

**Evaluation of the UW-Madison's
Summer Undergraduate Research Programs**

**Final Report:
Integrated Analysis of Program Outcome Data, Student Surveys,
and Student and Mentor Interviews**

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1. Introduction

This is the final report from the LEAD Center's evaluation of the seven Summer Undergraduate Research Programs which receive funding from UW-Madison's Graduate School. The primary purpose of this evaluation was to provide program directors and Graduate School administrators with information to assist them in meeting program goals. A secondary purpose was to facilitate a dialogue regarding the effectiveness of these programs in preparing participants for research careers and recruiting participants to the UW-Madison's graduate programs.

The Summer Undergraduate Research Programs bring minority students and students from institutions with limited research facilities to the UW-Madison for eight weeks to pursue a structured research project under the tutelage of a faculty mentor. The majority of these students work closely with one of the faculty mentor's graduate students and consult with their mentor several times per week about their project. At the end of the summer, each participant writes a paper and gives a presentation on the results of their research. During the course of the summer, participants also attend a variety of seminars and workshops related to preparing for graduate school or doing research in their discipline. During one weekend of the summer, they are given the opportunity to attend a CIC-wide conference that brings together program participants and campus recruiters from all 15 CIC universities which have summer programs. For many UW-Madison participants, the summer program is their first experience doing research in their discipline, their first opportunity to network with minority researchers at large research institutions, and their first exposure to the UW-Madison and what it has to offer.

The LEAD Center was engaged by the Graduate School to evaluate the effectiveness of these summer programs in encouraging participants to pursue careers in research and in recruiting students, particularly under-represented minorities, to UW-Madison's highly esteemed graduate programs. The evaluation began in July of 1996 with three LEAD Researchers' attendance at the CIC conference in Indiana, where we interviewed program directors and participants from other CIC institutions in order to gain an understanding of how their programs' goals and strategies compared to those at the UW-Madison. During the remainder of the summer, we interviewed the program directors of UW's seven separate summer research programs in order to ascertain each program's goals, strategies, and outcomes, and to facilitate a dialogue about how better to achieve these goals. In the Fall semester that followed, we used program records to track down 16 students who had participated in the programs between 1993 and 1996 and interviewed them about their experiences in the program, their career goals, and the impact of the program on their goals. Half of these interviewees had already graduated from their home institutions and made choices about pursuing advanced degrees; the other half were recent program participants who had yet to graduate. During that time we also analyzed demographic data and outcome data pertaining to UW's programs that had been collected since 1986 for the CIC-wide tracking database maintained by Dr. Jean Girves. Finally, in the Spring semester, we located another 81 former participants from 1993 to 1996 and sent them surveys regarding program experiences and outcomes. Thirty-four of these surveys have since been returned. The interviews, the CIC

database, and the surveys were analyzed by members of the evaluation team trained in both qualitative and quantitative methods, and it is these analyses which form the basis of this report. (For further details on our research methodology, see Appendix A.)

1.1 Goals of the Summer Undergraduate Research Programs

Our analysis of program directors' interviews found that the seven Summer Undergraduate Research Programs which receive funding from the Graduate School have several goals in common, all of which relate to the development of promising undergraduate researchers and the recruitment of these undergraduates into graduate programs, particularly those at the UW-Madison. The shared goals of the summer research programs include the following:

Immediate goals

Giving minorities and undergraduates from non-research institutions an introduction to the techniques and habits of mind of their discipline and providing them with hands-on training in research.

Giving students a taste of what it would be like to be a graduate student, particularly a graduate student at the UW-Madison.

Providing the most enriching and informative program of research-related activities possible in the eight weeks students have on campus.

Post-program goals

Having program participants enroll at the UW-Madison to pursue their advanced degrees: in short, recruiting students for UW's graduate programs, *or*

...Failing that, getting the students excited enough about research in their discipline that they decide to pursue advanced degrees at whichever institution they choose.

The summer program directors we interviewed understood that the Graduate School has been very interested in recruiting underrepresented minorities into Ph.D. programs at the UW-Madison and that the Graduate School's funding was provided with that goal in mind. While the directors all shared the Graduate School's commitment to expanding UW's pool of minority graduate students and researchers, many indicated that their definition of success was broader than the Graduate School's. These directors still considered their programs successful when participants enrolled in graduate school anywhere—whether it be for a Masters *or* a Ph.D.—or when their participants came away from the program with research skills that made them more attractive candidates for whatever they chose to do after graduation. All of the directors felt that their

programs have been reasonably successful in achieving their immediate goals—goals that focus on giving students the best experience possible during their time in the summer program. But directors were uncertain how successfully their programs were achieving the post-program goal of encouraging enrollment in UW-Madison’s graduate programs, especially since most of these programs have done only limited tracking of former participants. If anything, most program directors—and the administrators at the Graduate School—were under the impression that the percentage of program participants returning to UW-Madison for graduate or professional school was very low. Program directors correctly argued that many factors which students consider in deciding *where* to attend graduate school were simply beyond their control. For example, the unreliability of financial support, the dearth of minority researchers, Madison’s cool climate, and Madison’s distance from many participants’ Southern hometowns were cited by the directors as non-program-related factors which seemed to dissuade a number of program participants from considering UW-Madison for graduate school.

2. Determining program outcomes from the CIC’s tracking database

The early stages of our evaluation uncovered a widespread assumption that the UW-Madison’s summer programs had little success in meeting the Graduate School’s goal of recruiting minority researchers into its graduate programs. Because little or no tracking of program participants had been done by either the program directors or by the Graduate School, stakeholders at both levels were highly uncertain about the number of program participants who had gone on to enroll in graduate school at the UW-Madison, or in graduate school at all. Although program directors could refer us to several current UW-Madison graduate students who had attended their summer programs, it was widely assumed that the programs had a fairly limited impact on most students’ choices about where to attend graduate school.

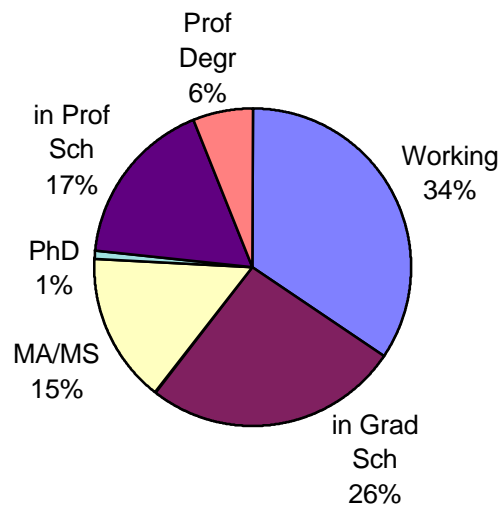
The tracking data on UW’s program participants collected for the CIC’s tracking database contradicts these assumptions. Although the Graduate School has not reliably tracked the academic and career paths of students who have participated in UW’s summer programs since their inception in 1986, the CIC has made persistent efforts to do so for all of the summer students who attended the annual CIC conference. Students who attend this conference are required to fill out surveys and evaluation forms which allow them to be entered into the CIC’s database and tracked throughout the rest of their academic careers. Every Fall efforts are made to contact these students through the mail or by phone so that the CIC may update each student’s file. In this way, the CIC can determine program outcomes, baccalaureate degree completion, graduate or professional school enrollment, and graduate or professional degree completion for the 4,585 students who attended at least one of the CIC conferences. And as it turns out, the UW’s summer programs are doing quite well at recruiting minority program participants to graduate and professional programs at UW-Madison.

