

## **An Overview of the Mentoring Experience under the Preparing Future Faculty Program**

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### Abstract:

The Preparing Future Faculty is a well-established program across the United States; and presents a novel approach to graduate education. The program typically involves two or three quarters/semesters of classes on various aspects of faculty development, and one quarter/semester of mentorship program. Institution clusters are developed so that doctoral students in Research I institutions get a chance to learn about the teaching environments in other institutions which focus more on undergraduate education. Mentoring is typically the final stage of the PFF program. Since UC follows a quarter system, I selected the spring quarter of 1997 for my mentorship. The objective of the mentor program was to help me gain experience in an academic environment. This involved teaching-related activities (both in and out of the classroom), participation in departmental/college responsibilities, scholarship activities, student advising, and participation in the senior design projects. The entire exercise provided me an opportunity to get a first-hand perspective of the responsibilities and duties of a faculty member.

This paper has two primary goals. Firstly, it is an overview of our entire experience. This part forms the factual information that is included here. Secondly, we hope that the discussions that follow the information will guide future doctoral students to plan their own mentoring programs.

### Introduction to PFF:

Preparing Future Faculty is a national program that presents a new approach to graduate education. The program, called as Preparing Future Faculty, is designed to encourage the development of new approaches to the graduate education of future professors. It was developed by the Council of Graduate Schools and the Association of American Colleges and Universities; and funded by the Pew Charitable Trusts. Its aim is two-fold: to help prepare graduate students for the vital responsibilities they will assume as tomorrow's college and university faculty, and to strengthen their preparation as teachers of undergraduate students. As Robert Schwartz, Director of Education for the Pew trust, points out, it brings the "producers" of Ph.D.'s together with the "consumers" to work together in preparing future faculty for the diversity of colleges and universities. Anyone interested in getting more information about the PFF program can find it very easily on the internet.

The PFF program has grown deep and wide in the last 5 years. After substantial growth, it is now based on 17 universities, yet there are many more institutions pursuing similar approaches. These universities are mainly those that belong to the Research I group, where the doctoral students are

enrolled. Clusters are developed around them, which involves mainly those local universities that focus on the undergraduate education, and belong to the Research II category.

The UC cluster includes University of Cincinnati-Clermont College, University of Cincinnati-College of Applied Sciences, Northern Kentucky University, University of Cincinnati-Raymond Waters College, College of Mount Saint Joseph, University of Cincinnati-University College and Xavier University. These are the nearby universities where the system entirely focuses on undergraduate education, and hence teaching. UC is, on the other hand, a campus where both research and teaching go hand-in-hand. The program co-ordinators at UC are Dr. Chris McCord and Dr. Howard Jackson.

The PFF program in UC has two stages. The first phase consists of two seminar courses offered in fall and winter quarters. The second phase of mentorship, also called “capstone experience” is offered according to the mutual consent of the student and the mentor. The PFF seminars and mentorship are open to all doctoral candidates at the university, irrespective of the department or college of affiliation. Recently, University of Cincinnati has approved the whole PFF exercise as a “certificate program”. This allows the participating students to document their participation.

Development of the mentor program:

Dr. Chris McCord, who is the co-ordinator of the PFF program in our cluster, selected us (VS and AS) to work together, since I was looking for an engineering-related program, and Mr. Salehpour was interested in mentoring an Engineering student. We had the first meeting together with Dr. McCord, and we both liked each other. Our viewpoints were quite matching and we immediately realized that this would be a worthwhile exercise. After consultation with Dr. McCord, we selected the spring quarter for my capstone experience program. This was the quarter when Mr. Salehpour teaches “Strength of Materials II”. Working together for one complete quarter, and focusing the progress of one complete course, would provide me with an insight into the teaching aspects as seen from the faculty’s side. For anyone interested in the mentoring program, we strongly recommend that you meet each other and discuss the requirements fully with each other before venturing into it.

The goals of the mentoring program were defined at the outset (again by mutual consent). In order to formalize the process and make ourselves accountable, we prepared a list of objectives and Amir Salehpour sent it to the program Co-ordinator. Quoting from the information we sent Dr. McCord: “ We have met and discussed the mentoring experience for Vijay. The goal of our discussion was to set up a program in which Vijay can experience life in an academic environment. This program is geared towards providing teaching experience (in and out of classroom activities), departmental/college responsibilities, scholarship activities, student advising, and participation in the senior design projects.

