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An Evaluation of a Workshop with a Focus on Fostering Teaching Excellence through Research

Abstract

Securing funding from prestigious national organizations and private foundations is essential for faculty members to show that their research on innovative educational issues is valuable and equivalent to that of their colleagues who perform regular research projects. In order to address this need, the minority Ph.D. project representing African-Americans, Hispanic-Americans, and Native Americans requested the principal investigators of a laboratory to conduct a workshop to train Ph.D. students to pursue teaching excellence by obtaining research grants. The authors developed a hands-on workshop where the participants assumed the role of panel reviewers and critiqued a proposal that planned to adapt and implement exemplary engineering case studies for use in business classrooms. This paper provides an overview of the workshop and results from an evaluation study. In addition, this workshop was repeated with a group of faculty members at the Americas Conference on Information Systems (AMCIS 2004 and AMCIS 2005). The positive evaluation results from these workshops indicate that the hands-on methodology used to train the participants is worthwhile, is helpful in increasing their ability to pursue teaching excellence through research and funding grants activities, and is worthwhile being replicated with other faculty members.

Introduction

Even though pursuing excellence in teaching is emphasized in most Universities, there is a perceived dichotomy between pursuing research and excellence in teaching (Wulf, 2002; Bransford, et al., 2000). A series of essays by different authors reveals that their ability to integrate teaching and research is basic to their personal well-being over the course of their career and ensures that they are engaged and invigorating in classes (Andre and Frost, 1997). Securing funding from prestigious national organizations and private foundations is essential for faculty members to show that their research is valuable and equivalent to that of their colleagues. A report by Murray (1998) shows that African American and Hispanic faculty members feel most singled out and left alone in their departments. Tokenism and overwork are major problems faced by these groups that are often invisible to the majority group. To avoid these experiences, and the accompanying lack of sympathy, many minority faculty gravitate toward positions either in highly integrated departments or in traditionally black universities (HBCUs). Another study by Bennof (2004) shows that universities and colleges in minority institutions receive funds from Federal agencies receive relatively less for R&D and relatively more for capacity building activities. Therefore, an important need is for minority faculty members to get trained on how to write proposals and secure funding from Federal agencies.

In order to address this need, the minority Ph.D. project requested the principal investigators of a laboratory to conduct a proposal writing workshop to train Ph.D. students in business.. The workshop was conducted in New York, NY, on August 4,

2004. This paper provides an overview of the workshop and results from an evaluation study. In addition, this workshop was repeated with a group of MIS faculty members at the Americas Conference on Information Systems (AMCIS 2004). This paper also reports the results from the evaluation of this workshop. The paper concludes by reporting the findings of the research and discusses recommendations for future.

Background on Minority Ph.D. Project

In 1994, The PhD Project created peer associations to sustain a high level of commitment and a sense of connection among minority business doctoral students. Its mission is to increase the diversity of business school faculty by attracting African-Americans, Hispanic-Americans and Native Americans to business doctoral programs and providing support during their doctoral programs. More specifically, its objectives are:

- To increase the number of minority business professors who can function as role models and mentors;
- To influence more minorities to pursue business degrees/careers;
- To increase the number of qualified minority applicants to fill critical positions in the business disciplines;
- To improve the preparation of all students by allowing them to experience the richness of learning from a faculty with diverse backgrounds; and
- To reach the goal of a better prepared and more diversified workforce to service a diversified customer base.

There are now five minority doctoral student associations covering all the major areas of business education: accounting, finance, management, marketing, and information Systems. KPMG Foundation provides minority doctoral scholarship to students and the association recently celebrated its tenth year anniversary (<http://accounting.rutgers.edu/kpmg/>). To date, the dropout rate, notably high among the business Ph.D. student population, is less than 5 percent for members of The PhD Project doctoral student associations. Continuing growth of these associations is now an integral part of The PhD Project. These associations provide networking, peer support, mentoring, and joint research opportunities. As Part of its strategy to provide mentoring to minority Ph.D. students, the project invited the Principal Investigators of a project sponsored by the National Science Foundation to provide a 2-hour workshop during its annual conference at New York, August 2004.