Because of the difficulties in tracking the highly mobile student population, it has not been possible to update the file of every student in the database every year, but for those students who have been successfully tracked, the outcomes are impressive. Across the entire CIC, 52% of underrepresented minorities who are known to have graduated have gone on to enroll in graduate school, and of these students, 35% are known to have already completed their advanced degrees. Another 22% of the CIC's summer students have gone on to enroll in professional schools, and of these, 23% are known to have received their professional degrees. By comparison, according to the Baccalaureate & Beyond Longitudinal Survey done by the National Center for Educational Statistics, only 8.8% of all underrepresented minorities who received baccalaureate degrees from 1992-1993 have gone on to enroll in graduate schools and only 8.2% have gone on to enroll in professional schools.

2.1 Program outcomes for the UW-Madison: Graduate and professional school enrollment

Contrary to many people's assumptions, the summer programs at UW-Madison have also done very well in terms of the number of participants going on to graduate or professional schools. For those UW-Madison participants who have graduated and been tracked by the CIC, **42%** have gone on to graduate school (38% of whom have already received advanced degrees) and an additional **23%** have gone on to professional school (26% of whom have already received advanced degrees). Figure 1 shows the status of the 99 UW-Madison summer program participants who have graduated and been tracked by the CIC.

Figure 1: Post-baccalaureate status of program participants.



While the percentage of UW's program participants going on to pursue advanced degrees is impressive, there is still the question of *where* participants are enrolling for their graduate and

professional degrees. Has the UW-Madison been successful in recruiting former program participants to enroll in UW's graduate or professional schools? According to the CIC database, the answer is yes:

- Of the 42% of UW-Madison program participants who went on to graduate school, **60%** (or 25% of the total), enrolled at UW-Madison.
- Of the 23% who went to professional school, **43%** (or 10% of the total) enrolled at UW-Madison.
- Altogether about one third (**35%**) of summer program participants came back to the UW-Madison for graduate or professional school.

This rate of return is far better than the 10% that most program and Graduate School administrators had assumed. Indeed, among the 13 CIC schools that have had summer programs for at least ten years, UW-Madison ranks 2nd in the percent of program participants who returned to the host institution for graduate school. [Figure 2](#) shows in greater detail where UW summer program participants have enrolled for their advanced degrees.

Figure 2: Where participants enroll after graduation

Grad School where?	
at UW-Madison	25 60%
at other CICs	5 12%
at non-CICs	11 26%
unknown	1 2%
Total	42

Prof School where?	
at UW-Madison	10 43%
at other CICs	4 17%
at non-CICs	9 39%
unknown	0
Total	23

Note that because it takes a number of years to complete a degree, program effects take a long time to emerge. This means we are still waiting on outcomes for the majority of UW's participants, either because they haven't graduated yet or because the CIC hasn't been able to track them yet. As [Figure 3](#) shows, the bulk of UW-Madison participants in the CIC database, 75%, participated in the summer programs in just the last 4 years, and 40% participated in just the last 2 years. Due to an increased emphasis since 1993 on using the programs to recruit students for UW-Madison's Graduate School and increased efforts by program directors to select program participants who are eligible for admission to UW's graduate programs, UW's rate of return in the years to come can be expected to be even higher.

year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total
number of participants	1	6	16	10	24	19	29	74	67	70	95	411

One should also note that UW's gains from the summer program are not limited to those students who participated in one of the UW-Madison's summer programs: The UW has also gained graduate and professional students through our connections with the summer programs at other CIC schools. There are a number of students attending summer programs at other CIC institutions who end up enrolling at the UW-Madison for graduate or professional school because of what they hear about UW's programs through recruiters and other students at the annual CIC conference. In order to see how the UW-Madison compares to other CIC schools in this regard, we calculated each CIC school's total Return on Investment, where:

$$\text{Return on Investment} = \frac{\text{Number of all CIC participants who enrolled in host's Graduate School}}{\text{Total \# of host's participants, except those still pursuing BA/BS degrees}}$$

The UW-Madison Graduate School's return on investment is 38%, which ranks us 2nd among the 13 CIC schools with summer programs since 1987 or before. Details may be seen in [Figure 4](#).

Figure 4: Return on Investment for all CIC summer undergraduate research programs.

summer host	R on I	Rank
U of I-Chicago	54%	1
UW-Madison	38%	2
U of Minnesota	36%	3
Michigan State	35%	4
UW-Milwaukee	30%	5
Ohio State	28%	6
U of Michigan	27%	7
U of Chicago	26%	8
U of I-UC	26%	8
U of Iowa	23%	10
Purdue U	22%	11
Indiana U	18%	12
Northwestern	17%	13

If we recalculate Return on Investment to include all CIC summer program participants who went to the host institution's professional schools *or* graduate schools, the UW-Madison's Return on Investment rises to 50%, which ranks us 3rd in the CIC. By either accounting, the UW-Madison is getting a better return than the majority of its partners in the CIC.

2.2. Program demographics: How the UW's summer programs have changed over time

The CIC database also allowed us to see how the UW-Madison's Summer Undergraduate Research Programs have evolved over time. Over its 11-year history, the overarching program has changed from one that focused on local students (70% of all participants before 1993) in the social sciences and the humanities (60% of all participants before 1993), to a program that focuses on non-local students (75% of all participants since 1993) in the hard sciences and engineering (77% of all participants since 1993). Most of these changes in emphasis occurred between 1992 and 1993, when the Graduate School became more involved in trying to recruit program participants to UW-Madison. At this time, the number of students in the program also dramatically increased, from 29 in 1992 to 74 in 1993, a 250% increase (refer back to Figure 3). Beginning in 1994, the number of white students in the program has also increased, while the number of underrepresented minority students has stayed about the same. (White students made up 13% of UW's participants in the CIC's database from 1993-1996 and 27% of the participants in 1996 alone). According to UW's program directors, some of their programs have included the same proportion of white students all along, while other programs have gradually increased the number of white participants in the last several years. As for gender, about two-thirds of all program participants in the last 4 years have been female. The figures below illustrate the demographic composition of UW's summer programs over the last 4 years. [Figure 5](#) shows the research areas in which participants were concentrated; [Figure 6](#) shows the participants' home institution; [Figure 7](#) shows the participants' racial background.

