

Partnership Review Report

Council for Research

May 2001

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Introduction

The Council for Research was charged with reviewing the accomplishments and progress of the Partnership program. The original directive by the Faculty Senate instructed the Council for Research to use three primary criteria for selection of Partnerships: a) the significance of the Partnership's goals and activities to the mission of the University; b) the capacity of the personnel to carry out the goals of the Partnership; c) the likelihood of obtaining external funding and achieving self-supporting status. Two secondary criteria were described by the Faculty Senate Resolution: a) the opportunities for student participation and b) the curricular and service opportunities provided through the Partnership.

The initial round of funding by the University created four Partnerships in January, 1996: the President's Health Promotion Partnership; the Partnership for the Coastal Environment; the Public Health Partnership in Infectious Disease Control; and the Sensors and Surface technology Partnership for Education and Research. After the University funding for the first four Partnerships expired in December 1999, three new Partnerships were formed: the Family Resource Partnership; the Forensic Science Partnership; and the Partnership in Physiological Measurements and Computing. The latter three Partnerships are still receiving funding from the University.

This report is organized in the following fashion. A brief description of the process used by the review committee is described in the section labeled Methodology. Then there are three sections pertaining to the primary areas of responsibility of faculty and the University, Education, Service, and Research. The next section identifies some Problem Areas found across all Partnerships, which is followed by a section detailing some Recommendations to address these areas. Finally, the report ends with a brief Conclusion. Also included, as appendices, are the responses from each Partnership to the questions posed by the review committee.

Methodology

A subcommittee to review the Partnerships was appointed by the Council for Research and was composed of J. Trubatch (*ex officio*), K. Markin (*ex officio*), and B. Allina (*ex officio*) from the Research Office and W. Euler, D. Joseph, J. Rossi, J. Williamson, and H. Zia from the Council of Research. Initially, the subcommittee invited representatives from each Partnership to meet with the review committee to informally discuss issues associated with the review. This was intended to allow input from each Partnership on how the assessment should take place. Two meetings were held and representatives from the Health Promotion Partnership, Sensors and Surface Technology Partnership, Family Resource Partnership, Forensic Science Partnership, and Partnership in Physiological Measurements and Computing were able to meet the committee. From these discussions, the review committee constructed a questionnaire (attached as Appendix A) that was submitted to each Partnership for response. Responses were received from all the Partnerships except the Public Health Partnership in Infectious Disease Control and are included verbatim in Appendix C. The committee then met to review the responses and draft this report.

Education

The level of student involvement in Partnership activities is uniformly impressive. The number of student participants ranges from 15-50 per academic year in each Partnership, with roughly equal division between undergraduate and graduate students. Each Partnership reported the creation of only a limited number of new courses to accommodate the educational goals of the Partnership. Minors were also formed from Health Promotion Partnership and Forensic Science Partnership. Thus, the Partnership mechanism has proven to be both effective and efficient for improving the interaction and mentoring between faculty and students.

Although there was little systematic tracking of student outcomes, the general feeling was that students benefited from working in a Partnership. Graduate students found good jobs or postdoctoral positions and undergraduate students found jobs or were accepted into first-rate graduate schools. Of the publications and presentations that resulted from Partnership activities, a very high percentage (> 75%) included student co-authors. Anecdotal evidence indicated that students felt that their experience with a Partnership was satisfying.

Service

All of the Partnerships have provided service to the profession and to the community. Depending upon the nature of the Partnership, this service included activities directly for the people of the local RI community (especially through Health Promotion Partnership and Family Resource Partnership) to state and local government agencies (Sensors and Surface Technology Partnership, Forensic Science Partnership, Partnership for the Coastal Environment). Some Partnerships developed links with local and national industry (Sensors and Surface Technology Partnership, Partnership in Physiological Measurements and Computing), either to help drive new products to market or help companies solve problems with existing products. Partnership in Physiological Measurements and Computing also indicated that Partnership activities were able to help recruit under-represented persons into the engineering field, a positive service for the University. Service contributions are diverse and essential components of all Partnerships.

Research

The research component of each Partnership is the most important activity and there is a high level of research activity in all of the Partnerships. The role and contribution of the Partnerships in research productivity is difficult to measure quantitatively, however. The committee looked at four items: number of publications, number of proposals submitted, number of proposals awarded, and the amount of money awarded for each of the faculty members listed as being an active member for each Partnership. The publications were taken from a database maintained by the URI Library and the other items were taken from the Research Office database. Bar graphs for the totals vs. time over the last ten years for all Partnerships are given in Appendix B. Since research awards and publications do not indicate the relationship to a Partnership activity, no attempt was made to apportion these totals into Partnership and non-Partnership categories. There also is no accounting for changes in faculty participation.

The general observations about all of these measures are that there is little change before and after Partnerships were created. There is significant fluctuation from year to year and no definitive trends are apparent. For Family Resource Partnership, Forensic Science Partnership, and Partnership in Physiological Measurements and Computing no influence from the creation from the Partnerships is expected since they are so young. Given that there also is no change for the older Partnerships, one of two conclusions may be drawn. First, it is possible that the incubation time for a Partnership to create an environment to increase research productivity and visibility exceeds five years. A second possibility is that faculty participating in Partnerships are working to the same capacity as before Partnerships, but are now focusing their activities in the Partnership rather than elsewhere.

Problem Areas

All of the Partnerships reported the same problem areas that can be summarized into three areas. First, where do the Partnerships fit into the University structure? Second, how can workload problems be resolved? Third, how do the Partnerships become self-sustaining? Each of these topics will be discussed in the following paragraphs.

The Partnerships report to the Provost, but are populated by faculty from various departments and colleges. This structure leads to conflicting responsibilities and availability of resources. This structure also leads to different faculty being treated differently with regards to their Partnership activities, depending upon the curriculum needs of a given department or college.

The most striking area where the Partnership structure affected participants was uncompensated workload. Nearly all teaching activities done by faculty in Partnerships was brought about on an overload basis. Further, crosslisted courses also proved to be a problem: course enrollment and instruction had blurred lines in terms of who takes responsibility and who gets credit. Further, service and administrative activities within a Partnership have no recognition at all as part of the workload. It is clear that workload assignments for faculty participating in Partnerships have no official recognition and are treated differently by different units within the University.

Finally, the biggest problem area is how the Partnerships are to become self-sustaining. All of the Partnerships interpreted this in a financial sense, but the review committee also considered that maintaining the activities of the Partnerships, independent of the money issues, was also worthwhile. Most of the research projects reported by the Partnerships were able to continue by extramural funding, but administrative, service, and educational activities need alternative sources of revenue.

From the financial perspective, the problem is that there is no direct method for a Partnership to bring in grant funds for the Partnership; all grant funding is accounted through the PIs and their respective departments/colleges. All Partnerships requested that some of the indirect costs generated by Partnership funding be returned to the Partnership.

Recommendations

The two major problem areas are workload and financial self-sustenance. Recommendations to address each of these issues are described below.

Workload

- Shared clerical help should be provided for all the Partnerships. A secretary or fiscal clerk centrally located would be available for all Partnership directors for assistance in administering the Partnership, dealing with accounting, paperwork for hiring students, etc.
- All levels of administration, including Department Chairs, Deans, and the Provost, must officially and uniformly recognize faculty participation in Partnership activities. This could be accomplished by adding Partnership activities to the Program Contribution Analysis.

Financial Self-Sustenance

- A mechanism for Partnerships to get credit for grant funding outside of Department/College lines should be created. This should be used for grants that support the entire Partnership and for grants that support research projects for individual faculty or small teams of faculty working under the Partnership structure.
- A portion of indirect costs generated by Partnership grants should be returned to the Partnership, on a percentage basis. The committee recommends a three-year phased plan where 5 % is returned to Partnerships during academic year 2002-2003, 7.5 % returned 2003-2004, and 10 % returned thereafter. These percentages would be based on grants funded through Partnerships as indicated by the Research Office Proposal Transmittal Form. None of this portion of indirect cost return should be taken from the Dean's share.
- For any intellectual property generated by a Partnership project, some of the royalties should be returned directly to the Partnership. The Deans of Arts & Sciences and Engineering have agreed to return one-third of their share of royalties to the Sensors and Surface Technology Partnership on a currently disclosed intellectual property. It is recommended that this become the standard return for all royalty revenue generated from Partnership activities.
- The source of money for the currently funded Partnerships (Family Resource Partnership, Forensic Science Partnership, and Partnership in Physiological Measurements and Computing) is a \$450,000 set aside from indirect costs. When the funding for these three Partnerships ends, this revenue stream should be used as follows:
 1. One or two new Partnerships should be funded for the next three year cycle at the current level of \$150,000 per year. The newly created Partnership(s) *would not* be eligible for the funding described in items 2, 3, and 4.
 2. One-third (\$50,000 or \$100,000) of the remaining funds should be distributed equally amongst all active Partnerships.
 3. One-third (\$50,000 or \$100,000) of the remaining funds should be distributed to the Partnerships on a competitive basis. Brief proposals (no more than 5 pages) could be submitted to the Council for Research for review and recommendations returned to the Provost.
 4. One-third (\$50,000 or \$100,000) of the remaining funds should be distributed to the Partnerships on a pro-rated basis determined by the indirect cost recovery of Partnership related projects. In determining these totals, only grants that provide for indirect cost recovery would be included. Grants directly to the Partnership, to individual faculty members, or faculty teams would be included as long as they are determined to be Partnership related projects, as determined by the Research Office Proposal Transmittal Form.

Conclusion

It is the conclusion of the review committee that the Partnerships have been successful and that this model should be continued. Over 100 faculty members have participated in one or more Partnerships and have contributed in all the areas of education, service, and research. While a quantitative demonstration of increased productivity has not been found, it was uniformly felt that the Partnerships provided an increased opportunity for multidisciplinary research and collaborations across departments and colleges. This was a consistent message from all the Partnerships.

The research projects in the Partnerships included participation from undergraduate students, graduate students, staff, and faculty. Since the Partnerships operate outside of the traditional Department and College structure, both opportunities and problems were created.

Students are also integral contributors to the Partnerships. Significant numbers of both undergraduate and graduate students participated in Partnership projects and were included as co-authors on the majority of publications and presentations. Anecdotal evidence presented by the Partnerships implied that many student participants considered their work in a Partnership project one of the best experiences in their URI career.

Finally, the two biggest problems identified were concerns with workload and financial self-sustenance. Based on the responses provided, several solutions to these issues have been provided. Most importantly, participation in a Partnership must be recognized in a uniform fashion across the University and a well-defined method to provide continuing funds to Partnerships must be implemented.

Appendix A

Partnership Review Self Study

Please limit answers to 1/2 page per question. Responses are due in the Research Office by February 28, 2001.

1. List the active faculty participating in the Partnership. How has this changed over time?
2. List the annual number of research papers and presentations made associated with Partnership activities. Do Not list each citation, but just the number of papers or presentations.
3. What external funding has resulted from Partnership activities? Give examples of any funding that was directly linked to the Partnership.
4. Give examples of how the Partnership activities are or will be self-sustaining? For those Partnerships that no longer receive funding from URI, has this objective been met? How? For those Partnerships still receiving URI funding, what is the plan to become self-supporting? For both groups, what is the management plan for self-support?
5. How have Partnership activities affected faculty workload? Give examples.
6. What new courses have been created from the result of the Partnership? List the enrollment in these courses.
7. How many undergraduate students and how many graduate students have participated in the Partnership? How many of the publications and presentations listed in question 2 have had student co-authors?
8. What have student participants done after they have left URI? Give examples, especially highlighting how the Partnership benefited the student.
9. What service contributions have arisen from Partnership activities, to the professional community, URI, or to the State of Rhode Island?
10. What does the Partnership need to become more effective?
11. What changes to the Partnership program could be made to make it better?
12. For those Partnerships no longer receiving URI funding: Did the Partnership receive additional funds from the Provost after the initial grant expired to support student activities? How were those funds used?

