AC 2008-2650: COMMUNITY COLLEGE TRANSFER STUDENTS: DOES GENDER MAKE A DIFFERENCE?

Mary Anderson-Rowland, Arizona State University

MARY R. ANDERSON-ROWLAND, PhD, is the PI of three academic scholarship programs and a fourth program for transfer students. An Associate Professor in Industrial Engineering at Arizona State University, she was the Associate Dean of Student Affairs in the Ira A. Fulton School of Engineering at Arizona State University from 1993-2004. She received the ASEE Minorities Award 2006, the SHPE Educator of the Year 2005, and won the National Engineering Award in 2003, the highest honor given by AAES. In 2002 she was named the Distinguished Engineering Educator by the Society of Women Engineers. Her awards are based on her mentoring of students, especially women and underrepresented minority students, and her research in the areas of recruitment and retention. A SWE and ASEE Fellow, she is the PIC IV Chair and a frequent speaker on career opportunities in engineering, especially for women and minority students.
Community College Transfer Engineering Students: 
Does Gender Make a Difference?

Abstract

In many universities, little attention is paid to transfer students, especially community college transfer students. Although some students choose to go to a community college because they are not academically qualified to go to a four year college or university, many choose a community college because of the lower tuition, the proximity to their home, the uncertainty of major, or other reasons. Some students only decide on engineering as a major after they have attended a community college.

This study looks at gender and transfer students who transferred into engineering at a large university. Is there a difference by gender in the reasons decisions are made by students to go to a two-year school after high school, to choose a major in engineering or computer science, to choose to attend graduate school, and ultimately to choose a career? This study, conducted by survey, also examines the encouragers and discouragers felt by the transfer students by gender when they first transferred. Other aspects examined relative to gender are the number of hours worked while at the community college, how many hours per week worked now, student age, and family responsibilities.

The college students in this study are all in an academic scholarship program designed for transfer students. The paper reports which aspects of the transfer program the students identified as the most helpful for their academic success. In addition, this study looks at the gender differences in the students’ evaluations of the academic scholarship program.

I. Background

The Maricopa County Community College District (MCCCD), with over 200,000 students and comprised of ten independent colleges, is one of the largest community college systems in the United States. For many years, each fall some 300 or more of these students transfer to Arizona State University (ASU) to major in engineering or computer science. In Fall 2003, an academic scholarship program for transfer students was begun in the Ira A. Fulton School of Engineering at ASU called the Collaborative Interdisciplinary Research Community/Maricopa Engineering Transition Scholars (CIRC/METS) Program. Sponsored by a National Science Foundation (NSF) CSEMS Grant # 0324212, this program for transfer students expanded a program begun the year before by a general CSEMS NSF grant #0123146. At the same time, meetings were held between School of Engineering representatives and representatives from five of the MCCCD colleges to begin a dialogue on how to better work together to nurture transfer students in engineering and computer science, especially women and underrepresented minority students. This nurturing included encouraging students while still at the community college, assisting and supporting students during the transfer process, and supporting and encouraging transfer students after their transfer to ASU. Before Fall 2003, no special programs had existed for transfer students in engineering and computer science at ASU. Funding was obtained from NSF Grant # 0315817 to begin a Maricopa Engineering Transition Scholars (METS) Program and space was
obtained as a METS Center to support transfer students. This study looks at the transfer students in the CIRC/METS program relative to gender. We would like to know if there are any characteristics that differ with these students relative to gender. The characteristics in which we are interested are: reasons for choice of a two-year school, when they chose their major, working hours during community college matriculation, reasons for attending a four-year school, when the four-year school decision was made, what the first experiences were as a transfer student, family responsibilities, encouragers they have received after transferring, program helps that might be added to help women transfers, and plans to attend graduate school.

Before we look at the results of the study, we look at literature to understand what types of research have been done on community college transfer students.

II. Literature Review on Engineering and Computer Science Community College Transfer Students

In this section we look at the literature on the case for community colleges, curriculum, articulation, resource sharing, special programming for new transfer students, challenges, and many-faceted programs with community colleges. We then look at studies on gender issues and the community college.