Figure 5: Participants research areas (1993-96)

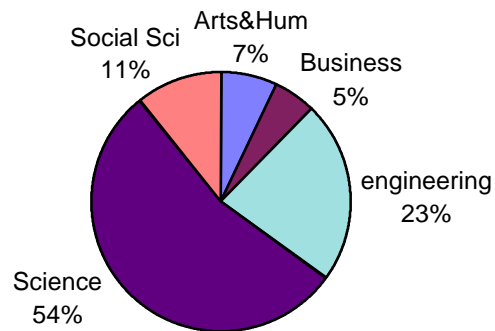


Figure 6: Participants' home institution (1993-96)

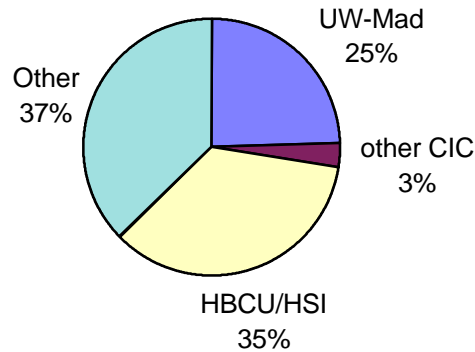
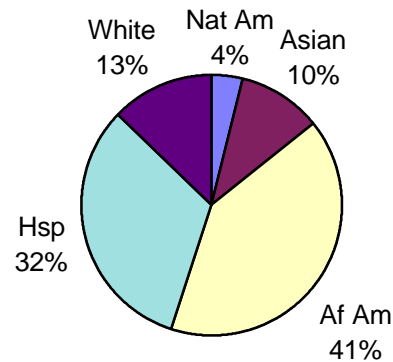


Figure 7: Participants' race (1993-96)



3. An integrated assessment of the Summer Undergraduate Research Programs: Key findings from the CIC database, student surveys, and student and mentor interviews.

The figures in the Section 2.2 show the demographic composition of UW's Summer Undergraduate Research Programs over the last 4 years. These numbers include only those participants who have returned a survey or application form to the CIC and have thus been entered into the CIC database. However, since records kept by the Graduate School indicate at least 95% of UW's participants are represented in the database, these numbers can be seen to represent the population of program participants as a whole. In order to come to an understanding of participants' program experiences and to determine the extent to which their

experiences affected their choices about graduate school, we interviewed and surveyed two representative samples of the 1993-96 participant population.

The samples: In the Fall of 1996, 16 program participants were interviewed (13 by phone, 3 in person) about their experiences in the program and their academic and career aspirations. This sample was selected from all seven programs' rosters and was representative in terms of gender, race, and research area. At least one participant from each program was interviewed, and the two largest programs were the most heavily sampled. Half of these interviewees had graduated from their home institutions and had already made choices about pursuing advanced degrees, while the other half were recent program participants who had yet to graduate. In the Spring of 1997, we expanded on the information collected through these in-depth interviews by surveying an additional 81 program participants about the same topics. Thirty-four of these surveys were returned, for a response rate of 42%. This sample of 34 students included at least one from every program and was also representative in terms of gender, race, and research area. As with the interviewees, about half of the survey respondents had already graduated and half had yet to graduate.

In both the interview and the survey, students were asked about:

- Their experiences at their home institution
- How they heard about the summer program and reasons for enrolling
- The amount and type of contact they had with their faculty mentor before, during, and after the program
- Their research experience
- Their opinion of program activities, including the CIC conference
- The impact of the program on their confidence, decisions about advanced degrees, and preparation for advanced education
- The factors they considered or would consider in selecting a graduate school
- Their post-baccalaureate plans or activities
- Their current academic/employment status

The participant interview protocol is in Appendix B. The participant survey is in Appendix C. In the five subsections that follow, we summarize the main findings that emerged from our integrated analysis of the CIC database, the survey data, and the student interview transcripts.

3.1. The summer programs are successfully meeting their goal of recruiting participants to UW-Madison's Graduate School—or graduate school in general—and this outcome can be tied to program experiences.

As seen by the analysis of the CIC outcome data in Section 2.1, UW-Madison's summer research programs are doing quite well at recruiting minority program participants to UW-Madison's graduate and professional schools. Since the program began in 1986, 35% of program

participants who are known to have graduated have come back to UW-Madison for their advanced degrees, and many of the current undergraduates we interviewed (about 45%) expressed a strong interest in eventually enrolling here. But what role does the summer program play in these participants' decisions to enroll at UW-Madison? What do the participants have to say about the impact of the summer research program on their feelings and decisions regarding graduate school? According to interview and survey data, what participants learned about the University of Wisconsin and the city of Madison during their eight weeks in the summer program was a major factor in many participants' decision to enroll here. The surveys and interviews also showed that even when students do not enroll at UW-Madison, the summer programs do encourage and prepare participants for graduate education at other institutions, which was another one of the programs' goals.

There are several ways to determine the impact that the summer program had on participants' choices about graduate school and careers in research. One is to examine the range of responses when student interviewees were directly asked about the impact of the summer program, the factors that were important in their decisions about whether and where to attend graduate school, and the influence of the summer program on their feelings about UW-Madison (see questions 22-27 of the student interview protocol in particular). Most of the students we interviewed described their participation in the programs as a necessary and important step in allowing them to make an informed choice about attending graduate or professional school in a particular field. For some students, the program was what "steered" them in the direction of research in the first place. As one student explained:

I think for me what the program did was show me that this is something that I would be interested in doing—that the field of research is something that I am interested in beyond what I've seen in the classroom. Especially being in that type of [lab] environment—that really appeals to me now... It turned out that because of the experiences that I had with that lab and the way it was set up, it really turned me on to the whole field. It really made me interested in wanting to learn more about doing research and how effective I could be if that's what I'm interested in. I think it did a lot for me as far as steering me towards really wanting to do research instead of just going to medical school.

Even students who entered the program with fairly strong interests in research expressed that the program strengthened these interests by giving them "hands-on" experience. As one such student replied when asked to characterize the impact of the program on him, "It was very important. It kind of solidified the fact that I did want to go into research...Before I hadn't really engaged in any research." A look across all 16 interviews suggested that programs influenced students' choices in *whether* to go to graduate school by: (1) giving them a taste of what research was like so they could decide whether they would enjoy being researchers; (2) giving them a taste of what being a graduate student was like so they could decide whether they could handle it; and (3) giving them alternatives to medical school if they decided they either could not or did not want to become physicians.

The programs had an even stronger influence on participants' thinking about *where* they might want to attend graduate school. When survey respondents were asked what their pre-program graduate

school plans had been, 62% responded they had been positive to fairly certain they wanted to attend graduate school, and 53% responded they had been very to fairly interested in enrolling at UW-Madison for either graduate or professional school. When asked about their *post*-program plans, the percent of respondents who marked that they were positive to fairly certain about attending graduate school went up to 69%, while the percent that were interested in enrolling at UW-Madison jumped to 79%. In sum, our findings from the students interviews suggested that the programs influenced students' choices in *where* to go to graduate school by: (1) introducing them to the university and letting them see what UW-Madison has to offer (e.g., many students had no idea of the research opportunities available at UW until they spent the summer here); (2) giving students connections with faculty members and program directors, who in some cases actively recruited students into graduate school; and (3) allowing students to experience living in Madison, which, although cold, was widely perceived as a very friendly, safe, and pleasant place to live. A majority of the interviewees expressed that they knew little about the UW-Madison and how well-ranked its graduate programs were until they participated in the program. And even those participants who knew of Madison's opportunities and reputation beforehand said that the program was helpful in "getting a head start" on their graduate studies and "getting their foot in the door" for gaining admission here. As one interviewee who later enrolled at UW-Madison explained:

I would say that [the program] does have a lot of impact, because it gives you experience, sort of like a head-start in your research experience if you want to go to grad school or something. And that was my main interest, that's why I went to Madison—to gain that experience and to get a head-start in the grad school program here. Because [the program] sort of leads you towards that particular grad school, if you're interested in going into research. I was very, very much interested in research, and I wanted to get something more than what my school offered. It was a small school and we didn't have that many lab opportunities, and not that much funding for research. So I was looking for something like this [program], and I think it really helped, because afterwards I did much better in my own school's research program, and also my classes that involved research and stuff like that.