Background on the Laboratory

The mission of the laboratory is to develop and disseminate innovative instructional materials that bring real-world issues into classrooms, using multi-media information technologies and cross-disciplinary teams. The team achieves this mission by obtaining funding from Federal agencies such as the National Science Foundation (NSF) and using research methodologies to improve teaching methodologies. The process used is to develop multi-media case studies, conduct workshops to provide hands-on experience for faculty members, and create textbooks that bring real world issues into classrooms. The principal investigators have so far:

- developed ten award-winning multimedia case studies by working with industries,
- published these case studies as textbooks,
- trained more than 10,000 engineering students on solving real-world problems by using the case studies,
- trained approximately 360 engineering faculty members on use of these case studies in their classrooms through special workshops,
- trained approximately 50 engineers using the case study methodology through special workshops,
- published about 20 journal articles and 37 conference articles,
- employed about 85 undergraduate, 25 graduate, 3 Ph.D, and 10 postgraduate students thereby training them on innovative new methodologies and technologies,
- received five NSF grants worth about \$1.5 million, and
- obtained the designation of Implementation Network Affiliate by CASEE (Center for Advancement of Scholarship in Engineering Education), a center with the National Academy of Engineering (NAE).

Workshop Pedagogy

Given their experience in developing innovative curriculum materials, the authors decided to use hands-on training activities during the workshop for the minority students. The materials used in the workshop was from three sources:

- (a) a grant proposal developed by another faculty member who had adapted and implemented the engineering case studies for use in his business classroom, and
- (b) materials used by the program directors from the National Science Foundation.

A faculty member who had received a National Science Foundation Adaptation and Implementation grant based on his work with the laboratory shared his winning proposals with the authors so that it could be used in the workshop. This project, during its two-year duration, will modify and implement already existing engineering multimedia case studies developed by the laboratory, for use in business classrooms at his University. This project proposes to adapt the original case studies developed for engineering students so that engineering and information technology (IT) concepts could be communicated to business students. The results of the evaluation and assessment of these materials will not only contribute in developing a distinctive teaching competence for the business faculty, but will facilitate major direct curriculum improvement for the college of business introductory technology courses. In addition, this project will provide and train business students with knowledge and skills on engineering and IT concepts. This is expected to better prepare them for today's technology intensive multi-disciplinary workplace. The proposal and its summary, comprising 16 pages of text, was made available to the program organizers.

In addition, program directors from the National Science Foundation encouraged the program organizers to participate in this conference and provided copies of the slides they use during seminars for faculty and at the panel review sessions.

Based on these materials, an innovative workshop agenda was developed. The major theme was to provide an overview of the grant proposal writing process and provide a hands-on experience by making the workshop attendees serve as reviewers on a NSF proposal. The participants were expected to play the roles of the reviewers and work in panels to provide summary recommendations to the workshop organizers. Through this process, each participant was expected to be actively engaged in the workshop.

Instructional Materials Used at the Minority Workshop

A full set of instructional materials were developed that included:

- (a) Request for Proposal # NSF 04-565, Adaptation and Implementation Track
- (b) NSF Instructions for Proposal Review
- (c) Proposal Review Form
- (d) Panel Summary Recommendation, and
- (e) Copy of a winning proposal including budgets

These instructional materials were made available on a website to the workshop participants and were also included in a handout that was given to each participant.

Delivery of the Workshop

The workshop started with an introduction by a speaker from a leading college of business who had obtained multiple grants. It was continued by showing the slides that provided an overview of the NSF programs to encourage research on undergraduate education. Then, a workshop organizer provided guidelines on the review process used by NSF. At this stage, the participants were divided into groups of 4 or 5 and provided 30 minutes to read through the proposal and offer critiques. The participants worked through the task diligently and prepared notes. Then, each team was provided an opportunity to provide their recommendations and state what was the intellectual merit and broader impacts of the proposed project. This led to a lively discussion about the proposal writing process. After the active session, slides that showed the actual review recommendations from NSF on this proposal were shared with the participants. A question and answer session concluded the workshop.

Evaluation of the Workshop

A questionnaire (Appendix A) was developed in order to evaluate the value of the workshop to the participants. A total of twenty-two students completed the questionnaire and completed ten item evaluations which were based on a 5-point Likert scale from 1 being strongly disagree, 3 being neither agree nor disagree to 5 being strongly agree. Items were connected to perceptions of strategies to increase awareness of the role of the National Science Foundation in improving research and instructional excellence, quality of materials used, and the unique hands-on and real life experience scenario of applying

for a grant. The second part of the evaluation sought qualitative input regarding workshop strengths and future presentation improvements.