Appendix B

Health Promotion Partnership - Formed 1996

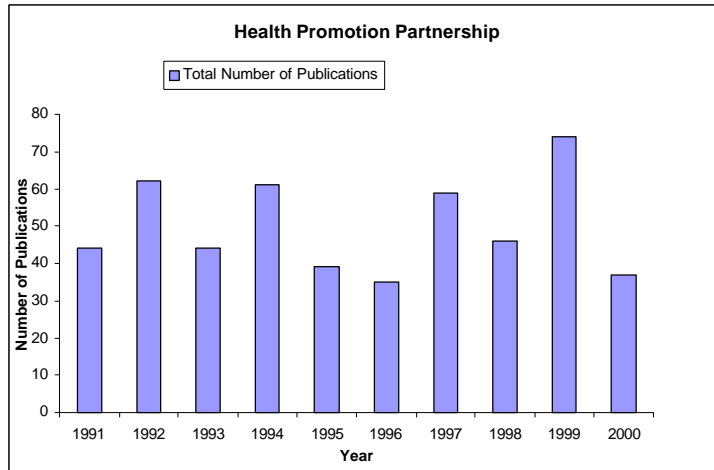


Figure 1. Publications from faculty in the Health Promotion Partnership over the last ten years.

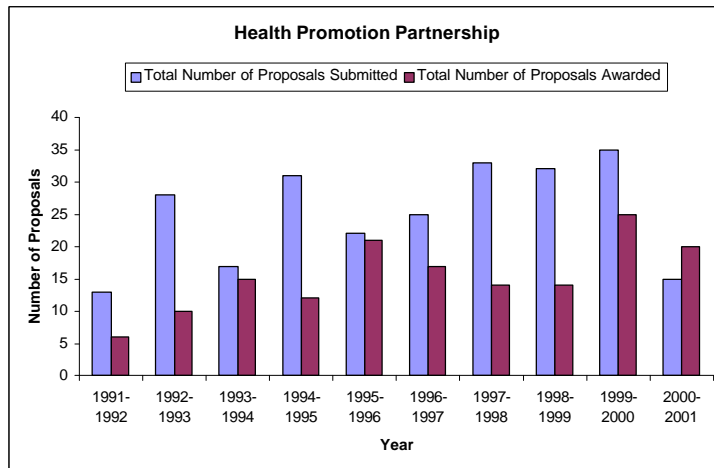


Figure 2. Proposals written and awarded from faculty in the Health Promotion Partnership over the last ten years.*

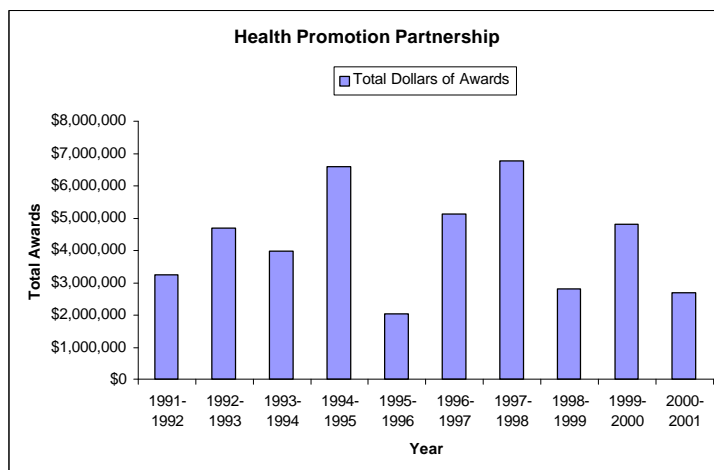


Figure 3. Funding obtained by faculty in the Health Promotion Partnership over the last ten years.

* Awards outnumber proposals in some years since decision times often cross reporting years.

Appendix B

Sensors and Surface Technology Partnership - Formed 1996

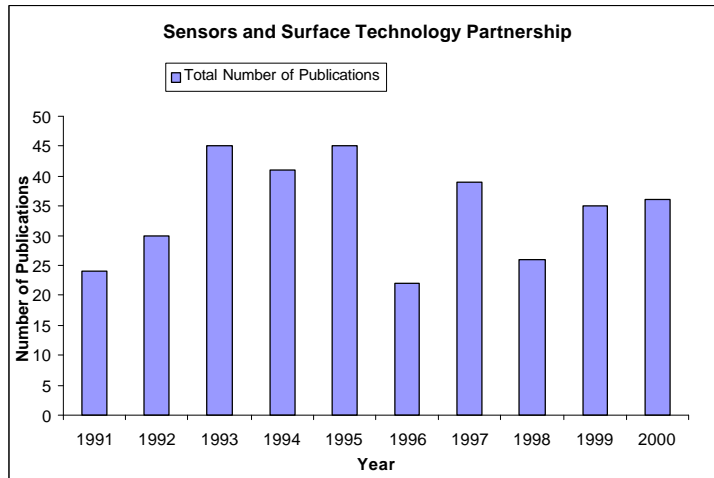


Figure 4. Publications from faculty in the Sensors and Surface Technology Partnership over the last ten years.

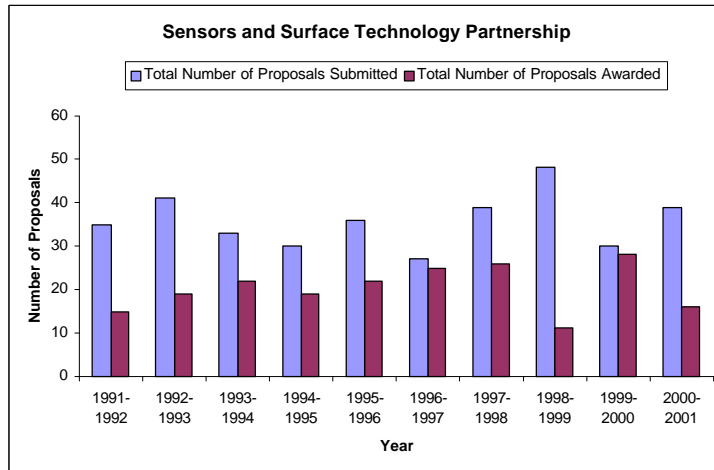


Figure 5. Proposals written and awarded from faculty in the Sensors and Surface Technology Partnership over the last ten years.

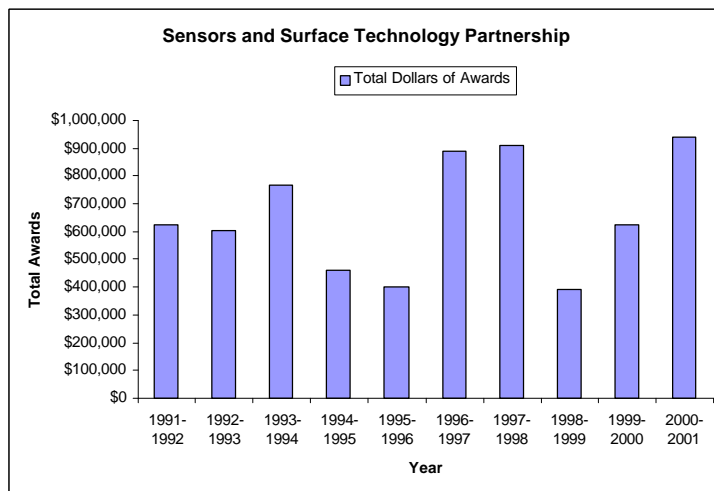


Figure 6. Funding obtained by faculty in the Sensors and Surface Technology Partnership over the last ten years.

* Awards outnumber proposals in some years since decision times often cross reporting years.

Appendix B

Partnership for the Coastal Environment - Formed 1996

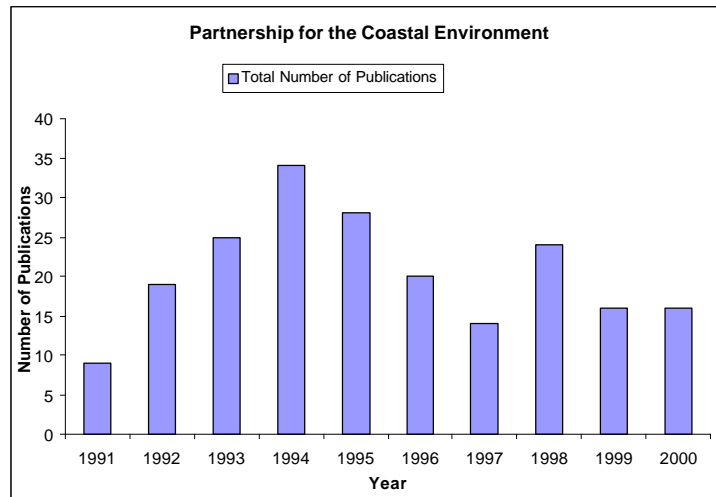


Figure 7. Publications from faculty in the Partnership for the Coastal Environment over the last ten years.

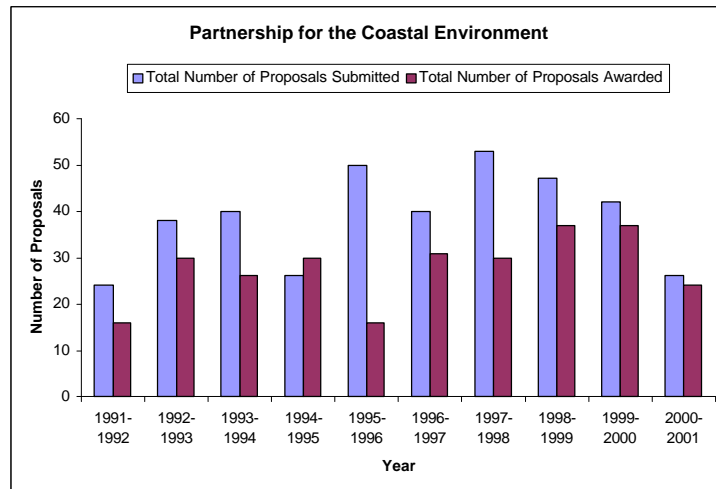


Figure 8. Proposals written and awarded from faculty in the Partnership for the Coastal Environment over the last ten years.

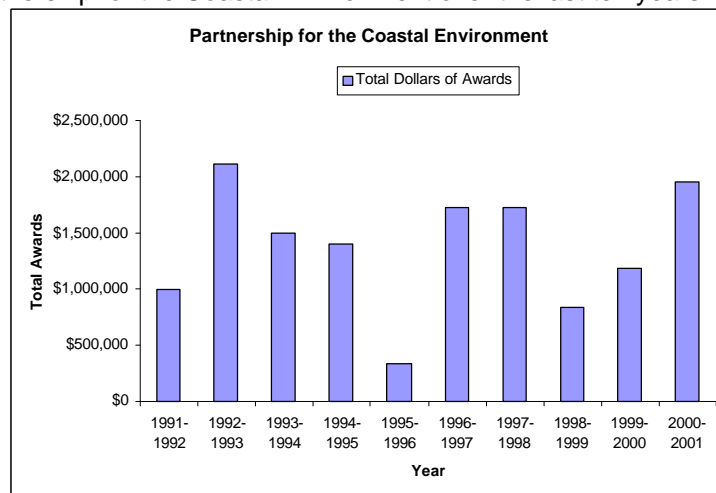


Figure 9. Funding obtained by faculty in the Partnership for the Coastal Environment over the last ten years.

* Awards outnumber proposals in some years since decision times often cross reporting years.

Appendix B

Family Resource Partnership - Formed 1999

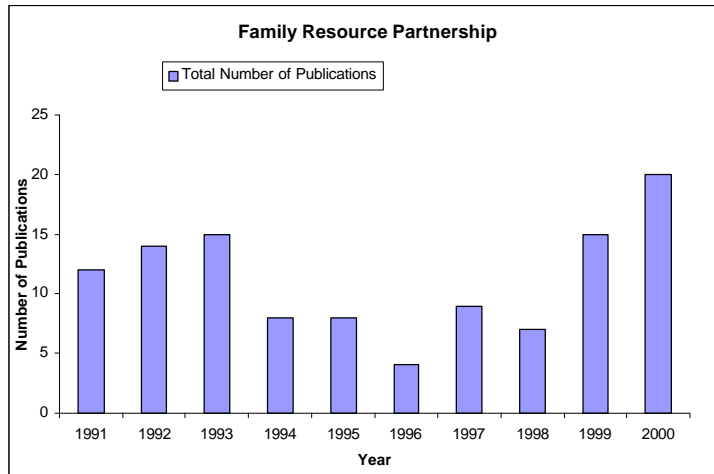


Figure 10. Publications from faculty in the Family Resource Partnership over the last ten years.

