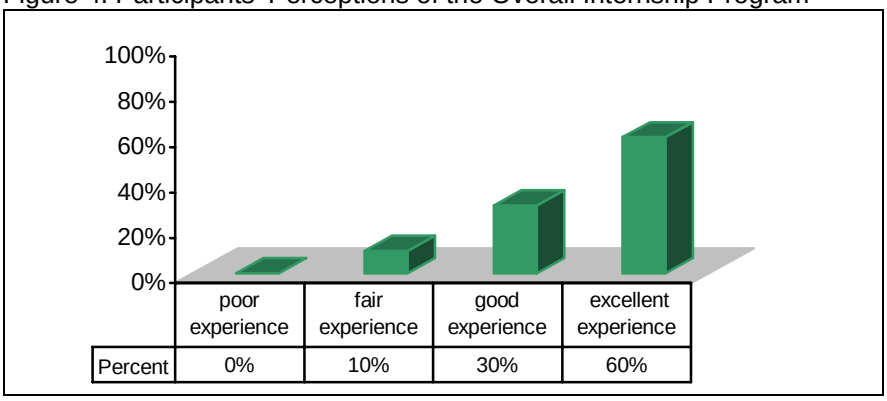
- There were a few students who rated some items lower who referenced some logistical and communications issues during their internships that infringed on their experiences. Again, these problems can be reviewed and addressed prior to the 2004 program.

Figure 3. Benefits of the Internship Experience



- The majority of the 2003 Akamai interns (90%) reported having a very positive experience with the overall internship program—the Short Course and their internships combined (see Figure 4). One participant (10%) out of the 2003 cohort reporting having a "fair" experience.

Figure 4. Participants' Perceptions of the Overall Internship Program



Lessons Learned and Planning Considerations

CfAO's Akamai Internship program is still in the early stages of building partnerships with organizations interested in sponsoring CfAO interns. The lessons learned through staff observations and the formal survey data can help inform needed refinements for the 2004 program. Some suggestions for refinements are listed below.

1. Prepare participation agreements and guidelines for internship sites to complete to help streamline housing and transportation logistics and communicate roles and responsibilities for CfAO, the research advisors, and the interns. Agreements should be reviewed by CfAO and the advisors at least several months before the internship orientation and shared with the interns. Research projects or project options should be identified in advance and communications established between the interns and the research advisors one to two months before the program begins.

2. Select advisors who are willing and able to follow the participation agreement. Since advisors are one of the most crucial contacts for interns, this individual needs to be prepared to structure the work environment and tasks for the intern so s/he can have a beneficial and productive experience and also make a contribution to the organization.

3. Clarify the goals of the Short Course and internship and the role of AO in the Short Course for interns. It would be useful to reinforce the purpose of including AO material in the promotional and application material, as well as in the introduction to the Short Course. There was some haziness in both the Akamai and Mainland cohorts on the connection between AO and their research assignments during their internships.

4. Individual participants provided the following suggestions for CfAO to consider for the 2004 program:

Communication:
- Provide more information to interns on organizations and research projects in advance of their internships
- Set up a link between CfAO and Hawaii interns because there was some confusion between the Mainland and the Hawaiian programs
- Improve communication links between CfAO and internship sites
- Pay someone to oversee progress and issues with interns in Maui

Logistics:
- Offer more credits (3 instead of 1)
- Lengthen the internship period to allow interns to work long enough to produce results, perhaps 1 week for Short Course and 9 or 10 weeks for internship and project
- Conduct weekly instead of bi-weekly meetings

5. Evaluator's suggestions for evaluation planning:

- Review and modify the Short Course survey instrument.

- Include questions about the weekly meetings, research projects, and the poster presentations in next years' post internship survey instrument.

- In addition to surveys, conduct focus groups with interns who have completed their internships to deepen knowledge of individual experiences and to get richer feedback on individual internship sites for planning purposes.

- Expand the evaluation to include organizational partners and intern advisors. They are key informants and have valuable information to enrich the evaluation of the internship program. If possible, conduct personal or telephone interviews to solicit feedback on the internships, facilitate conversations on the internship program, and to deepen the partner relationships.

- Consider developing a brief telephone survey to track interns after they complete their internships, focusing on academic and career choices, ongoing activities with CfAO, and further involvement in academic activities and internships.