As seen in Table 1, the participants (n=22) were extremely favorable toward the workshop. The mean score for the ten items on the evaluation varied from 4.09 to 4.63 showing that the workshop was highly effective.

All the students either agreed or strongly agreed that the workshop had increased their awareness of the role of NSF in improving research and education in the US (average=4.6). Most of them perceived that the workshop had provided information strategies on how to pursue research and teaching excellence (average = 4.2). All of them either agreed or strongly agreed that they were provided with valuable materials that would help them write a proposal to NSF in the future (average = 4.5). All them agreed or strongly agreed that the workshop had encouraged active teamwork among the participants (average = 4.6). Most of them perceived that the workshop increased their interest in pursuing teaching excellence through research initiatives (average = 4.1). Most of them perceived that the slides provided by the NSF program directors were very helpful (average = 4.1). Many of them also perceived that the workshop informed them about the case studies developed by the laboratory (average = 4.2). An average of 4.1 showed a strong perception that the workshop motivated them to use research to improve educational activities in their career. Another important benefit of running the workshop was the perceived importance of effective collaboration between different colleges in improving education of undergraduate students (average = 4.3). Overall, the participants perceived that the workshop provided sufficient information regarding how to secure funding in the future (average = 4.4).

Table I - Question Responses (n=22)

	Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6	Q. 7	Q. 8	Q. 9	Q. 10
Strongly agree	9	15	12	13	8	8	10	9	9	12
Agree	10	6	8	9	10	10	7	6	11	7
Neither agree nor disagree	2	1	1		3	3	5	7	2	3
Disagree	1	0	0	0	1	1	0	0	0	0
Strongly disagree	0	0	0	0	0	0	0	0	0	0
Average (s.d.)	4.2 (0.8)	4.6 (0.5)	4.5 (0.5)	4.6 (0.5)	4.1 (0.8)	4.1 (0.8)	4.2 (0.8)	4.1 (0.8)	4.3 (0.6)	4.4 (0.7)

These ten questions were further categorized into four factors: improving collaboration, providing sufficient information, motivating the participants, and increasing their awareness of NSF and the laboratory. Table 2 provides the list of the factors, the items that were included under each factor, and the average value for the factor. The results

show that the respondents perceived that the all the factors were well covered (with averages above 4.1) and the strongest focus of the workshop was on improving collaboration among the participants.

Table 2 – Factor Responses (n=22)

	Improving Collaboration	Providing Sufficient Information	Motivating participants	Increasing awareness
Questions Included	4, 9	1, 3, 6, 10	5, 8	2, 7
Average	4.5	4.3	4.1	4.4

The last section of the evaluation solicited participants’ written comments regarding the workshop and a willingness to be involved in working with the case studies. The major strength cited by PhD candidates was the relevance of the hands-on activity which was well designed to increase empathy and an understanding of the funding process. The other major strengths were the practice of reviewing an actual proposal and the discussion activated by the process. The participants suggested improvements such as posting a pre-notice for reading and preparation of a proposal and having increased time for discussion. Overall, the workshop was very well received by the participants and they believed it added significantly in writing proposals and increased their interest in pursuing teaching excellence through research initiatives.

Replication of Results in Two Faculty Workshops

The research team had another opportunity to conduct a similar workshop with MIS faculty members as part of the Americas Conference on Information System (AMCIS 2004 and AMCIS 2005) workshops. The workshops were held for the duration of 4 hours. The format of the workshop was similar to that conducted by the Ph.D. project; the major difference was that the organizers were able to showcase one of the case study for an hour and the participants had an hour to analyze the proposal and a half hour to present the panel review comments. A total of twelve faculty members participated in this workshop.