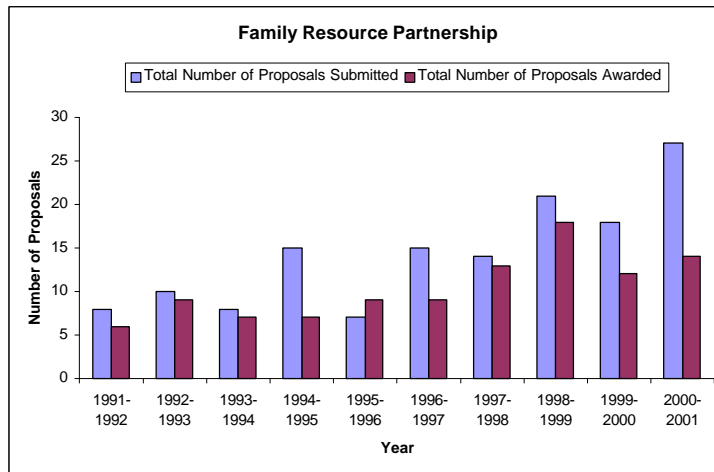


Figure 11. Proposals written and awarded from faculty in the Family Resource Partnership over the last ten years.

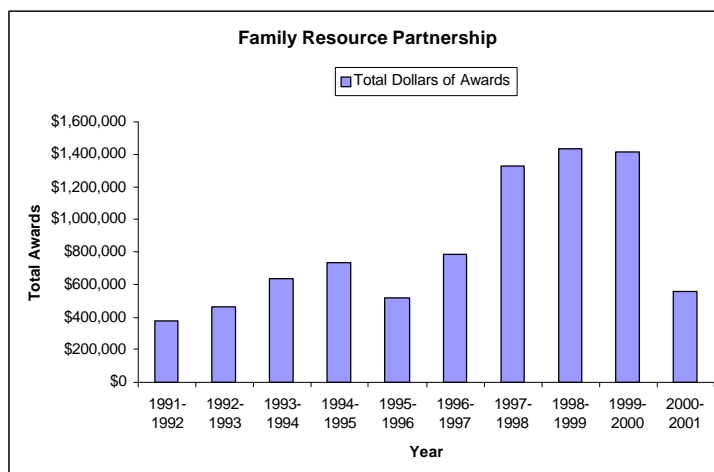


Figure 12. Funding obtained by faculty in the Family Resource Partnership over the last ten years.

* Awards outnumber proposals in some years since decision times often cross reporting years.

Appendix B

Forensic Science Partnership - Formed 1999

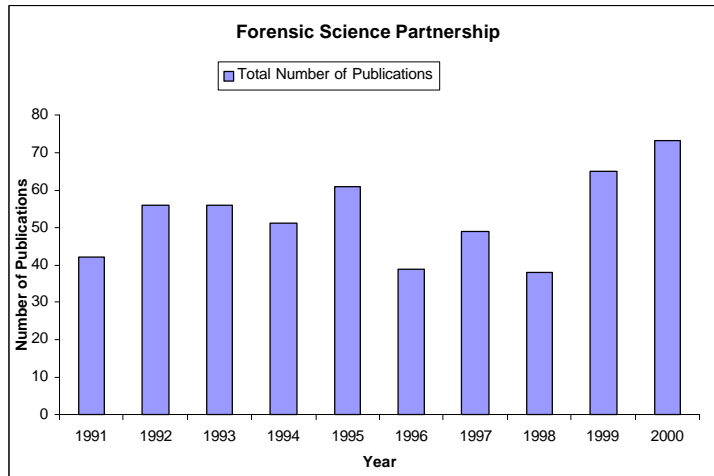


Figure 13. Publications from faculty in the Forensic Science Partnership over the last ten years.

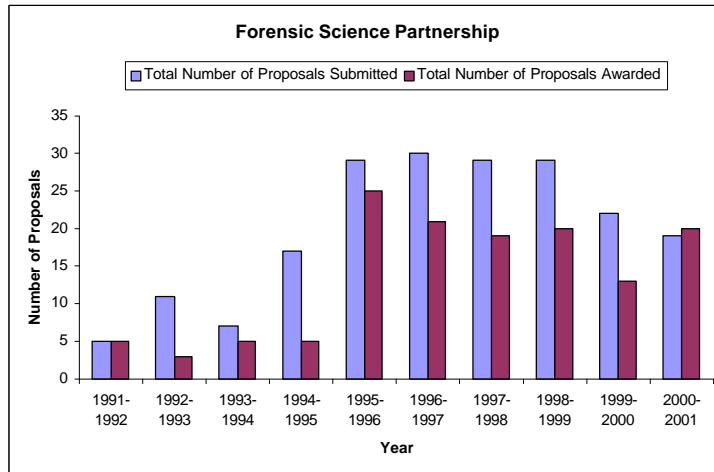


Figure 14. Proposals written and awarded from faculty in the Forensic Science Partnership over the last ten years.

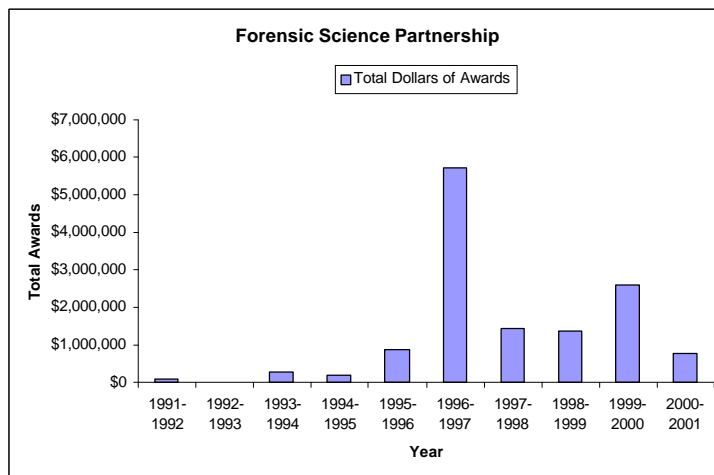


Figure 15. Funding obtained by faculty in the Forensic Science Partnership over the last ten years.

* Awards outnumber proposals in some years since decision times often cross reporting years.

Appendix B

Partnership in Physiological Measurements and Computing - Formed 1999

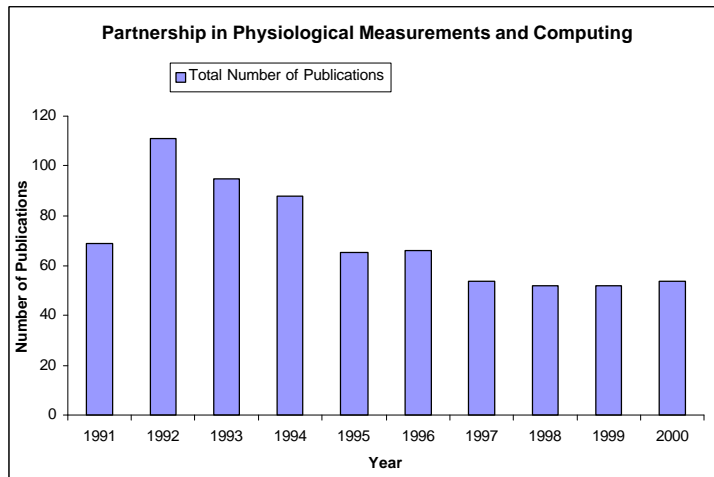


Figure 16. Publications from faculty in the Partnership in Physiological Measurements and Computing over the last ten years.

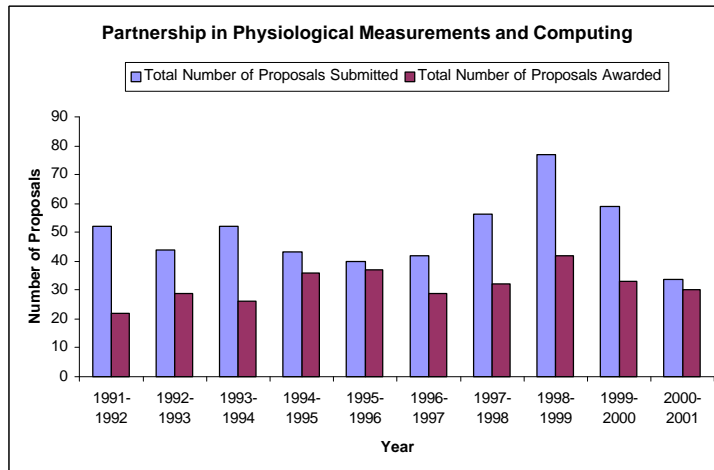


Figure 17. Proposals written and awarded from faculty in the Partnership in Physiological Measurements and Computing over the last ten years.

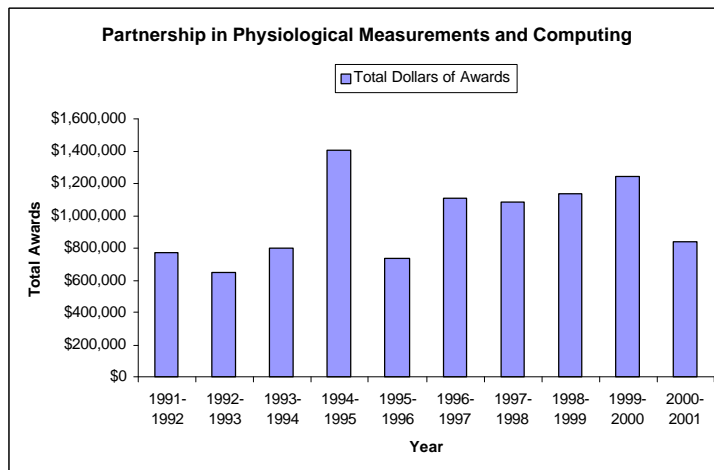


Figure 18. Funding obtained by faculty in the Partnership in Physiological Measurements and Computing over the last ten years.

* Awards outnumber proposals in some years since decision times often cross reporting years.

Appendix C

Responses to the Partnership Review Self Study Questions

The questions used in the self-study are found in Appendix A. The verbatim responses from each Partnership are given below.

Health Promotion Partnership

1. Active Faculty:

James O. Prochaska, Director; Laurie Ruggiero, Associate Director; Brian Blissmer, Ph.D.; Marjorie Caldwell, Ph.D.; Phil Clark, Ph.D.; Fran Cohen, M.A.; Geoffrey Greene, Ph.D.; Dayle Joseph, Ph.D.; Robert Laforge, Ph.D.; Norbert Mundorf, Ph.D.; Colleen Redding, Ph.D.; Deborah Riebe, Ph.D.; Joseph Rossi, Ph.D.; Wayne Velicer, Ph.D.; Mark Wood, Ph.D.

There have been several major changes in faculty participation in the Health Promotion Partnership. Two teams are no longer active: 1. The Chronic Back Injury Team with focus on physical therapy. This team was not able to launch an on-going research program due primarily to the intensive teaching demands of the part time faculty and the limited number of faculty in the program. 2. The Medication Compliance Team moved away from the partnership probably due to conflict between the head of that team and the head of the partnership. One team has been less active, namely, the Smoking Cessation Team, in part because Dr. Unto Pallonen, head of the team, left for the University of Michigan, and Dr. Nelson Smith partly retired. These activities have continued primarily through grants in the CPRC. Two others have been added: 1. The Alcohol Abuse Team which has been very active and very successful; and 2. The Minority Health Promotion Team which has had a late start and is headed by a faculty member with many conflicting demands.

2. Annual Number of Research Papers and Presentations

Because of the multiple affiliations of HPP faculty, it is very difficult to know when to attribute publications and presentations to HPP or to alternative affiliations. Furthermore, HPP does not track such statistics on an annual basis. Here is our best estimate since the start of the HPP.