The Case for Community Colleges: There are many reasons that 45% of all first-time freshmen choose to begin their college education at a community college.\(^1\) Students with poor academic records find that the community college provides remedial courses and can help them get back up to speed. An obvious advantage of community colleges is the low annual tuition and fees ($2,272 as of January 2007) compared to more than double that amount at four-year public colleges.\(^1\) Community colleges usually provide small sized classes which allow for more interaction with the instructor and other classmates. Since community colleges are 59% women and have 57% of the Native American undergraduates, as well as 47% of all black students and 55% of all Hispanic students,\(^1\) women and underrepresented students may feel more at home in a community college setting. Since most community college teachers chose their job because they like to teach and do not have heavy research responsibilities, they are likely to be very friendly and supportive of the students both in attitude and time. Some students may find that making a commitment for only two years at a time is easier.\(^2\) The close proximity of a two-year college to home allows a student to have savings in lodging and food costs. Community colleges usually offer a wider variety of class times that can easily accommodate a work schedule.\(^2, 3\) Obtaining an Associate Degree may give a student the confidence to go for a Bachelor’s degree.\(^2\) If a student is unsure of their major, then a community college offers an opportunity for the student to explore, inexpensively, what courses interest them.\(^2\)

Community colleges enroll over 11.6 million students each year, with 6.6 million of them taking classes for credit.\(^1\) Although the average age is 29, 43% of the students are 21 or younger. Thirty-nine percent of them are first generation students to attend college. Only 8% of the students are non-U.S. citizens. In fact, 46% of all U.S. undergraduates are enrolled in a community college. Over 75% of all full-time community college students are employed either full-time (27%) or part-time (50%).\(^1\)
The current literature on engineering and community colleges acknowledges that the United States needs more scientists and engineers. This is not a new observation. Paul Romer, a big-name Stanford University economist has been saying for over 8 years that the U.S. isn’t turning out enough scientist and engineers to make discoveries that will pay off in 50 years. The community colleges in the U.S. have many students who drop out. Faculty from both two-year and four-year schools recognize that work needs to be done so that more engineers are produced.

**Curriculum:** One major area that needs attention is curriculum. It is to the advantage of all if the community college can offer a pre-engineering and computer science curriculum that includes the fundamental engineering and computer classes. In this paper, henceforth, all references to engineering will imply the same or comparable event also holds for computer science. For this to be true, the engineering schools and community colleges need to work together closely so that the course contents are the same and that the transfer of the community college credits are assured. At one community college, for example, two pre-engineering programs are offered: a standard AA in pre-engineering with required calculus and calculus-based physics, and a specialized AA in pre-engineering designed for students who will transfer to specific schools which includes 5 courses which are transferable to the specific schools via a formal articulation agreement. In order to have a community college engineering curriculum available for easy transfer, four-year schools need to work with the community colleges in developing their courses which may include:

- Providing ABET course control documents for the courses
- Providing current course syllabi
- Having qualified CC faculty (master’s degree and 18 hours within engineering)
- CC faculty teach courses at the four-year institution
- Link community college classrooms with four-year college classrooms taught on the four-year college campus

**Articulation:** Articulation agreements (state-wide, if possible) are a necessity for a smooth transition for a community college transfer. The engineering and technology part of the Illinois Articulation Initiative, started in the early 1990’s, is described by Mirman and Skattum. Articulation agreements are an important part of “forging stronger ties between community colleges and four-year institutions.”

However, the existence of articulation agreements is not enough. Most literature also includes descriptions of the challenges encountered when institutions such as these work together. Funded projects to increase the number of underserved individuals completing a degree to enter engineering must also seek to remove barriers and integrate program curricula as a bridge with the Community College. The Wisconsin Technical College System (WTCS) and the Milwaukee School of Engineering (MSOE) jointly addressed the enrollment difficulties of WTCS students to MSOE through the development and implementation of statewide transfer agreements in Electrical Engineering Technology (EET). The result was that WTCS offers AAS-EET programs that entirely complete the requirements of the first two years of the BS-EET program at MSOE and MSOE offers only the junior and senior years of the BS-EET program. With these agreements, students at the community college have the same background as students at WTCS and their programs can be transferred in its entirety. Only 18 of the 119 baccalaureate
programs investigated by these authors have the type of transfer/articulation agreements that cite specific AAS-level program(s) that would transfer in their entirely from other institutions.  

**Resource Sharing:** The co-location of ASU East and Chandler-Gilbert Community College at the Williams campus has provided numerous opportunities to bring this partnership to a new level. Sharing resources is a tremendous advantage for the community college which normally has a difficult time providing state-of-the-art laboratories for its students. ASU East, two community colleges, and an education center were awarded an NSF grant to build a seamless laboratory curriculum for lower division classes. Community college instructors utilize the Microelectronics Teaching Factory and associate degree-seeking students enrolled at the community colleges travel to the Factory to use the facility. 

**Challenges:** Some programs are quite successful, but are very time and money-consuming, so are difficult to maintain when initial funding ceases. The Minority Engineering Transfer and Articulation (META) Program is one such example. Between 2001 and 2004, this cooperative effort was run with community colleges, New Mexico State University, and five civil engineering industry partners. This program included a three-week residential summer bridge component to introduce students to civil engineering and to prepare them for success in the field, industry-supported opportunities, and year-long advising support on career opportunities. 