Questionnaires similar to those used in Appendix A were given to the faculty members and the results were analyzed to obtain feedback. Results of their responses to the individual questions are shown in Table 3. The responses were all above the value of 4 (agreed) showing that the workshop was perceived to be very valuable by all the participants. The highest values (average of 4.8) were achieved for increasing the awareness of the role of NSF in improving research and education in the U.S. (Q. 2), encouraged active teamwork (Q. 4), and slides provided by the NSF program directors were very helpful (Q. 6). The lowest value (average of 4.0) was for the statement that stated that the workshop provided sufficient information regarding how to secure funding in the future (Q. 10).

These ten questions were further categorized into four factors: improving collaboration, providing sufficient information, motivating the participants, and increasing their awareness of NSF and the laboratory. Table 4 provides the list of the factors, the items that were included under each factor, and the average value for the factor. The results show that the respondents perceived that the all the factors were well covered (with averages above 4.3) and the strongest focus of the workshop was on learning about strategies on how to pursue research and teaching excellence and learning about NSF's role in this area.

Table 3 - Question Responses (n=5)

	Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6	Q. 7	Q. 8	Q. 9	Q. 10
Strongly agree	2	4	3	4	3	4	3	1	2	0
Agree	3	1	2	1	2	1	2	3	2	5
Neither agree nor disagree								1	1	
Disagree										
Strongly disagree										
Average (s.d.)	4.4 (0.5)	4.8 (0.4)	4.6 (0.5)	4.8 (0.4)	4.6 (0.5)	4.8 (0.4)	4.6 (0.5)	4 (0.6)	4.2 (0.7)	4 (0)

Table 4 – Factor Responses (n=5)

	Improving Collaboration	Providing Sufficient Information	Motivating participants	Increasing awareness
Questions considered	4, 9	1, 3, 6, 10	5, 8	2, 7
Average	4.5	4.5	4.3	4.7

Summary and Conclusions

Based on feedback from the Ph.D. candidates and further corroborated by MIS faculty members, participants found the workshop and the reviewing experience to be enjoyable and helpful. The positive evaluation results indicate that the hands-on methodology used to train the participants is worthwhile and is helpful in increasing their awareness about NSF and the laboratory, and motivates them to use research to improve educational activities.

A limitation of this study is that the number of participants (22 Ph.D. students and 5 faculty members) who completed the questionnaires is rather small. It is important to repeat this workshop with other groups of Ph.D. students and faculty members in order to validate the results further. It is also critical to conduct similar hands-on workshops to Ph.D. students in engineering and other disciplines so that the contribution of NSF to use research methods to pursue teaching excellence would be better communicated to academicians.

One of the major comments was that there was not enough time to work on the proposal. In the future, it will be worthwhile expanding the duration of the workshop to cover a full-day and also include presentation by NSF program directors. The actual involvement of NSF program directors in such workshops would also add significant value to the participants and would add positive exposure of NSF, its mission, and its accomplishments among the academicians. Such workshops would provide a forum for faculty members to share their experiences on using research methodologies to pursue research excellence and eventually benefit the students significantly.

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Appendix A
ISDSA Panel Session
How to Secure Funding to Pursue Research and Teaching Excellence in the
College of Business
August 4, 2004

I. Please evaluate the value of this workshop on a five-point scale (1 – strongly disagree, 2-disagree, 3- neither agree nor disagree, 4-agree to 5–strongly agree).

Items	Response
1. The workshop provided informational strategies on how to pursue research and teaching excellence	1-----2-----3-----4-----5
2. The workshop increased my awareness of the role of NSF in improving research and education in the US.	1-----2-----3-----4-----5
3. The workshop provided me with valuable materials that can help me write a proposal to the NSF in the future	1-----2-----3-----4-----5
4. The workshop encouraged active teamwork between the participants	1-----2-----3-----4-----5
5. The workshop increased my interest in pursuing teaching excellence through research initiatives	1-----2-----3-----4-----5
6. The slides provided by the NSF program directors were very helpful	1-----2-----3-----4-----5
7. The workshop was helpful in informing me about the specific case studies developed by the laboratory.	1-----2-----3-----4-----5
8. The workshop motivated me to use research to improve educational activities in my career	1-----2-----3-----4-----5
9. The workshop showed that effective collaboration between colleges is helpful in improving education of undergraduate students	1-----2-----3-----4-----5
10. The workshop provided sufficient information regarding how to secure funding in the future	1-----2-----3-----4-----5

III. What are the strengths of this workshop?

IV. What improvements could be made to the workshop?