THE PENN STATE ECSEL LEARNING ENVIRONMENT WORKSHOP: A PROGRESS REPORT

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INTRODUCTION

"In Their Own Words" is a video workshop developed to engender discussion, thought and action among faculty members about the learning environment. The workshop raises issues about what engineering students experience in the classroom, how members of diverse groups fare in typical undergraduate situations, what responsibility faculty members have for the learning environment, and how faculty can positively impact the learning environment. The workshop aim is to improve the learning environment and is designed to help faculty identify and address "underground" climate issues. The workshop goals, as developed by the project team, are:

- to help faculty understand the importance of diversity—defined broadly to include learning preferences, socioeconomic background, race, ethnicity, and gender—in teaching and learning for all students;
- to help faculty understand that their responsibilities go beyond the delivery of material in the classroom;
- to change behaviors in ways that bring about a more equitable learning environment for all students and faculty;
- to facilitate faculty and departmental ownership of these issues; and
- to initiate department activities related to the learning environment.

The workshop is the product of work that began in 1996 when Penn State ECSEL undertook an exploration of how to engender a broader awareness of and appreciation for diversity issues in engineering education. One of the first two national coalitions funded by the National Science Foundation in 1988 ECSEL (the Engineering Coalition of Schools for Excellence in Education and Leadership) has seven member institutions: City College of New York, Howard University, Morgan State University, MIT, Penn State, the University of Maryland, and the University of Washington.

A unifying aim of the project was framing questions surrounding diversity in a way that would engage discussion and action at all levels. Because much of the resistance to diversity is unspoken, unconscious, or unexplored, the project team decided it was important to develop an approach that would encourage participants to think of diversity as a positive force in the educational experience and to integrate diversity generally into their thinking about what constitutes a good educational experience. The resulting journey involved administrators, faculty, and students and resulted in challenging discussions and actions within engineering departments. Following is a description of the process of

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discovery that led to the development of a workshop and video on the undergraduate learning environment and of the early results. This report is a follow up of material that was first presented at the 1997 WEPAN/NAMEPA Conference.

EARLY DEVELOPMENT

After a number of exploratory meetings, the project team decided to develop a conventional workshop that would involve college leadership (department heads and deans) plus selected faculty members from a range of positions in each department. The theme of the workshop was defined as understanding the role of learning styles and of gender, racial, and ethnic background in effective teaching and learning. Possible content items identified at that time included student case studies, learning styles inventories, existing videos, and curriculum transformation.

At this point, the team presented the proposed workshop plan to the engineering dean, David Wormley, who suggested meeting with a group of College departmental heads to get their input. The team identified a small group of department heads who were familiar with the issues and sympathetic to diversity goals. Their primary reaction to the workshop plan was that it was too theoretical; their advice was that the workshop address practical issues and areas of need. They pointed out that faculty were under pressure to develop new teaching methods, including the effective use of teams in hands-on projects and ways to improve classrooms and the overall learning environment, and that the best way to get their participation was to engage them on these topics. As a result of this meeting, the project team decided to focus on two main activities: creation and production of a video that would raise critical learning environment issues for undergraduate students and development of an accompanying workshop.

DRAWING ON STUDENT/FACULTY EXPERIENCE

The video, "In Their Own Words", draws on qualitative data, exploring emergent themes drawn from transcripts of standardized students interviews. The final video is a compilation from information gathered in interviews with twenty four upper level engineering students throughout the summer of 1996. Women and minority students were purposely oversampled. Nearly all students interviewed had GPAs of 3.0 (out of 4.0) and above, to insure the credibility of respondents with a faculty audience. By choosing successful students, as defined by grade performance, the project team also wanted to feature issues that were affecting even the best of students. All students were contacted by an independent interviewer who followed a written protocol throughout. The students were questioned about positive and negative experiences in their classrooms and other learning environments. Beyond that, student responses were unsolicited. A script was developed from the interview responses by the film company using, as closely as possible, the words of the students interviewed. For the sake of narrative flow, student responses were combined so that only a few students were represented on screen. Non-engineering students were hired to represent student views on screen to allow for anonymity of interview respondents.

