

CLUSTERING WOMEN AND STUDENTS OF COLOR IN AN ORIENTATION CLASS FOR ENGINEERING STUDENTS

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ABSTRACT

Since the Fall of 1988, the Speed Scientific School, the engineering college of the University of Louisville has offered a credited orientation course for all first year engineering students. Such a course has proven valuable for the most academically qualified students as well as high-risk student populations, such as ethnic minorities and first generation college students. The major components include community building, academic success strategies, personal and professional development, and orientation, with emphasis on 'departmental exploration,' to discover more about the student's chosen major field.

During the 1993 fall semester, an effort was made to target the African-American students to increase retention and build up collaborative learning. This resulted in requiring all incoming African-American engineering freshman to enroll in a common section of the orientation course. This pilot program was continued for the 1994 fall semester. In 1995 and 1996 a number of non-minority females were added to this "targeted population."

The paper will include a discussion of the feedback obtained from the students taking the course. A discussion of draw-backs and counter viewpoints will be included. The impact on other engineering students will also be discussed.

COURSE RATIONALE

The University of Louisville has approximately 23,000 undergraduate and graduate students and the total engineering enrollment numbers approximate 1,800 students. The Speed School of Engineering attracts the area's most qualified high school graduates and has very stringent admissions requirements. Seventy percent of the 1996 freshmen class had an ACT composite of 24 or better.

Even given the high potential of our students, the attrition rate is much too high. Most recent attempts to assess the 'dropout' rate show that a fair number of engineering students leave for reasons other than academic difficulties.

When engineering students at the University of Louisville withdraw, various reasons are given. These include:

- * Financial problems
- * Family/personal issues
- * Conflict between employment and class schedule
- * "Climate" issues (sense of isolation, perception that most faculty and staff are uncaring and non-supportive)
- * Medical problems
- * Frustration with lower-than-expected academic performance

Administrators at schools across the country were getting similar feedback from their students and were increasingly concerned by the numbers of students dropping out. In an effort to offset this attrition problem, in 1988 the University of Louisville initiated a mandatory orientation course for all first-year students. The orientation course lasted seven weeks with the overall purpose being to help students make a successful transition to the university.

Three specific purposes were identified as priorities for this introduction to university life. They were:

1. To introduce students to the goals and structure of a liberal education, and to some elementary concepts and practices of academic inquiry.
2. To introduce students to the structure, functions, resources, services, and policies of the University of Louisville.
3. To help students learn the social and problem-solving skills necessary to be a successful college student.

From 1988 through 1992, all incoming engineering students were randomly assigned to the various sections of the orientation course.

However, in 1993 the author decided to implement a clustered section for African American students as a pilot program to see if this would bring about increased student persistence and improved academic performance. This was done during the fall of 1993 with 26 students enrolled.

Based on the positive feedback from the students in 1993, it was decided to, again, "cluster" the African American students for the 1994 fall semester.

DIFFERENCES BETWEEN CLUSTERED AND NON-CLUSTERED SECTIONS

A review of the course syllabi of the clustered and non-clustered sections reveal few differences. One specific difference is the inclusion of a class discussion on the Nguzo Saba ('the seven principles') for students in the clustered sections. Another difference - although unwritten - was the conscious decision to have African Americans serve as the faculty member and student assistant in the clustered section.

A third difference was the way in which the chairs were arranged in the clustered orientation class. In an attempt to make the students feel more at ease and relaxed, the chairs were put in a circle with the professor and student assistant included. This contrasted with the normal arrangement of having the chairs lined up in rows with the faculty member standing behind a podium in front of the class.

RATIONALE OF THE CLUSTERED SECTION

One of the major purposes of an orientation course is to "help students feel more comfortable in the transition from high school to the university environment." The objectives for the clustered section are as follows:

1. to develop a sense of 'belonging' and comradeship between first year African American and female engineering students
2. to help improve the retention rate of the under-represented students
3. to improve the academic success of these students
4. to develop the opportunity for study groups
5. to ease the sense of isolation that many under-represented students experience
6. to help ease the culture shock many African American students face when first presented with the academic pressures of being at a predominantly white engineering school
7. to introduce the students to the National Society of Black Engineers and to the Society of Women Engineers
8. to encourage a social network among the students

In order to accomplish the eight objectives set out for the clustered section, specific steps were taken. To help the students develop a sense of comradeship, ice breakers were used at the beginning of the first two class periods so the students could begin to learn more about one another. To address the concerns about the retention rate and academic performance of the students, the faculty member had each student develop a time management plan where classes, work, study time, meals, recreation, etc. were all specified. Opportunity was given for the students to discuss their individual class schedules so they could begin to form study groups. Students were also encouraged to exchange phone numbers and campus/home addresses they could easily get together for studying or social interaction.