Books: 1; Chapters: 30; Journal Articles: 30; Presentations: 70

3. External Funding

1. The HPP Aging and the Weight Management Teams combined to develop the SENIOR Project (Study of Exercise and Nutrition in Older Rhode Islanders): funded for four years by NIA for \$2,800,000.
 - a. A supplemental grant of \$216,000 from NIA.
 - b. A second supplemental grant anticipated for 4/1/01 for \$482,000.
 - c. A pilot project for \$35,000 from the Rhode Island Public Health Foundation.
2. The Weight Management Team has been funded for 3 years by ACS for \$401,000.

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3. The Smoking Cessation Team was funded for 2 years by AHA for \$131,780.

As with publications and presentations, it is very difficult to determine which grants to attribute to HPP and which to other affiliations. There are major structural barriers to bringing grants in under HPP. The biggest is the distribution of indirect dollars. The NIA grant, for example, has to distribute indirects across so many colleges and departments, that the funded project itself has little left to use for project purposes.

Since the start of the HPP, faculty affiliated with the HPP have generated more than \$14,000,000 in external funding that are not included in the funding cited above. Also, there are over \$8,000,000 in health promotion grant proposals that are pending. Finally, there are over \$20,000,000 in grant proposals that are being prepared for June submission.

4. Self-Support and Self-Sustaining.

Almost all health promotion research at URI is being accomplished through self-support, that is, through external grants. Examples include the Senior Project, the multiple Alcohol Abuse projects, the weight management project, the smoking cessation projects and the multiple behavior change projects.

A more difficult question is will the HPP be self-sustaining. Another difficult question is should the HPP be entirely self-supported? Given that the HPP is intended to be an alternative structure that integrates teaching/research/service/commerce as much as possible, there is serious question as to whether all of these activities can be or should be paid by external funding. Why shouldn't the teaching and service functions be supported by tuition dollars or state dollars to the university?

The HPP is currently developing a major training grant from NIH that would help support the teaching and research mission. But these funds can support students primarily. Faculty training time must be paid for primarily by the University, according to NIH policy. The question as to whether the HPP will be self-sustaining will be addressed under questions 5, 10 and 11.

5. Effects on Faculty Workload.

Unfortunately the teaching part of the HPP has most often been accomplished as an over-load for too many of the HPP faculty. Sustaining interdisciplinary involvement of faculty from 6 to 8 departments is one of the biggest problems when each faculty member has demanding and conflicting instructional responsibilities in their own departments or programs.

6. New Courses and Offerings.

1. A Health Promotion course is offered each semester and serves about 20 to 25 students, mostly undergraduates. This course is taught by Dr. Laurie Ruggiero but also includes guest lectures by a variety of HPP faculty.

Appendix C

2. A Health Promotion Minor. This 18 credit minor has been organized by Dr. Nelson Smith.
3. Aging and Health Promotion is offered each semester and is linked to the Senior Project. It serves 4-6 students per semester.
4. Applied Research Methods for Health Promotion. This course has been team taught by faculty on the Alcohol Abuse team and serves 7 students.
5. Alcohol Use and Misuse serves 15 to 30 undergraduates.

7. Student Participation.

Typically 8 to 12 students participate on each team with about 2/3's graduate and 1/3 undergraduate students. Students have been co-authors on at least 30 of the presentations and 15 of the publications.

8. What have Student Participants done after they have left URI?

What have student participants done after they left URI?

1. Four graduate students went on to faculty type positions at University of Alabama at Birmingham, Hawaii, URI and San Diego State.
 2. Two Ph.D's joined a start-up company in Rhode Island.
 3. Four went on to post-docs.
 4. About 20 have gone on to doctoral or masters programs.
 5. Five have joined companies or started personal training businesses.
 6. Four are working in Cardiac Rehab.
 7. Two are teachers.
 8. At least four have won awards for their research, one nationally, one regionally and two locally.
 9. Students in general have been extremely enthusiastic about their experiences on health promotion projects, frequently saying things like "This is the best experience I have had at URI", "These experiences played key roles in getting in graduate school.", and "Working on projects really helped me understand team work and what other health professionals do."
9. Health Promotion Projects have served thousands of at risk people at URI, in Rhode Island and nationally. These service projects include enhancing nutrition and exercise in seniors in Rhode Island, high school students in Rhode Island, their parents in Rhode Island. Also alcohol abuse and smoking cessation services have been made available to students at URI, Harvard Pilgrim members in New England, high school student and their parents in Rhode Island and smokers nationally.

Appendix C

Professionally the Health Promotion Programs at URI are seen as standard setters for research and practice nationally and internationally. Dr. Thomas Kottke from Mayo Clinic introduced a colloquium by saying that the center of health promotion has shifted from Stanford and Minnesota to Kingston, Rhode Island. Also, URI services as a coordinating type center for 15 Trans-NIH projects that are seeking to collaborate across 15 institutions funded by NIH for these ground-breaking projects. This leadership role grew out of the SENIOR Project funded as one the first Trans-NIH projects.

10. What does the Partnership need to become more Effective?

Frankly, the question should be what does the University need to become more effective? The answer would be to restructure as much of the University as possible. Currently the University follows a factory model with silo structures and functions. So we have the classroom structure with the teaching function; the lab or library structures with a research or scholarship function; committee or community structures for serves functions; and corporations for consulting or commerce functions.

As a knowledge organization in a knowledge society, the university needs to transform itself like most knowledge organizations. Activities should be organized around process not structure or function. The process of learning through teaching, research, service and commerce is a much more viable model.

If the University could transform itself the Partnerships would thrive, because they would be at the cutting edge of the new organization and the synergistic process. Right now the Partnerships are a relatively low cost experiment within a dominant culture that has the power and the structures that can easily defeat this experiment.

11. What changes to the Partnership Program could make it better?

For the HPP to survive let alone thrive some major changes would be needed. Ideally the transformation of URI from a factory model to a knowledge model would solve the major problems. Short of that the HPP needs some faculty who can be dedicated full time to making the teaching/research/service/commerce mission sustainable. Here the CPRC is an excellent example of how a few full-time dedicated tenure and research faculty members can sustain a mission that has had major impacts locally, nationally and internationally.

A few faculty whose careers were directly linked to the growth and success of the HPP would make an incredible difference. Such faculty would be freed from the constant conflicts of demands from multiple departments and colleges. The teaching requirements of such faculty would be tied to having growing numbers of students participating in the HPP, especially undergraduate students.

Another change would be to have a substantial portion of indirect funds be returned to the HPP for purposes of growth and sustainability. Perhaps an excellent model for such changes is the

Appendix C

GSO that has all of its faculty dedicated full-time to the GSO, are paid by the University and the State and receive considerable indirect as well as direct funds. But a major difference is that the HPP would integrate a growing number of undergraduate students.

The HPP is positioned to have major increases in NIH funding. NIH will more than double its budget in the next 5 years. Disease prevention and health promotion is one of the top priorities at NIH. URI is positioned to more than double its funding in these areas. URI is recognized as an international leader in health promotion. URI must continue to invest and change in ways the would be expected of such a leader.

12. The HPP received additional funds from the Provost and used the large majority of these funds to support undergraduate participation. Greater funds were provided for the two teams that started after the initial funding, namely the Alcohol Abuse and Minority Health Promotion Teams.

Sensors and Surface Technology Partnership

1. List the active faculty participating in the Partnership. How has this changed over time?

There are approximately 18 members of the SST Partnership, as listed below.

Professor Chris Brown, Department of Chemistry; Professor Everett Crisman, Department of Chemical Engineering; Professor William Euler, Department of Chemistry; Professor Mohammad Faghri, Department of Mechanical Engineering; Professor Godi Fischer, Department of Electrical Engineering; Professor Otto Gregory, Department of Chemical Engineering; Professor David Heskett, Department of Physics; Professor Stephen Letcher, Department of Physics; Professor Brett L. Lucht, Department of Chemistry; Professor Jan Northby, Department of Physics; Professor Anthony Nunes, Department of Physics; Mr. Mike Platek, Department of Electrical Engineering; Professor A. Garth Rand, Department of Food Science and Nutrition; Professor William Rosen, Department of Chemistry; Professor Brent Stucker, Department of Industrial and Manufacturing Engineering; Professor Michael Tamaro, Department of Physics; Professor Sze Yang, Department of Chemistry; Professor Mirang Yoon, Department of Physics.

The total number of participating faculty has stayed relatively constant, but not all the same people have been active.

Appendix C

2. List the annual number of research papers and presentations made associated with Partnership activities. Do not list each citation, but just the number of papers or presentations.

Approximately 40 papers per year are generated by the Partnership. Another 35 presentations are made by the Partnership each year and the Partnership has generated about 10 patents over the last 5 years.

3. What external funding has resulted from Partnership activities? Give examples of any funding that was directly linked to the Partnership.

Considerable external funding has been generated by the SST Partnership from a variety of sources. For example, considerable funding has come from the government including support from NSF, NASA, USDA, Air Force (AFSOR) and the Army.

Our SST foundation account has grown substantially due to contributions by the following organizations: Laser Fare, Amtech, Alpha Omega, Raytheon Inc. Contributions range between \$3,500 and \$5,000 each.

In kind contributions have amounted to more than \$350,000.00 over the last three years. Contributors include Video Display Corp. (vacuum pumps, plasma oxidation system, etc) Teltron Technologies Inc.(capacitance meters, IR cameras, integrated electronics, SEM fixture), Cherry Semiconductor (now ON Semiconductor - Dektak II Surface Profilometer, Rudolph Research Auto ELII Ellipsometer, thousands of silicon wafers), Alpha Omega (oxygen meter), American Power Conversion (20 backups for computers) and Dewal industries (kapton and teflon films, polyethylene films), Elmwood Sensors Invensys Systems (scanning electron microscope with low element EDS), Pfizer (benches and benchtops for Kirk 215 laboratory), Motorola (plasma oxidation system).

4. Give examples of how the Partnership activities are or will be self-sustaining? For those Partnerships that no longer receive funding from URI, has this objective been met? How? For those Partnerships still receiving URI funding, what is the plan to become self-supporting? For both groups, what is the management plan for self-support?

Sustained funding could be accomplished if future overhead could come back to the Partnership. If that does not happen, the only way to generate a revenue stream is through royalties from patents. SST has negotiated a deal with the Deans of Engineering and Arts & Sciences to return a portion of the Dean's share of royalties back to SST. It only takes a few big winners though: as an example, the thermochromic polymers disclosure has the potential to generate tens of millions of dollars for the university and is only one of several intellectual properties that could generate this level of funding.

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5. How have Partnership activities affected faculty workload? Give examples.

Our workload, particularly that of the co-directors, has substantially increased since the Partnership was first formed. We have no secretary or business manager and we take no funds from our budget in the way of release time to carry out the administrative functions of the Partnership. We generate our own announcements for seminars and student poster contests. We run a seminar series and a student poster session at the end of the academic year. We keep track of all expenditures for equipment, supplies and materials and keep the student payroll. We administer the request for proposals for student stipends and administer the review process to determine successful proposals that are funded. These result in the funding of student stipends. We hold board meetings for the SST Advisory Board several times a year. The faculty members in the Partnership have increased workloads due to the mentoring of students in their labs and attending the SST seminar series. Also, they must help their students prepare for a seminar once a year and assist their students in preparing a poster for presentation once a year.

6. What new courses have been created from the result of the Partnership? List the enrollment in these courses.

The only new course added to the catalogue is the SST seminar series course, cross-listed across several departments, which is required of students being funded by the Partnership. The students must register for the course, attend seminar, and deliver a seminar once a year. Enrollment has been about 5 students per semester.

7. How many undergraduate students and how many graduate students have participated in the Partnership? How many of the publications and presentations listed in question 2 have had student co-authors?

Since the beginning of the Partnership, approximately 30 students a semester have been involved in the Partnership about ½ being undergraduates. Each of the presentations and papers mentioned in question 2 have included student co-authors, both undergraduate students and graduate students. A total of 54 different undergraduate students and 40 different graduate students have worked on SST projects, many over several years. About 10 students per year, with a varying mix between undergraduate and graduate, are supported with SST funds at the present time.

8. What have student participants done after they have left URI? Give examples, especially highlighting how the Partnership benefited the student.