The final version of the video is divided into three segments, progressing from a diverse group (Segment I) to students-of-color (Segment II) to women students (Segment III), with common threads running through all. The purpose of the organization is to demonstrate that the concerns of students are universal and how these concerns affect underrepresented or otherwise marginalized students. Vignettes, or story type scenarios, were not used because many faculty had already viewed well-developed videos depicting actual situations. The team projected that the use of unadorned student comments would

elicit a more immediate and personal response and signal that expectations of workshop participation were different. This has, in fact, been the case. One reoccurring faculty response has been the suggestion that a panel of faculty be filmed and shown on the video discussing what the students say—in effect, a request for more distance from the material. Another interesting response has been the suggestion that the team produce a video representing the faculty opinions and experiences.

As noted above, the video script is based upon verbatim comments from students that are combined for narrative flow. The comments mirror students' real life experiences, including often ambiguous and contradictory critiques of their situation, as well as highlight behaviors that can be interpreted as either positive or negative. The contradictory nature of their contributions is deliberately built in to engender discussion and elicit a variety of reactions and responses. An example of this is a woman student who praises a professor for leading her "every step of the way". This can be interpreted as a positive thing at first glance, but often leads to a productive discussion about "spoon feeding" and equitable treatment of women in the classroom.

The workshop is a work-in-progress and is designed to promote discussion and ownership of the issues raised. Each workshop begins with the video and continues with discussion following video segments. During each segment, participants are asked to make notes of the issues raised by the students that they consider to be most important; these notes then form the basis of the discussion. During and after the session participants are asked to share their methods and experiences, to pose questions, and to suggest new approaches. The aim is to engage faculty members in mutual problem solving. At the close of the workshop, participants fill out evaluation forms and submit suggestions for follow up sessions in their department. These are collated and given to the department head, forming the basis for transferring the continuing activities into departments.

Faculty response to the workshop has been lively and very frank, in many cases opening discussions on issues that have been driven underground but which are important to undertake in order to impact the overall climate. A primary success of the workshops has been to create an environment in which faculty feel free to voice doubts about diversity or some diversity practices.

Supporting materials, handed out at the close of the workshop, are designed to 1) evaluate the workshop for continuous improvement; and 2) encourage ownership among faculty of the issues raised and engage an active response. These include:
- a standard evaluation form;
- a comments sheet that asks participants to indicate areas for which they feel additional workshops or other follow up activities are desirable. (Follow up activities have ranged from faculty and student committees on mutual responsibilities to workshops on teambuilding or gender equity.)
- a research methodology explanation
- and a Learning Environment Tip Sheet

The need for the methodology sheet became evident very early in focus group sessions. Too often discussion was dominated by methodology, rather than the issues raised. As engineers, participants became very interested in how the information was collected and often needed to be introduced to the idea and value of qualitative data. By describing the methodology at the beginning, promising a hand-out at the end, facilitators were able to focus on content.

EARLY RESULTS

The ECSEL Learning Environment Workshop has been tested in a variety of venues during the 1997-98 academic year. The first formal presentation of the workshop was to the College Executive Committee—which comprises the leadership of the college including the dean, associate deans and department heads—in Fall 1997. The choice to make the premier presentation to the college leadership was a deliberate sink-or-swim decision. At the end of the presentation, the department heads were offered the opportunity to request a workshop in their department. Of the 12 departmental and program heads present, 10 requested follow up interviews.

Evaluations indicate that the developing workshop is effective: on a scale of 1 (not effective) to 5 (very effective), individual participants rated the effectiveness of the video from 3.68 to 5.00, with their evaluation of the effectiveness of workshop ranging from 3.73 to 5.00. The overall evaluation for each department, obtained by averaging the responses of individual participants, ranged from 3.27 to 4.32 for the effectiveness of the video and from 3.14 to 4.11 for the effectiveness of the workshop. In both areas of evaluation, the approval of both the video and the workshop increased as the workshop was refined and the facilitators became more familiar with the material and adept at presenting it.

Other important measures of the workshop are 1) the number of requests for follow up activities, either for additional workshops or for individual consultations with team members; and 2) the number of follow up activities in the departments. To date, the workshop has been presented to six engineering departments and discussion is continuing with most other departments in the college. It has also become a feature of the annual workshop for new faculty. Follow up activities within the departments include a series of student and faculty meetings to discuss and develop a statement of responsibilities in the learning process and requests by a number of departments for workshops on the effective use of teams and gender equity.

CONCLUSION

As with any developmental project, much of the value in the end product is a direct result of the birthing process. Each workshop presentation has helped in the refinement of the approach, the profusion of ideas, and the quality of outcomes. Therefore, the challenge in developing materials for facilitators becomes to capture the knowledge gained from the process of development and pass it on. Ideally, each user will regard the workshop package not as a final product, but as a starting point for discovery, discussion, and change.