The length of the mentoring program is for one quarter, starting this spring. We agreed that Vijay will participate in lecture and lab sessions of the course *Strength of Materials II*, twice a week. In addition, we agreed that Vijay would lecture for 2 or 3 classes during the quarter. We will meet one or two hours each week and discuss other activities that I am involved with, such as committee and departmental meetings and scholarship. Also, we will discuss and evaluate his progress at the end of each week.

We also developed a list of activities, that he may be involved with. Vijay's assessment of the mentoring experience will be in the form of a final report, submitted at the end of the quarter."

This kind of a general outline is very typical in all the mentoring programs in PFF. The self-accountability can be looked as one of the characteristics of the PFF program. This format of a personal statement provides the participating student to set his own goals, his own means to achieve them, at a pace that fits both the mentor and the mentee. Even the mode of assessment can be set accordingly. In our case, we had also decided that we would publish on our experiences, and this paper is the result of that decision.

The actual experience:

It is said that a job well begun is half done. Since we had a good start, we were both eager to see it succeed. In the 11 weeks of the quarter, we worked closely, covering each and every topic we wanted to cover.

As for the teaching part, I attended several classes during the quarter. At the end of each class, we sat down and discussed minor details of teaching. I learned about the various things that go on in the background when a professor teaches a class. For one, he has to prepare for about 1-2 hours for every hour of teaching. This is once he has the material available. If that is not the case, extra effort and commitment is expected from the faculty member. He has to make sure that the classes go in rhythm, and the information is imparted to the student in the right way. Apart from the technical details, the teacher has to focus on the methodology of teaching, the pace of the class (so that he covers the required topics in reasonable time and capsules them into each lecture session), and the examples given/shown in the class.

Equally important is how the teacher keeps track of each student in the class and keep them interested in the lecture. Those students who are fast learners tend to get bored soon with the slow pace (as they perceive it), while the slow learners are still struggling to catch up. Balancing this spectrum of student requirements is a task in itself.

The importance of voice control by the teacher cannot be overemphasized. This was the time when I realized why I myself felt sleepy in some lectures (which were delivered in monotonous voices), while some other teachers could wake me up from sleep with their commanding and modulating voices.

In the third week, we selected one topic, "Transformations of stress and strain", which was one of the chapters to be covered in the course, to be taught by me. I first split the chapter into two lectures and one problem-solving class. Each lecture was to be stand-alone in itself, and progressing from one to the other. The third class would summarize the chapter and give specific example problems based on the earlier two classes. Mr. Salehpour was present during the lectures, and at the end of each lecture, he advised me on areas where I can improve. I had a good sense for responding to the pace of the students from the class. Still, the first class was a little nerve-wrecking exercise for me, since I hadn't taught before. By the second class, I was more at ease with teaching. I realized that it is more important that I relax in the class while teaching. This I learnt again later while working here when I was thrown off-balance by in-depth questions from students. By the end of three classes, I had a good idea how to prepare notes for the class, how to progress the class systematically and what pitfalls to avoid during a lecture.

Now I can say confidently that a few sessions of teaching with constant feedback is more valuable than a whole year of teaching without feedback.

This course had the advantage of having some lab sessions as well. Hence I attended some of the lab sessions, and learned how these were different from a regular lecture. The expectation from each student was clearly specified at the beginning of the lab session in a handout, and forms were given to the students. Much more emphasis was given to the practical details, and the session would proceed typically on answering several “what-if” questions, each answer leading to the next question. A few minutes time was allotted at the end for question answer sessions similar to the lectures. Specific instructions were given to the students regarding the safety rules to be followed.

The second important part of the mentoring program was learning about the professional duties of a faculty member. This includes various committee meetings and departmental functions. The meetings of the Mechanical Engineering Technology Department were held every Wednesday for one hour, and I was allowed to attend them. Hence I attended a total of 9 departmental meetings. At these meetings, I was exposed to the daily and more specific activities within the department. One of the things I learned was the way they handled student petitions. Sometimes the committee would vote on the issue, sometime they would decide to ask the student to come in and explain his/her viewpoint to the committee. In one case, the decision was deferred to the faculty member whom the student had petitioned under. Another issue taken up by the committee was the selection of students for certain award nominations. Budget concerns and other managerial issues were also discussed here. The other item that was discussed was the senior design project, its evaluation, presentation dates, extensions asked for, and other issues on this topic. More details of the senior design project are discussed below.