Most students have taken jobs in industry or gone on to graduate school. We have not tracked where they have gone nor if their Partnership activities influenced their ability to get a job or enter graduate school.

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9. What service contributions have arisen from Partnership activities, to the professional community, URI, or to the State of Rhode Island?

One of the major contributions of the Partnership in terms of outreach to local industries is to assist them with problems related to manufacturing. More than 20 RI companies take advantage of our surface analysis capabilities each year. Many of the parts and devices made by local industries periodically suffer from contamination issues (and other interfacial reactions) and only analytical techniques based on our Perkin Elmer PHI 550 SIMS, ESCA, Auger surface analyzer can be used to address these issues. Also, more than a dozen criminal cases are handled by our analytical facilities where forensic analyses related to crime scene evidence are performed for the RI State Crime lab each year, including paint chip analysis, metal analysis and gunshot residue analysis.

10. What does the Partnership need to become more effective?

1) Clerical help: SST doesn't have enough clerical work to keep a person busy even half-time but some clerical assistance is needed. Perhaps a secretary or fiscal clerk could be hired to be shared by all the Partnerships. 2) SST could be much more effective if we had a full time person to promote our interactions with local industry. An attempt to secure funds from the RI Economic Development Corporation to hire such an individual fell through when their number one candidate declined their offer 3) \$\$\$

11. What changes to the Partnership program could be made to make it better?

1) The place of the Partnerships in the University structure needs to be more clearly defined. The Partnerships report to the Provost's office but individual faculty report to Chairs and Deans. Participating faculty from different departments and different colleges are treated very differently regarding their Partnership activities. Perhaps a university wide workload policy for Partnership activity is in order.

2) A mechanism for Partnerships to receive grants outside of departments is needed. Grants to individual faculty probably should be accounted through the faculty member's department, but funding to support the Partnership are also credited to the individual (probably a director) and the director's department, probably inappropriately.

3) A more secure funding line through the university is needed. Some activities cannot be supported from grants in a long term, continuous fashion. Some examples of this are: a) seed money for investigators with new ideas to have the resources to generate enough data to write a competitive proposal; b) the SST seminar series hosted each year by the Partnership; c) funding opportunities for undergraduates to work in laboratories on research projects.

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12. For those Partnerships no longer receiving URI funding: Did the Partnership receive additional funds from the Provost after the initial grant expired to support student activities? How were those funds used?

SST received \$30,000 in 1999 to support student stipends. Matching funds were also provided for the new environmental SEM recently purchased and installed. The bulk of the funding for the SEM came from NSF.

Partnership for the Coastal Environment

1. Active faculty who participate on the steering committee: Arthur Gold, David Bengtson, Stephen Swallow, Candace Oviatt, Michael Rice, Virginia Lee, Barbara Sullivan-Watts, Deborah Grossman-Garber . The attrition has been relatively minor. Bill Gordon and Tim Tyrell both have been unable to participate actively for the past couple of years. We are currently seeking representation from Marine Biology and Biology to round out our scope. We currently have approximately 60 active faculty ,staff and agency professionals who weave our Coastal Fellows into their vertically integrated research and outreach teams.

2. *Number of papers and presentations:* Dozens, in every conceivable venue, both on research, outreach, and on the educational paradigm we are promoting.

3. External funding through 1999 is detailed in our self-report, on file in the Research Office. If I had to hazard a guess at this point, I would estimate that somewhere between \$6-7 million in funding has been brought in as a result of Partnership activities and associations, perhaps more. Since the proposals go through departments and not through the partnerships, this number is a bit difficult to track.

4. *Self-sustaining:* As long as we are unable to access a return on the overhead we bring in or get direct credit for the student credit hours that we generate, we will never be self-sustaining as a partnership. Additionally, the Coastal Fellows Program requires institutional support as match in order to continue drawing external federal funds. We have agonized as a group for a number of years about creating a sustainable alliance. We see no way to do this without changing certain university assumptions and structures.

5. Coastal Partnership activities have been entirely on faculty OVERLOAD. We did not use funds to release partnership faculty from teaching. In retrospect, we should have provided the time to allow partnership folks to create and to blend their research activities.

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6. *New courses:*

- a. Interdisciplinary Topics in the Coastal Environment: NRS, MAF, REN, ASP, FST 388 (Spring) 40-50 students each year
- b. Communication of Scientific Research and Outreach: NRS, MAF, REN, ASP, FST 366 (Fall) 25-30 student each year
- c. Undergraduate Research Apprenticeship Opportunities in various departments: e.g. NRS 395
- d. Overall, twelve different partnership colloquia, courses, and seminars have been developed and taught to approximately 320 students.

A direct outgrowth of the Partnership is the new Experiential Learning Initiative in the College of the Environment and Life Sciences, aimed at encouraging curriculum revision in all departments to include a substantial component of hands-on, experiential learning in the major.

We have generated approximately 1500 student credit hours through the Coastal Fellowship Program.

7. *Undergraduate students:* 270 students have participated in the eight-month Coastal Fellows Program, sponsored by the partnership. 90% of these students have prepared and displayed scientific posters. 15-20% have gone on to present the posters at regional and national meetings. 10-15% of the students have become authors on papers or have published papers independently. We now have former Coastal Fellows calling to offer funding support and projects for current Coastal Fellows.

8. Upon graduation, 85-90% of the Coastal Fellows move directly into graduate programs or into competitive professional positions. The partnership ensures that students have at least one research "product" to convey to potential employers or to graduate advisors. In addition, each student emerges with a resume that accurately reflects the professional involvements and research skills attained through the fellowship. Most important, our students build a network of internal and external contacts through the Fellowship. These individuals help our students to find their place upon graduation. As we have begun working with younger students, freshmen and sophomores, we have noticed that they tend to pursue a pattern of experiential learning throughout the remainder of their undergraduate careers. They either choose to continue with the fellowship program or they spread their wings and venture into the various NSF-funded research experiences for undergraduates or other similar programs.

9. *Service contributions:* Many, if not most, of our Coastal Fellows are working in applied science on projects that directly affect the health and environment of our local communities. Sea Grant-funded Safe Boating Practices Project, salt marsh restoration projects, water quality monitoring, alternative septic system design in local communities, watershed nutrients, etc. Since this program is embedded in the Land Grant system, virtually all of the student projects

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and the associated faculty research are characterized as service to our community. That is what the Land Grant system does.

10. More effective: We have made quite an impact on undergraduate education in the College of the Environment and Life Sciences and in other cells throughout the university. To become more effective, however, we need and have always needed more certainty about future prospects for supporting the partnership. We have also needed a system that recognizes the partnerships as an actual entity through which to track overhead, paperwork, student credit hours, etc. With a return on overhead and some funding tied to student credit hours, we could begin to stabilize our effort.

11. Improvement: The partnerships are a wonderful vehicle for bringing together a wide spectrum of scholars and researchers to work on cross-disciplinary research. They are also marvelous incubators for mentoring our students. We have learned that the partnership effort takes an enormous amount of faculty time to grapple with the various disciplinary languages and assumptions that each person arrives at the table with. Somehow, the issue of faculty overload and divided allegiances needs to be addressed. Faculty need more time to be able to develop their collaborative research enterprises to their fullest potential. It would also be of great value to the faculty to be able to respond to some clear expectations of what constitutes an excellent partnership. We are all human and like to know that we are doing a good job of what is being asked. Morale in this partnership has suffered because of our uncertainty about whether we were and are on the right course.

Family Resource Partnership

The "Family Resource Partnership (FRP): Strengthening Services for Children and Families at Risk" proposal was funded under the URI Partnership Program starting January 1, 1999. The 3-year proposal requested funds in the amount of \$448,550 to design and initiate a comprehensive evaluation of the Department of Health Early Intervention services, develop recommendations for staff training, and, in year 3, secure funding for the partnership continuity.

The work of the FRP is organized into three teams each focused on one of the partnerships goals of program evaluation, personnel preparation, and grant writing. The Partnership Review Self Study that follows is prepared to document and analyze the accomplishments of the FRP, and to make recommendations for the future of the URI Partnership Program.

1. List the active faculty participating in the Partnership. How has this changed over time?

Active faculty participation is at any one point in time is dependent on faculty interest and Partnership activity, and has evolved over time. The original FRP proposal listed two Departments (HD& FS: 4 faculty & Psych: 2 faculty) as key faculty in the shaping of this project. The number of key faculty has expanded so that Management Team meetings now

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include representatives from HD&FS (7: Barbara Newman, Jerome Adams, Jerry Schaffran, Diane Horm-Wingerd, Robert Laird, Karen McCurdy, and Phil Newman; PSYCH (2: Janet Kulberg and Paul Demesquita); and Communicative Disorders (2: Dana Kovarsky and GERALYN Timler).

Collaborating faculty originally included representatives, and has changed over time (current members include): PSYCH (2 to 1); COMMUNICATIVE DISORDERS (1 to 3) PHYSICAL THERAPY (2 to 1: Tom Romeo); NURSING (2 to 3: Margaret McGrath, Mary Sullivan and Dayle Joseph); EDUCATION (1 to 2: Joanne Eichinger and John Boulmetis), COOPERATIVE EXTENSION (1 to 1), and the FEINSTEIN CENTER FOR A HUNGER FREE AMERICA (0 to 1: Kathleen Gorman).

In addition, 2 lecturers, numerous graduate students and the project director have become active participants in the Partnership. It has been our experience that new faculty, joining departments, are more likely to have the time and interest in collaborative research projects.

Partnership activities include management team, personnel preparation team, and grantwriting team. Participation in most FRP activities includes faculty, project director, graduate students, parent advocates and community members (state administrators, direct service providers, and parents of children. Community-wide participation is solicited through a quarterly FRP meeting, advertised broadly using the FRP ListServe, the FRP website (www.uri.edu/frp) and press release notices. Faculty, students, and external partners become actively involved dependent on the project under consideration. For example, the Grantwriting Team attracts various faculty members for the particular grant competition under development. A major interest of the FRP grantwriting team is to identify the constructs of empowerment so that personnel preparation programs can prepare direct service providers with the skills necessary to "empower" families to seek and receive the services needed by their children.

2. List the annual number of research papers and presentations made associated with Partnership activities. Do not list each citation, but just the number of papers or presentations.

The annual number of research papers and presentations associated with FRP activities is increasing over time. For example, the FRP "Families and Change Spring Lecture Series, initiated January, 2001, has expanded the visibility of the partnership to the broader community, and opportunities to increase awareness of the FRP. Presentations and research papers to date include:

Faculty Member	National Presentation	State-Level Presentation	University Presentations	Research Paper	Dissertation Theses
J. Adams	2	3	7		
J. Schaffran	1 - In Progress 1	4		1 - In Progress	
J. Kulberg		6	5	2 3 - In Progress	6 - Complete 4 - in Progress
D. Horm-Wingerd				1 - In Progress	1 - In Progress
B. O'Keefe, Director	1	6			2 - In Progress

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An additional research activity that should be included in a discussion of FRP research and presentation activity is the work of Janet Kulberg and Diane Horm-Wingerd both who serve as readers for US Department of program competitions. Dr. Kulberg devotes approximately 300 work hours annually to this activity that benefits the FRP grantwriting initiatives, and Dr. Horm-Wingerd devotes approximately 100 work hours annually.

3. What external funding has resulted from Partnership activities? Give examples of any funding that was directly linked to the Partnership.