The data collected about program impacts through our survey is consistent with what we learned through the interviews. For 83-87% of the participants surveyed, the program had a positive impact on their confidence in doing research, handling undergraduate class assignments, handling graduate level work, interacting with faculty, and getting into graduate or professional school (see question 36 of the survey). The program had a negative impact on confidence for only one respondent. The program introduced 51% of participants to a new field or line of research that they became interested in pursuing, and it gave another 21% a more complete and concrete understanding of the field they were already in (see question 35). When respondents were asked about their feelings toward graduate/professional school and their feelings toward enrolling at UW-Madison both before and after the program (questions 14/30 and 15/32), the following results were found: The program had a positive effect on feelings toward graduate school for 21% of respondents, a positive effect on feelings toward attending UW-Madison for 41% of respondents, and no significant effect on feelings toward professional school. (Comparatively, the program had a negative effect on feelings toward graduate school for only 9% of respondents, and a negative effect on feelings toward attending UW-Madison for only 6% of respondents).

In sum, our analyses of all three data sources showed that the summer programs are doing an excellent job of exposing students to research, informing them about all the UW-Madison has to offer, and allowing students to make informed choices about careers in research. The main effect of the program in terms of demonstrable outcomes is that it introduces participants to UW-Madison and provides them with valuable research experiences—experiences that encourage 42% of them to enroll in graduate school at UW-Madison or elsewhere.

3.2. Participants express a high degree of satisfaction with the program and the living environment in Madison.

In both the interview and the survey, students were asked about their satisfaction with their research situation, the programs' schedules and activities, and the living environment on campus and in the surrounding community. The vast majority of respondents were highly satisfied or sufficiently satisfied with their experiences in the program and in the surrounding community. Although there was quite a range in who students worked with on a daily basis and how much contact they had with their faculty mentors, virtually all of the 34 survey respondents were satisfied with their research situation and the relationships they had with their mentor (see questions 18 & 20). Most interviewees also had very positive things to say about their research situation and their mentors. However, there were two interviewees who said they were given insufficient guidance in their tasks and were largely abandoned by their mentors for much of the summer. One of these interviewees was so turned off by her experience that she did not even consider UW-Madison for graduate school; the other interviewee confronted her mentor about his lack of availability and eventually enrolled at UW-Madison as his graduate student.

The vast majority of interviewees and survey respondents (90%) were also pleased with the program activities and seminars that they participated in over the course of the summer (see question 25-28 of the survey). When asked what they would do to improve the program, many could offer no suggestions, but those who did have recommendations said the following:

- Make it longer. Eight weeks is often not enough time to get one's project completed and write it up for presentation, even when the project is limited in its scope. A number of interviewees and survey respondents felt rushed and unable to do their projects justice.
- Provide more opportunities to meet and interact with faculty members so that students can "shop around" for potential advisors and major professors.
- Give more concrete examples and explanations of how to do the project paper and presentation so that students have a better idea of what is expected.
- Organize more campus-wide activities so that students can meet participants in the other summer programs on campus.
- Make it easier for students to get and prepare food by making cafeterias or cooking facilities available.

Interviewees and survey respondents were also highly impressed by the living environment in Madison. A number of interviewees gave glowing reviews of life in Madison and summer evenings spent on the Union Terrace, although those from southern climates were “intimidated” by the prospect of spending a winter here. Many interviewees were impressed by Madison’s recreational opportunities and by the fact that they felt so safe walking the streets at night. Interviewees often used words like “safe,” “calm,” “peaceful” and “friendly” when describing their impression of the community. None of the interviewees who were new to Madison recalled encountering any signs of racism, but a few local students who had lived and gone to school in Madison for several years expressed that it was difficult to be a minority, especially an African American, in a predominantly white city like Madison. As one local undergraduate who had worked as a minority recruiter said:

When high school students call and they want to speak to a student, the first thing that they ask me is, “Well, do you see a lot of African Americans?” And I’m not going to lie to the kid. I don’t want them to get their hopes up, come here, and then they’re going to be looking for me. {Laughter} So then, I tell them that I have a close knit group of friends who I’ve met over my years at the university, and you see them in passing, but as far as seeing ten at one time walking down the street, that’s not going to happen. That’s not going to happen. There’s networking with other minorities, but you have to make the effort to do that. And if this is your first time coming away from home and you’re very shy, chances are going to be that you’re probably going to go back home.

Local undergraduate students we interviewed seemed more uncomfortable with the lack of a “minority presence” on campus than the local graduate students we interviewed. From what they told us in their interviews, this seemed to be due to the fact that the graduate students were too busy with their research and their families to participate in many social activities, and hence felt the lack of a minority community or minority culture less acutely than the undergraduates did.

3.3. The faculty perspective: Main points from the faculty mentor interviews

During our first set of interviews, program directors argued that the mentors are the thing that “make or break” the summer program in terms of the students’ research experience and what they gain from it. An open and congenial relationship with one’s mentor and a good experience in his or her lab is an important part of the program and a key factor in encouraging students to consider going to graduate school at UW-Madison. Mentors are often too overloaded with other responsibilities to be the ones who provide summer students with day-to-day guidance (this task is usually given to a graduate student), but it is the faculty mentor who represents the department and is seen as exemplifying what professors in graduate school will be like. Furthermore, program participants often turn to their faculty mentors when they need recommendations or an “inside edge” in order to gain admission to a department’s graduate program. For this reason, the mentors play an important role in recruiting summer program participants to their departments or to graduate school in general. In order to gain a more complete understanding of their role, we interviewed ten faculty mentors during the Fall of 1996. These mentors participated in four different summer programs and were representative of the population of mentors as a whole, but with an oversampling of minorities. The sample included 5 white males, 3 white females, and 2 Hispanic males, most of whom have been at UW-Madison for 6-10 years and all but 2 of whom have tenure. There were

5 professors in the biological sciences, 3 in some form of engineering, 1 in physics, and 1 in psychology. The faculty mentor interview protocol can be seen in Appendix D. The main findings from these interviews are summarized in the four subsections that follow.

3.3.1 Why faculty members decided to become mentors for the summer programs

Most faculty mentors heard about the summer research program through mailings and/or announcements at department meetings, followed by personal contacts made by program directors. The program directors' persistence in soliciting and encouraging their participation was often what convinced them to give the program a try. Faculty mentors cited a number of different reasons for deciding to participate in the summer program. The most frequently cited reason was altruism and a desire to mentor promising students who needed the opportunity. Some mentors were actively attempting to recruit promising minority students for their own departments or labs.

Other mentors did not see the program as a recruiting tool for UW-Madison in particular and were merely attempting to interest more students in their field. Half of the mentors interviewed said one reason they joined the program was to give their graduate students experience in mentoring other students.

