



3. STRATEGIES USED TO RECRUIT GRT TRAINEES AND ENHANCE THEIR EDUCATIONAL EXPERIENCES

GRT Recruitment Strategies

Prior to 1998, the Distance Monitoring System did not collect quantitative data about specific recruiting strategies. However, programs did provide narrative data about recruitment in 1997, permitting limited comparisons between the 1997 narrative data and the 1998 quantitative data.

Overall, the 1998 data indicate that 90 percent of the GRT projects used one or more strategies to recruit trainees for the GRT program (Appendix Table A-10). Only the 1992 award cohort had fewer than 90 percent of its projects (79 percent) reporting one or more GRT recruitment strategies. The most frequently reported recruitment strategies included:

- Developing brochures, posters, and other program announcements about GRT (73 percent);
- Recruiting undergraduate and graduate students already enrolled at the GRT institution (53 percent);
- Using GRT funds to bring prospective GRT trainees to campus (53 percent);
- Posting GRT advertisements in scholarly publications, web pages, electronic bulletin boards, and e-mail lists (50 percent);
- Promoting GRT project at national meetings and/or graduate student fairs (43 percent); and
- Visiting predominately undergraduate institutions (28 percent).



Comparison of the 1997 narrative data and 1998 quantitative data suggests that more programs were using each of these strategies in 1998 than they were in 1997.⁵ For example, the Baseline Report indicated that in 1997, less than half of projects used brochures, posters, and other program announcements. About one-third reported using advertisements in scholarly publications, web pages, electronic bulletin boards, and e-mail lists in 1997, and only 10 percent used GRT funds to bring prospective trainees to visit the program.

During the 1998 data collection period, projects were asked whether each strategy was developed by GRT (as opposed to already being in use by the department or institution). In response, the majority (generally two-thirds or more) reported the strategies were developed by the GRT project. Over 80 percent of those projects that placed ads in scholarly journals or electronic media and promoted GRT at national meetings and/or graduate student fairs reported that these strategies had been developed as a result of GRT.

Recruitment of Individuals from Underrepresented Groups.

The 1998 data indicated that 38 percent of all GRT projects reported visiting minority-serving institutions or women's colleges to recruit minority and female trainees (Appendix Table A-10). Fifty percent made some other effort to recruit individuals from these underrepresented populations. This figure represents an increase from the 1997 reporting period; the Baseline Report indicated that about 41 percent of the projects reported making some special effort to recruit female, minority, and/or disabled trainees.⁶

In addition to the quantitative data in the 1998 Distance Monitoring System, projects provided detailed textual information about their efforts to recruit underrepresented groups for GRT traineeships.

These qualitative data indicate that the majority had developed new strategies to recruit individuals from underrepresented groups, while simultaneously using preexisting university or departmental

⁵ Note that the 1997 data do not provide sufficient detail to decipher whether these approaches were developed specifically for the GRT project or were part of a larger recruitment strategy already in use by the department and/or institution.

⁶ During the 1997 data collection, projects were not presented with specific check-off items in the survey on whether their recruitment included special emphases on female and/or minority students. Since this information was specifically listed in the 1998 reporting year, a higher percentage of projects may have made special efforts to recruit underrepresented populations.



channels to recruit these persons. The most frequently cited strategies included:

- Sending promotional mailings (including e-mail) to institutions with high minority enrollment, or to mailing lists (e-mail and postal) of minority students;
- Contacting and visiting faculty and students at women's colleges and historically black colleges and universities;
- Recruiting minority and female undergraduates or graduate students enrolled in the same department in their own universities; and
- Promoting GRT at national meetings and conferences, in advertisements in professional publications, and through national societies for women and/or minorities in the sciences.

Three projects reported establishing "pipeline" programs that link minority undergraduates to their doctoral programs. One such project is developing a "feeder school" program that will eventually include faculty exchanges for lectures, seminars, and workshops, cooperative research projects and instructional activities, sharing of research facilities, and linking GRT trainees and prospective students by electronic mentoring and "virtual" supervision of undergraduate research projects.