The FRP has been very active in the pursuit of external funding to support FRP sponsored activities, and to meet the 3rd year goal of self-sustainability:

FRP SELF-SUSTAINABILITY SUBMISSIONS	\$AMOUNT	STATUS
<u>FEDERAL COMPETITIONS</u>		
1. A. OSERS: Development and Expression of Empowerment in Family Centered Service Delivery	\$897,038	Unfunded
B. Resubmitted OSERS	\$539,503	Pending
C. Plan to Submit OERI		In process
2. OSERS: The Collaborative Development of a Personnel Preparation Model	\$599,303	Unfunded
3. OSERS: Student Initiated Research Proposals (2)	\$40,000	Unfunded
4. HHS ACYF: Providence Early Head Start Program	\$1,887,316	Unfunded
5. OSERS: Trans-Disciplinary Approach to Personnel Preparation	\$899,881	Pending
6. OSERS: Personnel Preparation High Incidence		In preparation
7. DOJ: Strengthening Families to Achieve a Drug Free Community	\$340,000	Funding Returned*
STATE CONTRACTS		
1. RIDE: Reading Excellence	\$ 80,000	Funded
2. SAMSHA: Strengthening Families in Washington County	\$192,246	Funding Returned**
3. RI EARLY CHILDHOOD SUMMER INSTITUTE 2000		
RIDE:	\$ 5,000	Funded
RIDOH:	\$ 5,000	Funded
RI Parent Information Network, Head Start Assn		In-Kind Donations, Personnel
Participant Registration	\$5,100	Funded
Head Start Association	\$ 300	Funded
4. DOH: Early Intervention Professional Development Capacity Building Project (July 1, 2000 - June 30, 2001)	\$ 65, 341	Funded

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5. RI EARLY CHILDHOOD SUMMER INSTITUTE 2001		
RIDE:	\$10,000	Expected
RIDOH:	\$ 5,000	Expected
URI Cooperative Extension	\$ 2,000	Expected
RI KIDS COUNT, Head Start, Non-Profit Orgs		In-Kind Donations, Personnel
Participant Registration 50 @ \$150	\$ 7,500	Expected
6. RIDE: An Even Start in Newport Program Evaluation		
	\$10,173	Unfunded

FOUNDATIONS

1. RI EARLY CHILDHOOD SUMMER INSTITUTE 2001		
Mott Foundation Proposal	\$45,000	Pending
Carnegie Foundation	\$45,000	Pending
2. URI Foundation: Student Initiated Proposal		
	\$ 2,000	Pending

* Funding returned to DOJ: University match required
 ** Funding returned to SAMSHA: Community partner unable to fulfill obligation

TOTAL \$ 5,678,301

In summary, the FRP has submitted proposal requests for \$5.7 million. Pending proposals total \$1,529,384 plus \$22,100 in expected contributions. At this time, awards-to-date total \$692,987 (\$532,246 never funded/returned), giving a remaining balance - in-hand external funding totaling \$160,741. In addition, negotiations are currently underway to secure additional line-item funding support from the Department of Health

4. Give examples of how the Partnership activities are or will be self-sustaining? For those Partnerships still receiving URI funding, what is the plan to become self-supporting? For both groups, what is the management plan for self-support?

As evidenced by the organizational structure of the FRP, one of the major goals of the 5-year management plan is to become self-sustaining. This goal is supported by the external funding information provided in Question #3. Additional goals include developing a cost share/time allocation formula for personnel working on externally funded projects. The establishment of cost centers will decrease the amount of URI-funded personnel support, moving personnel costs to the appropriate accounting cost center (i.e. Ledger 5). Finally, the management plan for self-support includes a request to use the carryover funds for one additional year to support the project director and the submission of a indirect cost-share proposal to the Vice-Provost of Research. These initiatives are discussed below.

While the FRP received funding effective January 1, 1999, the Project Director was not hired and on-board until September, 1999. The salaries for the Project Director, the half-time secretary and the office start-up costs have all been funded from the FRP award, as have

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graduate research assistants, and summer salaries for faculty conducting FRP activities. The half-time secretary (a collaborative position with the Feinstein Center for a Hunger Free America) was not on-board until February 2000. The physical office space in the Shepard Building Providence was not available until January 2000. Prior to that time temporary quarters in Quinn Hall housed the Project Director. At this time there are no charges for physical space or facilities at the Feinstein College of Continuing Education although these charges could occur in the future. The FRP plans to continue the collaboration with the Hunger Center for shared staff support (i.e. secretary).

The growing collaboration with the RI Department of Health Early Intervention project (curriculum development, web-site, needs assessment, and committee support) involves increasing amounts of time from faculty, the Project Director and the graduate research assistants. The proposed renewal of this DoH line item budget ensures that the personnel costs associated with this project will be charged to this account.

The original FRP proposal requested funding in the amount of \$448,550. The current account deposit schedule has deposited award funds totaling \$409,334 (June, 1999 \$187,352; July, 2000 \$142,200; and July 2001 \$79,782). The FRP has been reassured that the remaining \$39,216 would be received. Currently, the carryover from the first year of program operation (approximately \$70,000) could be used to fund FRP for one additional year of program operation thus ensuring sufficient time to become self-sustaining. Hopefully, sufficient external funding will be secured in the future to support the administrative functions of the partnership.

The quest for self-sustainability has made the FRP aware of the difficulties of the URI overhead recovery rate, mandatory and voluntary cost sharing. Currently, it is our understanding that indirect costs are apportioned with two-thirds (68.8%) going to various URI accounts and one-third to the College Dean (31.2%). The College Dean can then distribute a portion of the College allotment to the appropriate faculty members. The formation of partnerships - especially across departments - makes this allotment problematic. Further, there is little benefit to the partnerships because distribution of cost recovery is distributed away from the nucleus of research activities. The FRP is preparing a proposal that will include the Partnership in this distribution.

Finally, the long-term plan is to increase the number of state partners and external funding awards to cover the costs of operation. State partners and external awards will be supplemented by collaborative efforts within the university. Three examples include: the collaboration with the Feinstein Center for a Hunger Free America to support a full-time, shared secretary has resulted in benefits to both organizations. The FRP collaborates with the Expanded Food and Nutrition Education Program by sharing the copy machine, and the URI Cooperative Extension program donated a computer for use in the shared student work area.

5. How have Partnership activities affected faculty workload? Give examples.

Faculty workload is defined as teaching, research and service activities. FRP faculty have experienced a significant increase in all three of these areas. The original project with the Early Intervention program has required that faculty participate in state and local council/committee

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meetings, conduct local site visits, and research best practices for Early Intervention programs. The project involves a year-round commitment that is partially compensated by summer salaries. This community outreach project has involved up to four graduate research assistants during the academic year, and this increases the number of supervision hours not only for faculty but also for the project director who has been actively involved in curriculum development and delivery. The aggressive approach to secure external funding has required many hours of research, collaboration and discussion.

Faculty have increased mentoring and supervision hours with students throughout the academic year. For example, Dr. Kulberg conducts weekly 1-hour research seminars to support student interests and development of research projects related to the children, families and communities focus area.

Finally, faculty involved in the personnel preparation activities have an increase in teaching hours during the academic year, and the summer sessions. It is estimated that staff, faculty, and student involvement with FRP related projects involve over 4,000 hours annually. In order to compensate for this increasing load the Partnership has purchased a buy-out for Dr. Schaffran during the fall semester (2000-2001).

6. What new courses have been created from the result of the Partnership? List the enrollment in these courses.

The FRP has been busy in the area of personnel preparation (both in-service and pre-service training) with the design and delivery of several seminars, courses and the RI Early Childhood Summer Institute. Personnel preparation programs are designed to earn URI continuing education units, RIDE professional development units, 3 undergraduate credits or 3 graduate credits depending on the program. Personnel preparation activities include:

Initial Pilot of Early Intervention Training			Enrolled
Family-Centered Practice	3-hr seminar	1/27/00	20
Role of the Service Coordinator	3-hr seminar	2/10/00	21
Assessment, Evaluation & IFSPs	3-hr seminar	2/24/00	16
Interagency Collaboration	3-hr seminar	3/9/00	19
Engaging Families w/Complex Needs	6-hr seminar	2/16/01	In design
The Crafting of the Essential IFSP	6-hr seminar	2/16/01	In design

Phase II: Early Intervention Undergraduate Specialization

HDF 298: Introduction to Early Intervention	9/21/00-12/14/00	16
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Phase II: Early Intervention Graduate Specialization

HDF 598: Early Intervention Clinical Supervisors	10/31/00 - Present	10
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Phase III: Early Intervention Specialization

HDF 298: Introduction to Early Intervention	2/1/01-4/19/01	30
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RI Early Childhood Summer Institute 2000	June 21-26, 2000	34
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RI Early Childhood Summer Institute 2001	June 21-June 27, 2001	50
Families and Change Spring Lecture Series		
"What are the facts about families?" RI KIDS COUNT	1/24/01	80+
"RI Children: Lead Poisoning & Community Intervention	2/21/01	40+
"Families & Children: The Faces of Hunger in America"	3/22/01	Upcoming
"Community Self-Sustainability: What Does this Mean"	4/19/01	Upcoming
Early Intervention Faculty and Friends Spring Meeting, 40	5/5/00	10
Early Intervention Faculty and Friends Winter Meeting, 25	2/26/01	8

7. *How many undergraduate students and how many graduate students have participated in the Partnership? How many of the publications and presentations listed in question 2 have had student co-authors?*

Students are involved in the FRP in many ways. Students are encouraged to participate in all FRP meetings and committees (FRP Quarterly Meeting, Management Meetings, Personnel Preparation Team meetings, and Grantwriting Team meetings). Six graduate students have received funding support and participate in FRP projects. Six undergraduate students have/are participated(ing) in EI internships, and have/will receive scholarships. As the undergraduate Early Intervention specialty concentration develops this potential career track can effect up to 250 undergraduate HDF majors. Currently, two graduate students are working with faculty and the project director to prepare two journal articles.

Two graduate students in School Psychology have submitted OSERS Student-Initiated research proposals (February 2000). These proposals were not funded but students reported that they enjoyed the practice to design a grant proposal. One student submitted a grant proposal to support her doctoral dissertation during the 2000-2001 academic year.

The FRP has created a FRP Financial Assistance Program for Graduate Research Projects. Established during the 2000-2001 academic year, this program awards scholarship assistance (up to 5 per year in the amount of \$500) to graduate students for research projects covered under the children, families and communities focus area. Two graduate students have applied and received these research awards.

Students involved with the FRP have served as authors, co-authors and presented their research interests. The FRP has sponsored the Early Intervention Faculty and Friends Seminars for over two years. During this time, students, involved in the field of early childhood and the Early Intervention program have presented their research interests.

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8. *What have student participants done after they have left URI? Give examples, especially how the Partnership benefited the student.*

Due to the short life of the FRP, no students involved with FRP have graduated at this time.

9. *What service contributions have arisen from Partnership activities, to the professional community, URI, or to the State of Rhode Island?*

Service contributions to the professional community, URI and the State of Rhode Island are numerous, and have been referred to above. There have been several requests to the FRP to help prepare grant proposals to obtain federal funding. The FRP Project Director coordinated and wrote an Early Head Start grant proposal for a collaboration involving Meeting Street Center, Providence Head Start, and Bradley Hospital. Tom Romeo was able to design, coordinate and deliver a signed memorandum of agreement between URI and Meeting Street Center effective February, 2001. He also coordinated a second Memorandum of Agreement between Children's Friend and Service Early Intervention Program and URI (November, 2000).

In the area of personnel preparation, the FRP, in working with the Early Intervention program, follows and adheres to a family-centered philosophy as mandated by IDEA '97. The training model used for all personnel preparation training is designed using parent/professional team for instruction. This model is innovative in the classroom and provides a family-centered perspective so that pre-service and in-service instruction mirrors and applies a family-centered approach when delivering services.

The FRP has attended and maintains a presence at most Early Intervention statewide meetings. The Inter-agency Coordinating Council membership includes a URI faculty member as representative of institutions of higher education. The Partnership has sponsored the Early Intervention Faculty and Friends meetings, featuring the Partnership activities and student achievements. Faculty, project director and graduate students have participated in meetings, seminars, and conferences with the RI Departments of Administration, Health, Education and Special Education, Human Services, and the Children, Youth and Families. Non-profit organizations receiving service benefits, technical support, etc. include the RI Parent Information Network, the Parent Support Network, South County Community Action Agency and the Even Start in Newport program.

The FRP Personnel Preparation team have been active participants, and have served as the committee support to develop the agenda and activities for the Early Intervention Program Comprehensive System of Personnel Development committee and the Faculty and Friends Quarterly Seminars for the past two years.

Service contributions to URI include the provision of a platform for the development of research proposals that wouldn't have been developed under the traditional framework. The collaborations across departmental lines has increased interdisciplinary learning for faculty and students involved in the project. The FRP activities have raised the visibility of the children,

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families and communities focus area in terms of research, personnel preparation and policy-making.