3.3.2 Barriers to greater faculty participation in the summer programs: Time and money

When asked about the barriers to getting more faculty members to participate in the program, every mentor interviewed said that time was the major obstacle. There is a lot of pressure, especially on younger faculty, to generate data in the short term, and even tenured faculty still have to deliver results. In either case, taking the time to work with a relatively unskilled undergraduate for a summer can disrupt a lab's productivity during what is typically the most productive time of the year. The less-senior faculty members in particular worried that the time spent mentoring a summer student would not be "worth" anything to their colleagues or their departments and that they might be diverting attention from their own research. For many who decide to mentor, this problem is solved by having graduate students take over the bulk of mentoring responsibilities. In contrast, some of the mentors we interviewed saw the program as an opportunity to get "free" and enthusiastic labor on projects that otherwise might not be completed.

Another barrier to greater participation is money. Those faculty who didn't have a lot of extra funding often worried about extra costs for supplies that the REU grant or Graduate School funds did not cover. Those faculty who already had plenty of funding discussed their responsibilities to their funders to put the best people possible on a project and get it completed in a timely fashion. These faculty noted that bringing an undergraduate with little or no research experience into their lab might conflict with those responsibilities, and this may be why many of their colleagues had decided not to participate in the program.

3.3.3 Faculty mentors' experiences in the summer programs

In general, the mentors we interviewed expressed a high degree of satisfaction with their mentoring experience. Most of the mentors believed that their student(s) had an educational and worthwhile experience in the program, and they believed that even those students who weren't turned on to research or who chose not to enroll in graduate school had received something valuable from their participation. When asked if they planned on participating in the program again, most of the mentors were very enthusiastic about doing so. Only one said no—a mentor who had several conflicts with program staff about the care and housing of his students and who was clearly disgruntled with the whole program. Most of the mentors we interviewed expressed enthusiastic support for the program and its goals.

3.3.4 Faculty mentors' recommendations for improving the summer programs' effectiveness

Most of the mentors we interviewed had a hard time coming up with recommendations for how to improve the structures and activities of the summer programs. But several mentors, particularly the three who had been active in recruiting minority students to their departments, had recommendations about how to get more program participants to return to UW-Madison for graduate school. Four mentors said that it is essential to do a better job following-up on promising students who have participated in the program, a sentiment also expressed by program directors in their interviews. Mentors and program directors alike felt that the summer programs do a good job of recruiting students for the summer but were disappointed that no one other than program directors follows through in making the sort of personal contacts that would encourage students to enroll here. Both felt that there should be a greater exchange of information between the people involved with the program and people involved with graduate admissions in order to increase the likelihood that promising summer program participants are admitted. Two mentors expressed their disappointment at having very capable summer students who were turned down for admission to graduate school at UW-Madison.

One faculty mentor said that he was similarly disappointed in how the university treats the minority students it is successful in recruiting to UW-Madison. Some of these mentors' Puerto Rican graduate students couldn't afford to complete their graduate education at UW because they lost their funding after their first year. According to this professor, if the university wants to attract and keep more minority graduate students, it must be willing to guarantee them four years of funding.

Another mentor said if the university really cared about the summer program and getting more faculty to participate in it, "they'd put their money where their mouth is" and recognize faculty mentors' efforts by paying them more or giving them a boost in tenure decisions. All of the mentors we talked to said that participation in the program is not considered at all in tenure decisions. If anything, it hurts one's chances for tenure because of research time lost.

3.4. When participants choose to enroll somewhere other than UW-Madison for their advanced degrees, it is generally for reasons unrelated to program experiences.

As program directors suspected, when program participants decided not to come to UW-Madison, it was for factors that were unrelated to the programs themselves. This was evident from both the interview and the survey data. We interviewed eight students who had either graduated or were on the verge of graduating, and in cases where these students had a good experience in the summer program but decided to enroll elsewhere for graduate school, it was usually because of Madison's cold weather or the distance from their families. This was especially the case with Puerto Rican students or students from HBCUs in the South. In other cases, students did not enroll here because they could get better funding or a cheaper education elsewhere. The primary factors interviewees were taking into consideration in choosing a graduate school (protocol questions 25-26) were the following: (1) a strong reputation in the student's field of interest, (2) having a program in a special field like Environmental Toxicology or Plasma-Aided Manufacturing, and (3) the availability of fellowships or other graduate funding. Other factors that came into play for some students once these primary ones had been taken into account were climate, community environment, and distance from home.

The survey results showed a similar ranking of factors. Survey question 34 gave respondents a list of 11 factors that one might consider in choosing a graduate or professional school, and respondents were asked to rate whether each of these factors was a primary factor, a secondary factor, or not a factor in their own choice. Respondents were then asked to rate how well the UW-Madison fares on each of those factors, using a "+" if it rates well, a "-" if it rates poorly, and a "0" if it rates average. Across all 34 respondents, the four most influential factors in choosing a graduate school were the following:

- (1) a high national ranking or good reputation in their field of interest
- (2) a friendly and comfortable living environment
- (3) reliable financial support
- (3) well-equipped labs, libraries, and computer facilities

These four factors were rated as primary by the vast majority of respondents. Other factors that were rated as primary *or* secondary by most respondents were: a hospitable climate (primary for 50%, primary or secondary for 81%), respect for diversity in the surrounding community (primary for 44%, primary or secondary for 82%), a sufficient number of minority students and researchers (primary for 38%, primary or secondary for 85%), and closeness to home (primary for 24%, primary or secondary for 85%).

So how does the UW-Madison rate on each of these factors of importance? The UW-Madison ranked very well on three of the top four factors—a good national reputation, a friendly living environment, and well-equipped facilities—but it rated less well on a critical factor for many graduate students—reliable financial support. Half of the respondents gave UW-Madison a positive ranking in this regard, but half gave it a neutral or negative ranking. Lack of reliable

graduate funding was also cited as a concern by many of the program directors and faculty mentors we interviewed. Many departments at UW-Madison do not offer graduate students the guaranteed funding through teaching or research assistantships that other schools offer, and, once tuition is removed, those stipends that are given are below the national average for research institutions. UW-Madison is one of the few research institutions in the country that does not waive tuition for research assistants and teaching assistants.

Other important factors on which UW-Madison did not rate well are the following: (1) a sufficient number of minority students and researchers (important to 85% but positively ranked by only 18%), (2) a hospitable climate (important to 82% but positively ranked by only 53%), (3) respect for diversity (important to 82% but positively ranked by only 52%), and (4) closeness to family and home (important, though not primary, for 85%, but positively ranked by only 52%).

3.5 UW-Madison gains more than it loses from its connections with other CIC summer programs.

Although a number of program directors have been skeptical about the usefulness of their summer programs' ties to the CIC, the UW-Madison benefits more from these connections than it loses. First of all, the CIC is currently the only organization doing reliable and consistent tracking of students who have participated in the UW-Madison's summer programs. Many of the program directors we interviewed discussed how difficult and time-consuming it is to track their programs' alumni, and they are generally too overwhelmed by their other responsibilities to do much tracking themselves. It was for this very reason that the summer programs' success at getting participants to enroll at UW-Madison was so grossly underestimated. Without reliable tracking, program outcomes are impossible to determine, and such outcomes are routinely requested by the agencies that fund the programs. Several directors expressed hope that the Graduate School would establish a centralized database and take over the tracking for them, but many did not recognize that the CIC forms they were turning in at the end of every summer were contributing to just such a database—one run by the CIC. Having a local centralized database might still be a good idea if funding for such a database and a person to do the tracking becomes available. In the meantime, the CIC database is the best tracking mechanism that the UW has, and program directors who are interested in program outcomes are advised to turn in their CIC surveys and provide information for that database as requested.