The department of MET requires each senior student to undertake a Senior Design Project before they can apply for graduation. These involve the designing of new equipment or a component, and then making the prototype. Each faculty member advised four to five students on these projects. One of Mr. Salehpour's students was working on a project sponsored by Proctor & Gamble (P&G), and the project dealt with methods of strengthening of corrugate boxes for the packaging industry.

The senior students were also asked to present his/her completed project to the public in what is called “Senior Design Expo”. Mr. Salehpour asked me to participate and experience these activities as well. I spent a few hours reviewing the project and talking with the students in general, and this one student in particular.

The other activity to which I was exposed was student advising. Each faculty member works closely with a few students throughout their stay in the department, making sure that they take the required core courses and electives in a timely fashion. The “advisor” meets the students once in a while and listens to any concerns they may have, personal or otherwise. This provides the student with a faculty member to discuss different issues such as planning for interns and co-op programs.

I was also allowed to attend the college faculty meetings, which are open to public. It was informative to notice the difference between the items discussed at the departmental and the college levels. At the college level meetings, which were held once a month, policy matters were

discussed. The agenda was distributed prior to the meetings, and the conducting of the meetings was more formal than the departmental meeting. This was more due to the high attendance numbers. The two main items that interested me in the discussions were how they went about discussing and sorting out the issues related to the starting of a new masters program in one of the departments; and criteria for Faculty Achievement Awards. This college level committee acts as the link between departmental committees and the university level committees.

One of the issues that was discussed in both the departmental and the college level faculty meetings was the selection of a new Dean for the college. The college was looking for a new Dean the same quarter I was working with Amir Salehpour. There were four candidates who were short-listed for interview. This gave me a chance to experience the whole selection process, right from vita evaluation to final interview process. I attended a couple of sessions where the faculty and students met the candidates. I could also discuss the process with one of the faculties in the MET program, who was in the selection committee. This was a very fruitful exercise for me, and an unexpected bonus to the mentoring program.

The final item that we covered was scholarship. Under this item, we went over the rules and criteria for R, P and T matters. We went over several vita, and discussed the minor points and details. I learned that a faculty member has to prove his achievements in a three-fold manner: Research, Teaching, and Service. The importance given for each of these activities is different from one college to another, and it is important for every faculty member understands what is “expected” of him. It is probably equally important to understand what is not expected.

No mentoring experience can be complete without a discussion on the moral aspects of the faculty job. This was one aspect that we returned again and again in every discussion. Every faculty member is expected not to act immorally, even if it is legally permitted. How these two differ is probably the biggest and most important lesson I learned from the mentorship program.

Summary:

The paper describes the experiences of a mentoring program under the umbrella of PFF. During the one quarter of mentoring, the student was exposed to several aspects of being a faculty, and permitted to learn through experience. The student got first hand exposure to the teaching and related duties and expectations, participation in committees, involvement in senior design projects, student advising, and the process of selection into the academia. The other main aspect that was focused by the mentee was the different scholarship activities a faculty involves in.

Both of us were also selected to represent the University of Cincinnati as a student-mentor pair during the Annual PFF Summer Conference held in Colorado Springs during the third week of June, 1998. This gave us a unique opportunity to compare the PFF programs in other clusters. We were the only engineering “pair” that was present in the conference. Later, in the summer quarter, the MET department selected Vijay as an Adjunct faculty member to teach their senior students.

Looking back, we both feel that we have had a wonderful experience, from the program point of view, as well as at a personal level. We conclude with the hope that this summary provides the

aspiring graduate students with the prospects of taking up a mentoring program. We also seek and look forward to feedback from anyone interested in issues discussed in this paper.

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#### VIJAY SUBRAMANIAN

Vijay Subramanian (vs@uceng.uc.edu) is a doctoral student in Materials Science and Engineering Department. He obtained his Bachelors from IIT Madras, India, and will complete his Ph.D. in the Fall 1999. He learned about the European system of education during his 5-month stay in Brussels, where he did work towards his doctoral dissertation on non-chromate coatings for corrosion control. He and his thesis advisor, Dr. W.J. van Ooij together received the BF Goodrich Collegiate Inventors Award in 1997, for the patented process they developed. Vijay completed the certificate program in PFF last year, and attended and chaired a panel discussion at the annual PFF conference held in Colorado Springs last year.

#### AMIR SALEHPOUR

Amir Salehpour joined the college of Applied Sciences, UC, in the Mechanical Engineering Technology department 8 years back. He teaches 8 courses every year, to students in the regular and evening programs. He is also actively involved in undergraduate research programs in the department. He is very interested in the PFF program and participated in the annual PFF conference held in Colorado Springs last year.