10. What does the Partnership need to become more effective?

The FRP would like to have a little more time to become self-sustaining. As can be seen by the work of the FRP - organizational and management, personnel preparation, evaluation and technical assistance, and grantwriting - we have created a framework to match the traditions of our land grant university.

11. What changes to the Partnership program could be made to make it better?

The success of this and other partnerships may in part rest with a commitment to overhead cost recovery as a means to sustain the administrative function of the organization. As partnerships become more self-sustaining the funds generated from this recovery could ensure the successful operation. As noted previously, we are preparing an indirect cost recovery proposal to include the Partnership in the distribution of indirect costs obtained from external funding.

Also, personal experience has shown that recognition by URI of the efforts of faculty towards the development of the FRP is a valid and valuable contribution to tenure and promotion review.

Other infrastructure recommendations include the upgrading of the research accounting system to track all accounts managed by a partnership. Currently, the accounting system is designed on parallel tracks so that a Ledger 5 account has no relationship to a Ledger 3 account. While this may be functional for more traditional organizational design, the partnership model across departments, ledgers, and other state designed systems requires work. Again, the personnel working on a partnership - especially a successful one - need a personnel time management system model. For example, the business community can track a staff member's time by amount of time devoted to a particular project. If a portion of time for a particular faculty member is assigned to a partnership, we then need a system to track amount of time spent on a particular project.

At the present time we share office space and personnel with the Feinstein Center for a Hunger Free America in the Shepard Building. The issue of limited physical space to house the FRP is the same question that each department and/or organization within the university has. Ideally, we would like to have an office space to have a more visible nucleus of activity. Our concern, however, is that soon the FRP may be asked to pay rent (\$17.50 sq/ft) for the space occupied at the Shepard Building. Our understanding is that the original negotiations to establish the FRP-Hunger Center collaboration in the Shepard Building was part of a larger plan that did not include a physical space charge. Our space requirements are small at this time - we have space for the project director, a shared secretary cubby, and a student kiosk (shared space for three students, two computers) but the potential for a space fee of approximately \$3-4,000 month is daunting.

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The URI Partnership program could be improved if infrastructure changes, especially in financial/accounting systems, could be made between Rhode Island state agencies. The FRP experience with a collaboration to write a Department of Education research proposal with the RI Department of Education provides our last example. The grant proposal included an evaluation plan developed and written by a FRP faculty member. When the proposal review notice was received, the reviewer comments mentioned that the evaluation plan was excellent, and indeed, led to the competition award. The evaluation plan enabled the RIDE to be awarded the \$4 million project. The RI Department of Administration then disqualified URI to receive the dollar amount for the evaluation plan, and required that the evaluation plan be contracted out for bid. URI subsequently bid on the evaluation plan, and was awarded the contract to conduct the evaluation plan. This process took a large amount of time and effort on the part of the faculty member, and it would seem that improved coordination between state agencies could have avoided this costly extension. While URI many not have control over accounting across state departments, we feel it would be an important infrastructure improvement if the inter-departmental accounting systems across state agencies were streamlined to support collaborations and partnerships.

12. For those Partnerships no longer receiving URI funding: Did the Partnership receive additional funds from the Provost after the initial grant expired to support student activities? How were those funds used?

Non-applicable

Forensic Science Partnership

1. List the active faculty members participating in the Partnership. How has this changed over time?

SC= Steering committee member or alternate, RP = research projects, Sem.= attends (most) FSP Seminars

FSP ACTIVE FACULTY	DEPARTMENT	ACTIVITY
1. Bide, Martin	Textiles (TMD)	SC
2. Boatright-Horowitz, Sue	Psychology	SC, RP
3. Boothroyd, Jon	Geology	Sem.
4. Brown, Barbara	Dental Hygiene	SC, Coordinating Certificate Prog., Sem.
5. Brown, Christopher	Chemistry	RP, Sem.
6. Brown, Phyllis	Chemistry	RP
7. Chesky, Andrea	CCRI	New Member
8. Chichester, Clint	Bio-Medical	RP
9. Cho, Bongsup	Bio-Medical	RP
10. Crisman, Everett	Chemical Engineering	Co-Director
11. Euler, William	Chemistry	RP

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12. Francklyn, Chris	U. of Vt., Bio-engineering	Offered summer internship, project advice
13. Goldsmith, Marian R.	Biological Sciences	New Member
14. Gregory, Otto	Chemical Engineering	SC, RP, Sem. PI for SEM proposal
15. Hermes, Don	Geology	SC, RP, Sem.
16. Hilliard, Dennis	R. I. State Crime Lab.	SC, RP, Semi., \$ contributor.
17. Kirschenbaum, Louis	Chemistry	RP
18. Kovacs, William	Civil Engineering	On leave first 18 months
19. Martin, Lenore	Bio-Medical	RP
20. Ordonez, Margaret	Textiles (TMD)	Research Projects, Seminar
21. Oxley, Jimmie	Chemistry	Co Director
22. Platek, Mike	Electrical Engineering	SC, RP, paper presenter, Sem.
23. Richman, Marc	Material Sci. (Brown U.)	Volunteered as seminar speaker
24. Smith, James	Chemistry	SC, RP, Sem.
25. Smith, Nelson	Psychology	SC, RP, Sem.
26. Turnbaugh, William	Anthropology	Sem.
27. Weisbord, Robert	History	New member
28. Welters, Linda	Textiles (TMD)	SC, RP, Sem.
29. Yan, Bingfan	Bio-Medical	RP

During the 18 months of this Partnerships existence three faculty members have either left or formally asked to be removed from the list and approximately 10 faculty have ask to participate. From the original 28 faculty members, seven have not found a way to participate in the FSP and they are note listed above. 'New member' in the list indicate those have come on board since the summer of the 2000.

2. List the annual number of research papers and presentations made in associated with Partnership activities. Do Not list each citation, but just the number of papers or presentations.

- O. J. Gregory, M. Platek, D. Platek (FDA) and 4 undergraduate students (3 presentations)
- Su Boatwright with 1 graduate and one undergraduate (2 in preparation)
- J. Smith, J. Oxley (4 presentations - one international; 1 paper pub, 2 in preparation)
- D. Hilliard, O. J. Gregory and M. Platek (5 conference presentations)
- O. Don Hermes and one graduate student (1 published study)
- O. J. Gregory, W. Euler, C. Brown and E. E. Crisman (2 in preparation)

3. What external funding has resulted from Partnership activities? Give examples that were directly linked to the Partnership.

The FSP successfully collaborated with the SST partnership and the RI State Crime Lab. To obtain a state-of-the-art Scanning Electron Microscope with gun shot residue analysis package. This SEM is a university cost center facility available to all and is located in the Engineering Microscopy Facility located in the Kirk Engineering Building.

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The results of both FSP supported studies in the Psychology Department (Prof. Suzan Boatwright-Horowitz) are being prepared for submittal to psychology and forensic science journals. Outside funding will then be sought to pursue them further.

Two Chemistry professors (Euler, C. Brown) and two Chemical Engineering Professors (Gregory, Crisman) are concluding FSP projects in blood drying time analysis. Those results will be submitted to appropriate FS publications and then serve as a basis for an NIJ proposal. Agents from the Naval Criminal Investigative Service in Washington, D.C support them in their efforts.

FSP project on Explosive database is being considered for funding by a major U.S. company.

FSP supported pipe bomb project has generated a request for at proposal submission to U.S. consortium of Federal agencies.

FSP project on explosives detected in human hair has attracted collaboration from U.K. government lab and request for white paper from U.S. FAA.

4. Give examples of how the Partnership activities are or will be self-sustaining. For those that no longer receive funding from URI, has this objective been met. How? For those Partnerships still receiving URI funding, what is the plan to become self-supporting? For both groups, what is the management plan for self-support?

We are attempting to incorporate the classes in appropriate departments and the seminar series in the Chemistry department so that Forensic minor may continue to operate on a more restricted budget. We are working with our Advisory Board Corporate member to develop research directions that will be of interest to them. The FSP Steering Committee are discussing the avenues open in forensic science for submit a Center of Excellence proposal to NSF.

5. How have partnership activities affected faculty workload? Give examples.

In general, any complaints from the faculty have centered on the fact that neither they nor their departments get any recognition from the University for their participation in the FSP. Some faculty and one of the co-directors mentor as many as three undergraduate students, often from other departments, in FSP research projects; that is very time consuming.

6. What new courses have been created as a result of the Partnership? List the enrollment in these courses.

The Forensic Science Seminar Course; approx. enrollment 30 per semester.

Spring 2001 Introduction to Explosives-13 students; including 1 from Navy War College, 1 from Naval Station Groton, 1 from Warwick police & 1 from RISCL are attending.

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Engineering Microscopy Course with forensic science focus for FS undergraduate minor students, will be offered in Fall of 2000

Forensic Science undergraduate minor, approx. 10 students thus far, to be publicized in the next catalogue.

Seven courses and workshops, annually presented by the RISCL are being evaluated to determine if they will qualify for credit in a Forensic Science Post Graduate Certificate program.

7. How many undergraduate students and how many graduate students have participated in the Partnership? How many publications and presentations listed in question 2 have had students as co-authors?

First year through summer of 2000 seventeen students participated in FSP research projects of which three were graduate students. About half of the students have or will receive credit as the various research projects are presented or published. All were given credit for their contributions at the January 2001 Advisory Board meeting poster session and 8 were cited as co-authors in subsequent publications or presentations. One of the studies sponsored by FSP was presented in poster format at the Psychology Department's Annual Undergraduate Award Ceremony last May. The two students co-authors received 'Outstanding Senior Contribution' awards for their work on this project and subsequently graduated to take positions as research assistants at other institutions.

A similar number of students is being supported in the current fiscal year - the exact number is unknown at this time since some of them will be signed on during the summer of 2001.

8. What have student participants done after they have left URI? Give examples, especially highlighting how the Partnership benefited the student.

After completing an internship with the RI DOH one URI graduate subsequently joined the NY State Police Crime Laboratory in Albany, NY. Stacey Edmunds (Textiles, Class of 2001) has spent two semesters as an intern with the Naval Criminal Investigative Service in, RI and will be attending George Washington University (DC) in the fall as a graduate student in the Forensic Science program there. Elmo Resende completed his Ph.D. program in the Chemistry and has returned to his duties as a captain in the Brazilian State Police. Evan Pearce, undergraduate, has been accepted to graduate school at Standard-possibly because of 2 publications he co-authored. The RISCL has thus far sponsored three students as interns.

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9. What service contributions have arisen from Partnership activities to the professional community, URI or to the State of Rhode Island?

An agreement was signed with the RI-DoH Forensic Laboratory to work together toward developing the forensics capabilities for the State and the RI-DoH will provide opportunities for the internships there thru the FSP. Various members of the faculty have contributed to analysis of evidence in approximately 20 law enforcement cases each year. The RI State Crime Laboratory has expanded its base of researchers who are available to analyze evidence and one FSP co-directors represented the FSP at the "States Coalition" meeting in Washington, DC last year. This is a consortium of states that have banded together to petition their various Congressional delegate to appropriate more money for education and facilities for state forensic facilities. Under a separate program, the RISCL has been designated to receive approximately \$450K to modernize facilities. Some of this money will be designated for instructional purposes at the University and toward supporting faculty members in the development of FS courses for the various programs we are planning. Students, law enforcement personnel and the public have attended the highly visible seminar series begun in the fall of 1999 and the University has received a great deal of media coverage from that series. This year the attendance has hovered around the 100 mark due in part to the excellent publicity surrounding the seminar given by Dr. Henry Lee, well known forensic scientist and former director of the CT State Crime Laboratory. (a list of articles and news media mentions is available) The "juiced base ball" study, with FSP participation from RISCL and the Depts. of Chemistry and Chemical & Electrical Engineering, has received extensive media local, regional and national coverage. (a list of articles and news media mentions is available) The presence of the FSP, among other factors has encouraged the RI-State Crime Laboratory to contribute to the effort to expand its facilities at URI by promoting (and contributing \$\$) toward the construction of a new campus building that can house University Security/Police the RISCL and facilities for FSP instruction. One FSP partner has been asked to teach Explosive Analysis at the FBI school at Quantico and to participate and evaluate the HAZMAT officer training there. The North East electrical power consortium has approached one faculty member to present lectures around New England on his findings in a recent case of electrical power theft. One FSP faculty has attended a NCIS weeklong course on crime scene investigation (Newport, RI) and as a result has presented the NCIS instructors with several suggestions to improve evidence collection. That faculty has been offered the opportunity to an advanced FS analysis course at NCIS in Atlanta, GA (summer of 2001).