In addition to reliable tracking there is something else that the UW-Madison gains by its connections with other summer programs in the CIC: additional minority graduate students. Because of the CIC conference held every summer, the UW-Madison has an annual opportunity to recruit promising minority undergraduates who are attending the summer programs at other institutions. While it is true that these other CIC institutions also have the opportunity to recruit UW's summer students at the conference, it must be reiterated that the UW has been gaining more than it loses. As was shown in the calculations of Return on Investment in section 2.1, the UW-Madison does better than many of its CIC partners at recruiting both its own summer

students and students from other summer programs, and the UW Graduate School's return on its investment ranks it 2nd in the CIC. Due to this comparatively high rate of return, the UW-Madison would have little justification for pulling out of the CIC summer program alliance.

Finally, regardless of whether the UW-Madison feels it is benefiting from its ties with the CIC, the undergraduates who participate in the summer programs *are* benefiting. About two-thirds of the UW-Madison summer students we surveyed attended the CIC conference, and 82% of those who attended gave positive evaluations of their experiences there. In both the interviews and the surveys, students who attended the conference expressed its importance in allowing them to: (1) meet and be inspired by other minorities in research, (2) talk with recruiters from other CIC schools, and (3) share their research and the problems they've faced with their peers. Some interviewees who attended the conference early in their academic career spoke of its importance in encouraging their interest in research and showing them what they would have to do to compete for spots in graduate programs.

4. Conclusion: There are still things the Graduate School can do to increase the return on its investment

By all indications, the Summer Undergraduate Research Programs are doing well at their immediate goal of providing students with the best research experience possible during their eight short weeks in the program. And as it turns out, the programs are also doing well at their post-program goal of attracting participants to graduate and professional programs at UW-Madison. But because of the non-program-related factors mentioned in section 3.3, there is only so much the summer programs can do in encouraging students to enroll at the UW-Madison for graduate or professional school. Some factors are immutable, like Madison's cool climate or the distance from students' homes. But there *are* things the Graduate School can do to attract a higher number of minority graduate students to the UW-Madison. The Graduate School should give their consideration to the following:

- Continue to use programs like this one to increase the number of minority researchers at UW-Madison. Currently, the UW-Madison rates average (according to 33% of respondents) or below average (according to 36% of respondents) in having a sufficient number of minority researchers on campus, and this is a factor that is relatively important to 85% of the minority participants we surveyed. Clearly, UW-Madison has not yet reached a "critical mass" of minority researchers that in-and-of-itself can attract minority students to campus. But because the UW-Madison excels in other areas and the summer program does a good job of exposing students to UW's assets, the UW can expect about 40% of the minority participants in its summer programs to come back to UW for their advanced degrees. It is this type of investment that will allow "critical mass" to be reached and the campus to be more fully diversified.

- Work on finding more reliable funding for graduate students. According to our interviews and surveys, when the UW-Madison lost students to other CIC schools, this was generally the reason. Program directors, faculty mentors, and student participants all mentioned the difficulty of securing reliable funding at UW-Madison.
- Do a better job at following-up on students who have participated. As mentioned by program directors and faculty mentors, many departments on campus have a poor record when it comes to tracking and actively recruiting promising students who have participated in UW-Madison's Summer Undergraduate Research Programs. More intensive follow-up—which would include tracking students who have been in the programs, contacting and actively recruiting students with potential, and informing graduate admissions committees about these students' participation in the program—cannot help but improve the university's return on its investment in these programs.

Appendix A: Additional Information on Methodology

A. SUMMATIVE FEEDBACK

This document is a summative evaluation report prepared by the LEAD Center for the Graduate School of the UW-Madison and the program directors of UW's seven Summer Undergraduate Research Programs. The purpose of a summative evaluation is to assess how successful a program has been in achieving its goals and provide information useful in the further development and improvement of that program. Summative evaluations occur only after a program has been in place long enough for its impacts on students' academic paths and achievements to be measured. In the case of this evaluation, the program being assessed has been around since 1986. However, because the bulk of participation has been in the last four years, long-term program outcomes for the vast majority of student participants have yet to emerge. The outcomes reported here are but a point-in-time assessment of an ongoing and still-evolving program.

B. TRIANGULATION

Combining methods with different strengths and weaknesses, or "triangulation," is a common strategy in evaluation and in social science research. In survey research, since each respondent answers the same questions in the same order, the questions provide information on the variables of interest that is both easily quantifiable and reliable. However, the wording of survey questions always incorporates the researchers' assumptions about what the important issues are, even where some questions are left open-ended. Interview questions, on the other hand, may more easily be modified in response to the expressed interests and concerns of the person being interviewed. The case for the validity of interview data is often stronger than the case for the validity of survey data, in terms of appropriately representing respondents' points of view. However, interview data may be less reliable (in the statistical sense) than survey data because each respondent is not necessarily asked the same question in the same order with the same wording.

Of course, survey data more easily lend themselves to numerical summarization, while interview data require a more complex analytic approach and are less simple to present. In order to maximize the advantages of the latter, interview data collected by LEAD are analyzed inductively, using verbatim transcriptions; the themes and issues as presented by the respondents are allowed to guide the analysis. Survey and interview data that bear on the same issues support each other, and each facilitates the interpretation of the other. In this report, the survey data and interview data have been cross-compared and integrated to the fullest extent possible.

Appendix B: Interview Protocol for SURP Student Participants

Current situation

1. Briefly describe your current situation. [Prompt: Are you still in school? Where? In what department?.]
2. Are you currently involved in doing research? If so, in what?

Undergraduate institution

- (3. Where did you go to school as an undergraduate?) Skip if still undergrad.
4. What stands out for you about your experience there? [Prompts: What do/did you like about going to school there? What do/did you dislike about going to school there?]
5. Did you take out any student loans to attend your undergraduate institution?
6. What was/is your major as an undergraduate?
 - a. Why did you choose that major?
 - b. [If major is in different field from what they are doing now...] What caused you to switch to a different area of study for your graduate degree/career?

The Summer Research Program

7. How did you hear about the summer research program? [Prompts: Was information about the program easy to get? Did you feel like you had enough information before enrolling?]
8. What do you think the purpose of these programs are? [Prompt: Did you think that one purpose of the program was to encourage you to go to grad school there?]
9. What were your initial motivations for enrolling in this program? [Prompt: why did you enroll in the program at X as opposed to someplace else?]
10. Describe the program you participated in. What did it involve?
 - a. Is this the only summer research program you've participated in?
11. At the time you enrolled in this program, what were your post-graduation plans? Did you know yet what you wanted to do? [Prompt: How certain were you that you would be going on to graduate school?]
12. Tell me about your experience in the summer research program. What stands out for you?

OR Looking back, what stands out for you about your summer program experience? How would you describe the value of the program in your life today?

- a. Are there things that you have done or approached differently because of your experiences in the summer program?

13. Did you go to the CIC conference? What did you think of it? [Prompt: What role did the CIC conference play in your summer research experience?]

The research experience

14. How did you get started on your research project? If you could take me back to the beginning, describe how you ended up working on what you did. [Prompt: Who decided what you would work on? How did your project fit in with your mentor's research? Was your research part of a larger project?]

- a. What was it like doing the research?
- b. Did you enjoy working on this research project? Why or why not?
- c. When you had questions about the project who did you turn to?