Using the Internet for Recruitment. Projects provided supporting text data about recruitment strategies using the Internet in the 1998 Distance Monitoring System.⁷ Analysis of these data indicates that the Internet is a popular recruitment tool. The most common uses of the Internet were advertising the GRT traineeships on web sites, electronic bulletin boards, listserves, and newsgroups. Many projects used their university or departmental web site to provide detailed information about their GRT traineeships as well as research activities, faculty, and coursework. Two projects reported that their GRT trainees are responsible for developing web sites for their programs. One of those projects, at a public university, asked their trainees to maintain portfolios of their progress through the entire year and to develop those portfolios into web pages. This project plans to link these web-based portfolios to the department web site as a means of conveying to prospective students what sorts of activities and opportunities might be available to them.

⁷ During the 1997 data collection, projects were not specifically asked to address whether their recruitment strategies used the Internet.



GRT Project Features

One of the GRT program's objectives is to "stimulate the development of graduate training environments that simultaneously address areas of national science and technology priority and proactively build an infrastructure capable of promoting and sustaining student diversity" (NSF GRT 1995 Program Announcement, NSF 94-140).

The 1998 data⁸ indicate that GRT grantees have made considerable efforts to increase their offerings of innovative educational experiences for their trainees. Table 7 shows the percentage of projects reporting specific project features in the 1997 and 1998 reporting periods. The data also indicate a trend in which these project features were provided by more projects over time. Thus, in each subsequent award year, GRT projects have increased the range of educational experiences made available to their students in order to supplement the more typical research opportunities traditionally afforded by most NSF grant funding. Appendix Table A-11 presents these data by award cohort, providing details about specific activities undertaken, as well as the percentage of those activities developed by GRT.

The quantitative 1997 data on project features are limited to the percentage of projects reporting use of specific features. A higher percentage of projects reported international opportunities and initiatives to prepare trainees for faculty positions in the 1998 reporting period than did so in 1997 (Table 7). However, multidisciplinary training activities were offered by a slightly higher percentage of projects in the 1997 reporting period than in the 1998 reporting period.

⁸ Much more detailed data were collected for the 1998 reporting period than for previous years, limiting comparisons between the Baseline Report and this report. Previous data only indicated whether or not the following project features were offered: multidisciplinary training activities; industry cost-sharing of trainees; international opportunities for trainees; preparing trainees for faculty positions by providing training in effective teaching methods, advanced technology, or advising and mentoring students; and other structural components. A text box was also available for entering descriptions of the project features, but such descriptions could not be easily tabulated.



Table 7
GRT projects reporting specific features: Reporting years 1997 and 1998

Project feature	All cohorts: 1997	All cohorts: 1998
Multidisciplinary training activities	93.6%	89.8%
Private/public sector opportunities for trainees	NA	66.2
International opportunities for trainees	37.6	58.6
Initiatives to prepare trainees for faculty positions	54.1	85.4
Other structural components	NA	49.0

NA = not available.

SOURCE: GRT Distance Monitoring Survey System. Surveys completed in 1997 and 1998.

Multidisciplinary Training Activities. The 1998 data indicate that 90 percent of projects reported developing multidisciplinary arrangements with other academic departments, and considerably more than half of all project features in this category were developed subsequent to receiving GRT funding (Appendix Table A-11). The percentage of projects reporting these activities increased with each successive cohort, from 74 percent of projects in the 1992 cohort to 100 percent in the 1995 cohort. The most common multidisciplinary training activities included:

- Providing instruction and other academic support by faculty from multiple departments (73 percent overall);
- Offering multidisciplinary courses (66 percent overall); and
- Providing traineeships to students from various departments (54 percent overall).

Analysis of text data provided by GRT projects indicates that the projects strongly support the goal of multidisciplinary training and have developed training features to achieve that goal for their students. In addition to those activities listed above, many departments described activities such as lab rotations or research projects in other departments, multidisciplinary field projects and seminars, and interdisciplinary advising and thesis committees.

Private/Public Sector Opportunities. Overall, about 66 percent of projects reported in 1998 that they had offered private/public sector opportunities to their trainees, and more than half of these opportunities were developed by GRT. Again, an increasing percentage of grantees developed these activities in each



successive cohort. Half of the 1992 cohort offered such opportunities, compared to three-quarters in the 1995 cohort (Appendix Table A-11). The most common private/public sector opportunities included:

- Educational or research advisors/collaborators from industry/private/nonprofit/public sectors (40 percent overall); and
- Internships in industry/private/nonprofit/public sectors (36 percent overall).