In order to introduce the students to the National Society of Black Engineers and the Society of Women Engineers, printed materials was handed out. The student assistant spoke of her/his active involvement in the organization - the benefits of membership, and the various activities the group participates in. A schedule of meetings was distributed to the students and they were invited to attend the gatherings.

As the weeks passed and the intensity of the coursework increased, the faculty member took a few minutes at the beginning of each class period to address concerns the students were experiencing. Reminders were given about such things as the availability of support services on campus and the last date to withdraw from courses without penalty. Discussions with the students addressed suggestions on how to deal with conflicts with roommates and how to approach faculty members for assistance outside of class.

Students also took time to cite examples of racism and/or sexism they had experienced on the part of fellow students and/or faculty members. The classmates also offered suggestions to one another on ways of coping with such issues.

Toward the end of the course, one session was set aside for an out-of-the classroom get-together. One year, the class toured the art museum on campus and then stayed for dessert. Another year, the class members met at an on-campus pizza parlor for food and informal socializing.

All of these activities were designed to help the students in the clustered sections develop a sense of belonging to a group seeking the common academic goal of earning an engineering degree.

COURSE EVALUATION

All students enrolled in Speed's orientation seminar are asked to complete two separate course evaluations. One is a standard evaluation used for all university courses. The other is more specific to this class and asks students to rate course content as well as instructional style. Students in the clustered sections were also asked what they liked most about the course, what they liked least, and what they would change and not change about the course. They were also asked for their reaction to the sections being restricted to African American students or women.

STUDENT COMMENTS

In reviewing what students in the clustered sections wrote about what they liked most about the course, comments included:

- "It was a comfortable environment because persons from my cultural background made up the majority of the classroom, whereas we are usually in

the minority."

- "I liked meeting new people. I like being around people who are going through the same situations I am going through."
- "I liked being in contact with the students I can most relate to and gaining friendship with those students that I didn't know."

In reviewing what the students liked least about the course, comments included:

- "Not long enough. Class should be a semester long."
- "I didn't like the fact that we had to do the journal entries. I get enough of that in English."

In responding to the item on the questionnaire which asked the students what they would not change about the class, they wrote:

- "If at all possible, keep an African American class."
- "I would keep everything this course has the same, even the 'all same race' scheme."
- "The fact that it centered everything on helping women and black students to succeed in engineering."

In reviewing what the students wrote about what they would change about the class, they indicated:

- "I thought everything was laid out fairly well and always felt motivated and happy when I left the room, so I don't see anything being changed."
- "I wouldn't change a thing. You learn things, not only of others, but more importantly, of yourself."

Other student comments included:

- "I think it is a good thing to have all black engineering students in one class so they can know who is who and have open discussions on certain topics."
- "I feel it was good to cluster the students, since African Americans and women are both minorities in engineering."
- "It is a great idea. I felt a type of support."
- "I thought that this was a great idea. This is the only class I have in which there's more than five blacks in the whole class."
- "Being a college student is different, but being a black college student on a white college campus is really being different. We are not supposed to be here. But since we are here, we might as well stick together and form a bond. This class somewhat did that."
- "I thought it was great. This is the only time we really see each other in a class. This is a time for us to bond and share similar thoughts and feelings."

CONTROVERSY

Restricting sections of the engineering orientation classes to African American and female students has not been without controversy. Once the under-represented students are put together, students in the other sections are unable to interact with and learn from those students. Because the structure of the class involves group activities and encourages open discussion, a lack of diversity is a detriment to all.

One component of the class specifically addresses the issue of cultural diversity. Two of the other faculty members complained that it is difficult to openly discuss such issues if the student body has no under-represented students enrolled. While the topic of diversity can certainly be analyzed without minority students present, a class including a mix of student ethnicity and gender usually provides more thought-provoking discussion.

The author is also aware that not all of the "clustered" students necessarily endorse the experimental idea. Although the comments on the student evaluation forms strongly support the idea, some students may have been reluctant to honestly express their ambivalence or dissatisfaction - even on an anonymous questionnaire.

One of the students in 1993 wrote: "I thought it was alright because we were able to discuss more topics. But I still prefer a class with mixed races." Another student wrote, "It is nice to know that there are other minorities and to get to meet them. But, on the other hand, there should be concern about minorities getting to know other people. The minority need to learn how to socialize and work with others also, so it should be about 50/50 in each class."

CONCLUSIONS

Based on student feedback, the author believes that clustering of the African American and female students presents a positive opportunity for networking and developing an academic and emotional support system. The idea is not to promote isolation of one group of students from others, but to encourage a sense of belonging. This will place first year engineering students in an environment to which they may easily relate and help to reduce the anxieties associated with entering college for the first time.