15. What role did your faculty mentor or advisor play in your experience in the summer research program?

16. Describe the first time you met with your mentor. How did that go?

- a. What was your mentor like?
- b. How often did you see your mentor during the summer? [Prompt: In what contexts?]
- c. Was this what you had expected?
- d. When you met with your mentor, what sort of things would you talk about? [Prompt: Did he/she ever tell you what to expect in graduate school? what it was like to be a professor?]
- e. Describe the relationship between you and your mentor by the end of the summer. Had it changed any since the beginning?

The Campus and the Community

17. Where were you living during the program? What did you think of the housing arrangements?

18. What did you do when you weren't working on your research? Who did you hang out with?

19. Did you meet many graduate students during the summer? How?

- a. Did you talk with them about their experience in graduate school? What did they have to say?

20. After having spent the summer at X, what were your general impressions about being a student there? Was it someplace you thought you might want to enroll as a grad student? Why

or why not?

21. Were you comfortable with the minority presence on campus and in the community?
 - a. Were there any indications that people in the community were uncomfortable with or biased towards minorities?
 - b. To what degree would the minority presence and the community's stance toward minorities have influenced your choice to attend graduate school there?

Recruitment for graduate school

22. How would you characterize the impact of the summer program on you? [Prompt: Did it affect your career plans, your grad school plans? How?]
23. How much contact did the school and the program directors have with you after you left the summer program? [Prompt: Did they attempt to recruit you for graduate school? How?]
 - a. Did you have any contact with your faculty mentor after you left the summer program? In what way?
24. What factors were important in your decision whether or not to attend graduate school?
 - a. Did your experience in the summer research program influence your feelings about going on to graduate school? In what way?
 - b. How did your family feel about your decision?
25. In considering *where* to go to graduate school, what were the factors that were important to you? [Prompt: Were family considerations a factor?]
26. Where did you end up going to graduate school? Why did you decide to go to X?
27. What other graduate schools had you applied to? What other programs were you accepted to?
28. If you could make one or two recommendations for improving the summer research program, you participated in, what would they be?
 - a. Are there any things you think your faculty mentor could have done to make your experience a better or more valuable one?

Appendix C: Survey of Participants in the Summer Undergraduate Research Programs

This survey will enable the UW-Madison to understand the impact of its Summer Undergraduate Research Programs on the students who participated in them and will provide program administrators with valuable feedback on what aspects of the programs need improvement. The first page of this survey allows the UW to update its files on what program participants have done after the program. This information is critical in allowing the UW to secure grants for continuation of these programs. Pages 2-5 will be used to improve the program's effectiveness in giving students an educational, useful, and enjoyable summer research experience. Your feedback on both parts of this survey is greatly appreciated, but the information on page 1 is especially important.

(1) Your name: _____

(2) Which UW Summer Research Program did you attend? (Give name of Program Director if you do not remember program name): _____

(3) What year(s) did you attend? _____

(4) Your undergraduate institution(s): _____

(5) Your undergraduate major(s): _____

(6) Have you received your baccalaureate degree? (circle) no yes

If no, enter semester and year you plan to graduate: _____

If yes, enter degree received and year (e.g. B.A., 1990): _____

Answer questions 7-10 only if you graduated or will graduate before August, 1997:

(7) What did/will you do in the year immediately after graduating? _____

(8) How many graduate or professional schools, if any, did you apply to? _____

(9) Have you ever enrolled in a graduate program? (circle) no yes

...a professional program? (circle) no yes

If no to both, how likely is it that you will eventually enroll somewhere? _____

If yes to either, please indicate where you enrolled and in what program/department:

(10) Have you already received any graduate or professional degrees? (circle) no yes

If no, indicate the degree, if any, you are now pursuing: _____

If yes, indicate the degree you received and the year you received it (e.g. M.S. Forestry, 1994):

(11) How and where, if anywhere, are you currently employed? _____

Instructions: Please check the one most appropriate response unless otherwise indicated. If you participated for more than one year, answer the questions for the first year you participated.

(12) How did you first hear about UW-Madison's summer program?

- I saw a poster or flyer at my undergraduate institution I heard about it from recruiters at a conference/fair
 I was told about it by my advisor, guidance counselor I was directed to it through the CIC
 I was told about it by a former participant Other: _____

(13) What were your reasons for applying to the summer program? (Check all that apply, then mark the most important reason with a "#1")

- I wanted to gain experience doing research
 I wanted to get an idea of what being a graduate student would be like
 I wanted to figure out whether I was really interested in the particular field ~~that~~ chosen
 I was interested in the UW's for graduate/professional school and wanted to see for myself what it was like there
 I hoped my participation would improve my chances of getting into graduate/professional school
 I hoped my participation would make me a more attractive job candidate
 I heard Madison was a fun/interesting place to spend the summer
 I needed something productive to do over the summer that would pay room and board
 Some of my friends were doing the same and talked me into it
 My advisor, guidance counselor, or favorite professor told me that I should
 Other: _____

(14) Prior to entering the summer program, what were your post-graduation plans? (Check from each column)

- | <u>A</u> | <u>B</u> |
|--|--|
| <input type="checkbox"/> I was positive I wanted to attend graduate school | <input type="checkbox"/> I was positive I wanted to attend professional school |
| <input type="checkbox"/> I was fairly certain I wanted to attend graduate school | <input type="checkbox"/> I was fairly certain I wanted to attend professional school |
| <input type="checkbox"/> I was uncertain about attending graduate school | <input type="checkbox"/> I was uncertain about attending professional school |
| <input type="checkbox"/> I was positive I <u>didn't</u> want to attend graduate school | <input type="checkbox"/> I was positive I <u>didn't</u> want to attend professional school |

(15) Prior to entering the program, how interested were you in attending UW-Madison for graduate or professional school?

- Very interested
 Fairly interested
 Only if other choices didn't pan out
 Not at all interested
 Hadn't really thought about it

(16) How much contact did you have with your mentor before the summer started (your first year in the program)?
 None whatsoever One phone call or letter Several calls and/or letters We met beforehand

(17) Would you have liked more contact with your mentor before the program started? (Circle) yes no

(18) What situation best describes who you worked with during the summer (your first year)?

I worked one-on-one with my mentor

I worked closely with a graduate student or lab assistant and saw my mentor as needed

I worked with several different people in a large lab over which my mentor presided

I worked mostly alone with only occasional assistance from anyone

Other: _____

(19) What was your overall satisfaction with this arrangement?

It was just right for me It worked well enough I was somewhat dissatisfied I was very dissatisfied

(20) How much individual contact did you have with your mentor during the summer program?

We worked side-by-side

We met/consulted daily

We met/consulted 2-3 times per week

We met/consulted once per week

He/she was seldom available to meet or consult with me

(21) Rate your satisfaction with the quantity and quality of the interaction you had with your mentor.

It was just right for me It worked well enough I was somewhat dissatisfied I was very dissatisfied

(22) How many of the program's on-campus seminars and social activities did you participate in during the summer?

All of them I knew of All but a few More than half Very few What activities?

(23) Which seminars or activities did you find particularly useful? _____

(24) Which seminars or activities weren't worth your time? _____

(25) Rate your overall satisfaction with the program's on-campus seminars and social activities.