Projects offered a myriad of other opportunities for trainees to gain exposure to and experience with employment options in their field. In addition to internships, some programs encouraged students to work for or under contract to industrial and/or government laboratory researchers during their traineeships. Others had affiliated faculty from industry as partners. Several projects developed special training, workshops, or colloquia with industry partners. For example, one project described an Applied Mathematics in Industry Workshop in which industrial researchers presented problems, then faculty, postdoctoral, and student teams worked for a week to develop solutions. At the end, trainees made oral presentations and wrote papers about the problem and potential solutions.

International Opportunities. Overall, 59 percent of the projects reported in 1998 that they had used international activities to enhance their trainees' educational experiences (Appendix Table A-11). Projects appear to be placing increased emphasis on offering such opportunities; only 38 percent of projects reported them in the 1997 reporting year. As with the other project features, the percentage of projects that reported having offered these opportunities was higher for each successive cohort. Common activities included:

- Travel to foreign meetings/conferences (38 percent overall);
- Work in foreign universities/research settings (27 percent overall); and
- Field research in conjunction with foreign researchers (21 percent overall).

One example of the type of rich opportunities GRT projects offered their trainees was a research trip to Costa Rica for students to learn about conservation and biodiversity in the tropics, the most species



rich environments in the world; to see how human activities such as urbanization, farming, and logging are affecting habitats, biodiversity, and ecosystem processes; and to introduce them to people and projects engaged in exemplary conservation projects. After initial visits to a variety of sites in the country, students and faculty split into a marine and a terrestrial team, each of which undertook a research project.

Initiatives to Prepare Trainees for Faculty Positions. Overall, 85 percent of projects reported initiatives to prepare trainees for faculty positions in 1998, compared to 54 percent in 1997. The 1994 and 1995 cohorts placed considerable emphasis on these activities; over 97 percent of those grantees engaged in such activities (Appendix Table A-11). It appears, however, that many grantees offered these activities before GRT funding; for most activities, less than 50 percent were developed by GRT. The most common activities included:

- Trainees serving as teaching assistants or mentors to students (69 percent overall);
- Trainees receiving instruction in effective teaching methods (44 percent overall);
- Trainees participating in teaching exercises (41 percent overall); and
- Trainees developing course or curriculum materials (30 percent overall).

Other Structural Components. Overall, nearly half of the projects reported in 1998 that they had offered “other structural components” to enhance their trainees’ educational experiences (Appendix Table A-11). These components varied widely, including experiences such as colloquia, workshops, weekly research meetings, and weekend or summer laboratory courses.

Consortial Agreements. Consortial arrangements are formal alliances between a GRT project and at least one other organization designed to help GRT projects achieve objectives (e.g., recruit minority students, provide graduate students with training in a specific field) that might otherwise not be accomplished. For the 1998 reporting year, 43 percent of the projects overall reported at least one consortial agreement (Table 8), slightly higher than the 40 percent of projects that reported such agreements in 1997 for the 1992-97 period. The percentage of projects that reported having



established consortial agreements with other graduate-degree-granting institutions in order to provide trainees opportunities to engage in special research and training at other institutions was higher in 1998 than in 1997. However, a smaller percentage reported minority consortial agreements (to recruit underrepresented minorities) and nongraduate consortial agreements (in which nongraduate institutions serve as feeder schools for a GRT project) than had reported having such arrangements in 1997. Appendix Table A-12 presents data on consortial agreements by award cohort.

Table 8
GRT projects reporting consortial agreements: Reporting years 1997 and 1998

Consortial agreement	All cohorts: 1997	All cohorts: 1998
Total number of project awards.....	157	157
Projects reporting at least one consortial agreement¹	40.1%	42.7%
Nongraduate consortial agreements ² .	20.4	17.2
Graduate consortial agreements ³	14.6	22.9
Minority consortial agreements ⁴	32.5	24.8

¹Combinations or groups formed to undertake an enterprise beyond the resources of any one member.

²Nongraduate institution serves as a feeder school for a GRT project by identifying students for recruiting purposes.

³Consortial arrangements with another graduate-degree-granting institution. Under this arrangement trainees might be provided opportunities to engage in special research and training at lower institutions.

⁴Arrangements that are specifically designed to increase the pool of minority trainees at GRT projects.

SOURCE: GRT Distance Monitoring Survey System. Surveys completed in 1997 and 1998.