10. What does the Partnership need to become more effective?

We require some kind of central office and administrative assistance (perhaps supporting all of the partnerships) through which finances, student roster, mailings, advisory board meetings, etc. can be coordinated. Because our individual departments receive no recognition for the partnership, there is actually disincentive for them to allow us to use the department administrative facilities, in some cases even if we agree to pay some administrative support. We need regular meetings with the accounting department personnel the budgets get so convoluted, especially at the end of the fiscal year that we spend too much time trying to sort out reimbursements, student payrolls and trip expenses. The connection to the research grant office

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must be strengthened so that we are informed sooner about opportunities, too often we hear about solicitations when there is insufficient time to respond.

11. What changes in the Partnership could have been made to make the Partnership better?

A single, half time director would have been better than trying to operate with three, one-day-per-week co-directors. It seemed to be an ideal solution to have three directors to share the responsibilities but too often plans are being delayed until the co-directors are able to find a common day that all could be present to make final decisions. A paid half time director would give some one person the authority, responsibility and focus to push the various components of the Partnership along. Some form of compensation for the steering committee should have been worked out so that they can justify pursuing the various assignments that the directors request them to do.

12. For those Partnerships no longer receiving URI funding: Did the Partnership receive additional funds from the Provost after the initial grant expired to support student activities? How were those funds used?

N.A.

Partnership in Physiological Measurements and Computing

1. List the active faculty participating in the Partnership. How has this changed over time?

The PMC Partnership was formed in April 1999, the initial members were 25 URI faculty and 25 outside collaborators. Over the past two years the membership has expended to 60, with 28 outside collaborators and 32 URI faculty. The 32 URI Faculty are from 9 Departments across 4 different Colleges: Engineering (18), Arts & Science (6), HSS (5), and Pharmacy (3).

Electrical & Computer Engineering (11): Faye Boudreaux-Bartels, Godi Fischer, Steven Kay, Ramdas Kumaresan, Allen Lindgren, Jien-Chung Lo, Shmuel Mardix, William Ohley, Ying Sun, Donald Tufts, Rick Vaccaro.

Chemical Engineering (3): Arijit Bose, Richard Brown, Mercedes Rivero-Hudec.

Mechanical Engineering (4): Philip Datseries, Martin Sadd, Arun Shukla, Zongqin Zhang.

Biological Sciences (4): Emily Carrington, Robert Hill, Gabrielle Kass-Simon, Cheryl Wilga.

Computer Science (1): James Kowalski.

Mathematics (1): Li Wu.

Exercise Science (2): Linda Lamont, Thomas Manfredi.

Physical Therapy (3): James Agostinucci, Peter Blanpied, Thomas Romeo

Biomedical Sciences (3): Clinton Chichester III, Roberta King, Robert Rodgers.

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2. List the annual number of research papers and presentations made associated with Partnership activities. Do not list each citation, but just the number of papers or presentations.

Referred Journal Publications 1999-2000: 10

Referred Conference Papers/Abstracts 1999-2000: 39

Journal Papers in Review or in Print 1999-2000: 15

3. What external funding has resulted from Partnership activities? Give examples of any funding that was directly linked to the Partnership.

Total External Grants Awarded 1999-2001: \$907,667 from 12 grants.

1) Carrington E. 1999-2000, \$24,143, RI DEM: Shellfish Disease Survey Program, State of Rhode Island (with M. Gomez-Chiarri).

2) Carrington E. 2000-03, \$320,000. National Science Foundation: Incorporating structural response into the prediction of disturbance of a competitive dominant on wave-swept rocky shores.

3) Carrington E. 2000-01, \$39,538. RI Dept. of Environmental Management: Shellfish Disease Survey Program 2000, State of Rhode Island (with M. Gomez-Chiarri).

4) Hill RB, Brooks DD, Huddart H. 2000-03, \$10,455 (£15,100). Wellcome Trust Biomedical Research Collaborative Grant: Modulation of buccal muscle contraction in *Busycon canaliculatum*: Physiological responses to nerve stimulation and localisation of putative neurotransmitters.

5) Lamont L. 2000, \$135,000. Renewal of a NIH minority training grant: A New England Bridge to the Future.

6) Sun Y, Romero T. 2000-01, \$35,500. RI Dept. of Mental Health, Retardation, and Hospitals: Biomedical Engineering Clinical Internship.

7) Sun Y. 2000, \$5,000. Arrow International, Inc.: Automated R-wave detector evaluation system.

8) Sun Y. 2000-01, \$1,000. Feinsein Faculty Fellow, Feinsein Center for Service Learning.

9) Sun Y. 2000, \$3,332. Ohio State University Medical Center, support for graduate assistant.

10) Swaszek P, Kumaresan R, Boudreaux-Bartels F, Sun Y. 1999-02, \$199,917. National Science Foundation: Experiential signal processing laboratory (ESPLab) for multiple curricula.

11) Swaszek P, Sun Y, Kumaresan R, Boudreaux-Bartels F. 1999-00, \$109,782. Champlin Foundation: Digital signal processing lab for multiple curricula.

12) Zhang Z. 1999-00, \$24,000. US Environmental Protection Agency: Computer simulation of air flow and particle deposition in human lung.

These grants are linked to the PMC Partnership with various degrees of relevancy. Example 1: the Experiential Signal Processing Laboratory received a NSF CCLI grant (10) and a Champlin grant (11). Three of the four co-PI's are active members of the PMC Partnership. Biomedical engineering is also one of the major areas that the project is focused on. Therefore, the Partnership has contributed in part to this effort. Example 2: Emily Carrington, an active member of the PMC partnership, has received a prestige NSF grant for a total of \$320,000 (2). The Partnership has contributed to her summer support for proposal development and laboratory equipment. Example 3: Ying Sun and Tom Romeo have started an internship program under a

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grant from the RI DMRH (6). This program engages undergraduate students in designing and developing devices for persons with disabilities, and would not have been possible without the support of the PMC Partnership.

4. Give examples of how the Partnership activities are or will be self-sustaining? For those Partnerships that no longer receive funding from URI, has this objective been met? How? For those Partnerships still receiving URI funding, what is the plan to become self-supporting? For both groups, what is the management plan for self-support?

The core of the PMC Partnership is a consortium of the multidisciplinary experts. For the initial three years, the URI funding is used to support laboratory equipment, graduate and undergraduate students, and development of grant proposals. We do not have any administration budget. Nor do we allocate budget for travel and business meal. We use the Internet technology such as an e-mail list and a dedicated website for the purpose of communication and dissemination of information related to the Partnership. The key components to achieve the self-supporting goal are well-equipped laboratories, collaborative faculty, multidisciplinary expertise, graduate and undergraduate student involvement in research, and external funding. We are confident that these components will sustain after the initial funding period and the Partnership will continue to grow and explore external funding sources.

5. How have Partnership activities affected faculty workload? Give examples.

The PMC Partnership has increased the activities of the faculty in grant applications, supervision of undergraduate and graduate students, development of laboratories, cross-disciplinary collaboration, and teaching larger classes with enrollment from other disciplines. These increased activities have not been systematically recognized as faculty workload.

6. What new courses have been created from the result of the Partnership? List the enrollment in these courses.

The following existing courses have been completely changed in format and used as a forum for cross-disciplinary collaboration. Faculty and students from at least three different colleges have attended these courses (number indicating enrollment for the most recent offer):

BIO 642 Seminar in Physiology: 9

BIO 691A Advanced topics: Neurobiological Literature: 7

The following new laboratory course has been developed with software being developed under the PMC Partnership:

PEX 335 Physiology of exercise laboratory: 20

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The current enrollments for the new undergraduate Biomedical Engineering program are 3 seniors, 13 juniors, and 15 sophomores. The drastic increase from the junior class to the senior class may be correlated with the establishment of the PMC Partnership two years ago.

7. How many undergraduate students and how many graduate students have participated in the Partnership? How many of the publications and presentations listed in question 2 have had student co-authors?

Doctoral students: 15

Master students: 29

Undergraduate students supported/involved in research: 41

Referred Journal Publications 1999-2000: 8 of 10 with student co-authors

Referred Conference Papers/Abstracts 1999-2000: 26 of 39 with student co-authors

Journal Papers in Review or in Print 1999-2000: 14 of 15 with student co-authors 4

8. What have student participants done after they have left URI? Give examples, especially highlighting how the Partnership benefited the student.

Example 1: Peter Scucces graduated in May 2000 and was among the first graduating class of Biomedical Engineering. He was involved in our research to aid persons with disabilities under the PMC Partnership. On April 10, 2000, he gave an oral presentation of a paper that he co-authored for the 26th Northeast Bioengineering Conference at the University of Connecticut. He now works for a major signal analysis company in Connecticut as an application engineer. His specialty is concerned with LabView based data analysis, which is relevant to the training he received under the PMC Partnership. Interestingly, just recent Peter came back and volunteered his service to help us setting up a state-of-the-art LabView based system for controlling a muscle lever instrument in one of our physiology laboratories.

Example 2: Viola Rieke completed a master thesis on the topic of a digitally-controlled voltage clamp system, which was a joint project between electrical engineering and biological science under the PMC Partnership. She graduated from URI in December 1999 and received a full research assistantship from the Stanford University to continue her Ph.D. work.

Example 3: Biao Gong was supported as a research assistant under the PMC Partnership. Within the period of a year he finished the research for his master thesis in electrical engineering. He developed software in the C++ language for automated analysis of electron microscopic images. His software is now used in the Exercise Science Department to support Tom Manfredi's research. Biao himself has obtained a job in Massachusetts since September 2000, applying his software development skills to Internet based products.

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9. What service contributions have arisen from Partnership activities, to the professional community, URI, or to the State of Rhode Island?

To the professional community, the PMC Partnership has contributed to the exploitation of modern computing technology in the study of life sciences. The relevant activities include the development of advanced biomedical instruments, computer models of physiological systems, and automated analysis software for microscopic images and medical diagnostic images. To the URI community, the PMC Partnership has helped the development of the undergraduate program in biomedical engineering, which has significantly contributed to the recruitment of female students in engineering. The current enrollment in the biomedical engineering program is 50% women. Our program in assistive technology has produced the first service learning course in engineering supported by the Feinstein Center of Service Learning. The Partnership has also created a collaborative atmosphere among faculty and students from 9 departments across 4 colleges. We expect to further expand the scope of this multidisciplinary collaborative effort. To the State of Rhode Island, we have made a specific contribution in developing devices for individuals with disabilities. This effort has been coordinated through the Rhode Island Council of Assistive Technology and a grant from the RI Department of Mental Health, Retardation, and hospitals. Six units of a microprocessor based environmental control system built by our 5 undergraduate students are now being used by quadriplegic patients in the Zambarano Hospital and the Slater Hospital. A patent application has resulted from this project and more ideas are under development.

10. What does the Partnership need to become more effective?

It usually takes a lot of effort from very few individuals to coordinate and organize the activities of a Partnership. Under the current system the partnerships are running in parallel with the traditional department structures. The faculty workload associated with the partnership is not proportionally recognized, at least in the case of some key personnel. We suggest that the URI administration consider awarding special "on-campus sabbatical leaves" to certain key personnel of the URI Partnerships. This is to allow a Partnership coordinator to devote a full year of his/her effort in the development and advancing of our Partnership program.

11. What changes to the Partnership program could be made to make it better?

For successful Partnerships more support and incentive should be provided by the University. The support can be in a variety of forms including the aforementioned on-campus sabbatical leaves, faculty release time, graduate assistantships, and merit-based funding.

12. For those Partnerships no longer receiving URI funding: Did the Partnership receive additional funds from the Provost after the initial grant expired to support student activities? How were those funds used?

Not applicable to the PMC Partnership, which was formed in 1999.