It was just right for me It worked well enough I was somewhat dissatisfied I was very dissatisfied

(26) Have you ever attended the CIC conference that occurs partway through the summer? no yes

If no, why not?

I didn't know much (or anything) about it

I didn't have the time

I didn't see the point

Personal reasons/responsibilities

Other: _____

Answer questions 27 and 28 only if you attended the CIC Conference at least one time.

(27) What about the CIC conference(s) did you find useful? (Check all that apply, then mark the most useful with a "#1")

The contacts made with other minority students in my field

The contacts made with professors at other schools

Getting to know the other students at UW-Madison better

Becoming acquainted with the host institution's campus and facilities

Talking with recruiters and getting information on other CIC schools

Sharing your research and the problems you've faced with an audience of peers (the round tables)

The inspirational messages about careers in research

Seeing so many other minorities interested in research

The break from being in the lab

(28) Rate your overall satisfaction with the CIC conference(s)

It was perfect for me It worked well enough I was somewhat dissatisfied I was very dissatisfied

(29) Rate how you felt about the city of Madison (as a place to live) by the end of the summer.

Very positively Positively Neutrally Negatively Very negatively

(30) Upon leaving the summer program, what were your post-graduation plans? (Check one from each column)

A

B

I was positive I wanted to attend graduate school I was positive I wanted to attend professional school

I was fairly certain I wanted to attend graduate school I was fairly certain I wanted to attend professional school

I was uncertain about attending graduate school I was uncertain about attending professional school

I was positive I didn't want to attend graduate school I was positive I didn't want to attend professional school

(31) If your answer to 30 is different from your answer to 14, what made you feel differently from before? _____

(32) Upon leaving the summer program, how interested were you in attending UW-Madison for graduate or professional school?

- Very interested
- Fairly interested
- Only if other choices didn't pan out
- Not at all interested
- Still hadn't thought about it

(33) If your answer to 32 is different than your answer to 15, what made you feel differently about UW-Madison?

(34) In considering a graduate or professional school, what factors were/are you considering?

(First check primary factors in the column marked "Prim" and secondary factors in the column marked "Sec." Then, in the column marked "UW," use a "+" to indicate on which of these factors you think UW rates well, a "-" to indicate on which factors UW rates poorly, and a "0" to indicate on which factors UW is average.)

<u>Prim.</u>	<u>Sec.</u>	<u>UW</u>	
—	—	—	A high national ranking/good reputation in your area of interest
—	—	—	The presence of noted faculty members you hope to work with or learn from
—	—	—	Well-equipped labs, libraries, and computer facilities
—	—	—	Reliable financial support from fellowships, research assistantships, and other grants
—	—	—	Accessible and approachable faculty
—	—	—	A friendly and comfortable living environment
—	—	—	A hospitable climate
—	—	—	Easy access to your favorite cultural and recreational activities
—	—	—	Geographical closeness to family and the place you call "home"
—	—	—	A sufficient number of other minority students and researchers
—	—	—	Respect for diversity within the surrounding community
—	—	—	Other: _____

(35) What impact did the summer program have in helping you to define your research interests? (Choose one)

- It introduced me to a whole new field of research that I wanted to pursue
- It suggested a particular line of research in my major field that I might want to pursue
- It made my understanding of the field and specialty I had already chosen more complete and concrete
- It encouraged me to add another major or minor to increase my breadth and marketability in a given field
- It showed me a research area in my field that ~~wasn't~~ I wasn't interested in pursuing
- It discouraged me from going into research, although I was still interested in the field I had chosen
- It made me think I should pursue another field altogether

(36) What kind of an impact did the UW summer program have on your confidence in...?

(Place a check in the appropriate column for each)

	Very Pos Impact	Positive Impact	No Impact	Negative Impact	Very Neg Impact
...doing research?	___	___	___	___	___
...handling undergraduate class assignments?	___	___	___	___	___
...handling graduate-level work?	___	___	___	___	___
...approaching and interacting with faculty?	___	___	___	___	___
...getting into graduate or professional school?	___	___	___	___	___

(37) If you could recommend one or two things that would improve UW's summer program, what would they be?

Appendix D: Interview Protocol for Faculty Mentors

Background

1. Perhaps we could start by having you tell me a little bit about yourself. [Prompt: Describe your position at the university and your area of interest. How long have you been a professor? How long at UW?]
2. Do you have tenure? How does that affect your work?

Experiences with students in their lab

3. Describe the situation in your lab. Did you have any graduate students working with you over the summer? Any undergraduate research assistants? [Prompts: How many? How far along are they?]
4. How would you characterize your relationship with the students in your lab. [Prompts: What do you see your role being? How much contact do you have with them? How independent are they?]

How and why they got involved in the program

5. How many times have you participated in the summer research program here at UW? [Had you participated in similar programs at other institutions?]
6. How did you first hear about the summer research program?
7. What do you see the goal of this program as being?
 - a. What do you think the grad school is trying to accomplish in sponsoring programs of this sort?
 - b. Some programs at UW say they are trying to show students what it is like to be a faculty member. Do you see that as being a goal of *this* program?
8. What were your own reasons for participating in the program?
 - a. What did you expect to get out of your experience?
 - b. Why are those things important to you?
9. Did you initially have any concerns about participating? What were they?
 - a. Were those concerns realized?
10. What do you think the students get out of participating?

The mentoring experience

11. Describe your role in the summer research program. [Prompt: What exactly does it mean to be a mentor? What does that involve?]
12. Briefly describe the background of the student you last mentored.
13. How much say did you have in selecting this student?
 - a. What were you looking for in a student?
14. How much contact did you have with the student before he/she arrived on campus?
15. Describe your experience with this student. [Prompts: How closely did you work with this student? How much contact did you have with him/her? What was the tenor of your relationship? If professor has mentored more than once, ask him/her if this was a typical experience, and if not, why.]
16. Describe the first meeting you had with this student. How did it go?
17. Did the graduate students in your lab have much contact with the student you were mentoring? In what way?
18. How much responsibility were your graduate students or staff given in training and supervising the student? Did they volunteer to work with the student or was this role assigned to them?
19. How responsible was the student for choosing the topic or his/her research?
 - a. What sort of tasks did this research project involve?
 - b. How structured was the research the student was working on? [Prompts: Did the student start from the ground level, or assist in a project that was already underway? To what degree was the student aware of the objectives of the research?]
 - c. How much initiative did the student take with his/her research project?
20. Were you satisfied with the initial preparedness of the student you mentored? If not, in what area was he/she lacking when she came to your lab? [If more than one mentoring experience, was the professor generally satisfied with the preparedness of the students?]
21. Were you satisfied with the quality of this student's research project and final report? If not, why? [Have you generally been satisfied with the quality of the students' research projects?]
22. Did you attend the student's presentation and banquet at the end of the term? Why or why not?

The future

23. Do you anticipate additional contacts with this student? [Have any of the mentorships you had in the past resulted in that student joining your lab, enrolling at your university, or turning to you later in their careers for guidance, recommendations, or advice?]
24. Have you ever been involved in recruiting a student to come to graduate school? Is that a role you feel faculty should play? Why or why not?
25. Do you plan on participating in this program next year? Why or why not?
26. What obstacles are there to getting more faculty members to participate in this program?
27. If you could make one or two recommendations for improving the program, what would they be?