**Many-faceted Programs:** Other programs involving transition from the community college to the university are many-faceted. The College of Engineering and Architecture of North Dakota State University and the five Tribally Controlled Community Colleges in the State of North Dakota engaged in a program to nurture, motivate, and encourage Native American high school students in the Reservation to pursue higher education in MSE disciplines. The activities included a series of one-day weekend academic sessions, one per month through the academic year, and a two-week summer camp at each tribal site. Some of the activities were conducted in a distance-education mode. This program was designed to attract the students to the tribal colleges, facilitate their smooth transfer to the university, and motivate them for graduate studies in MSE disciplines. 

A building bridges program from a community college to a university engineering education in the state of Utah includes a well-articulated program allowing engineering students from the Salt Lake Community College’s (SLCC) various programs to seamlessly transfer into the University of Utah’s engineering departments. The collaboration between the two colleges has worked because of strong faculty ties, aggressive institutional support, and mutual respect. Approximately 40% of the first-time students at the U of Utah are transfer students, with the majority coming from the SLCC. As in Arizona, formal articulation agreements are in place with all of Utah’s public institutions. At the University of Utah there is an emphasis on providing opportunities for students to explore and expand their learning opportunities through research projects and specialized labs. However, there is no mention of any special programming for the new transfer students at the University. 

**Special Programming for New Transfer Students:** Most studies on increasing the number community college students in engineering and computer science talk about articulation and the transition process, but they do not mention the special support that is needed by community
college transfer students after they have matriculated to the four-year college or university. The Motivating Engineering Transfer Students (METS) program in the Ira A. Fulton School of Engineering at Arizona State University includes a support program especially for the new transfer students through a METS Center where the students can study, relax, socialize, and attend workshops.\textsuperscript{15-21} In addition, there is a National Science Foundation supported academic scholarship program for transfer students which gives them financial support as well as help in learning, finding resources, engaging in research, and encouragement to graduate and to attend graduate school.\textsuperscript{22, 23}

\textbf{Gender Issues for Transfer Students:} Freeman\textsuperscript{24} discusses recruiting and retention effectiveness and in particular addresses persistence in community colleges and the engineering discipline, as well as the persistence of minorities and women. Freeman points out that “the open admission policies and community-needs orientation of community colleges attract students who are less likely to complete degree programs than those students who enroll at four-year colleges.” Since virtually all community college students are commuter students, they have the characteristics of engaging in fewer college activities, interact less with faculty and other students, and are less influenced by college experiences to change their aspirations and goal commitments.\textsuperscript{25} A 1995 study\textsuperscript{26} identified five majors reasons why women become discouraged with engineering: a sense of isolation, a failure to see relevance of theoretical material to the applied problem solving discipline of engineers, increased intimidation that stems from lower rates of hands-on experience with mechanical and electrical devices, the competitive environment of the classroom, and the lack of role models. Brainard and Carlin\textsuperscript{27} found that women switched out of engineering because they lost interest in the program, were attracted by another program, were discouraged by academic difficulties, and the perception of low grades. In this same study, self-confidence was identified as a factor in persistence which does not necessarily correlate with GPA.

Many studies have been done on the retention and performance of male and female engineering students\textsuperscript{28-33} but few such studies include transfer students. McLoughlin\textsuperscript{20} raises an issue very relevant to this paper: the singling out of women by gender needs to be done very carefully so that the women are not made to feel uncomfortable and further isolate them. In a 2001 paper,\textsuperscript{34} duMaine et. al. point out that affinity-based organizations such as NSBE, SHPE, AISES, and SWE can use the energy of successful students to counteract the isolation and discouragement that women and minority students may find as an engineering major on a community college campus. Through these organizations, women and minority students can attend meetings locally, regionally, and nationally to be encouraged by great role models, speakers, and other engineering students like themselves. It follows then that these same types of affinity-based organizations may be very important to new community college transfer students.

\textbf{III. Support for Engineering and Computer Transfer Students at ASU}

For many years, the Ira A. Fulton School of Engineering at ASU received over 300 new transfer students each fall, mostly from the community colleges in Maricopa County, the county in which ASU also resides. There were no special programs for these transfer students until Fall 2003 when an academic scholarship program for engineering and computer science transfer students began. The CIRC/METS project – Collaborative Interdisciplinary Research
Community/Maricopa engineering Transition Scholars – was funded by the National Science Foundation (NSF) to retain transfer students in engineering and computer science degree programs and further, to have them choose to attend graduate school right after completion of the Bachelors degree or after a few years of working in industry. The program targets women and underrepresented minority students. The CIRC/METS program, with six meetings per semester, helps the transfer student not only with a scholarship, but also with adjusting socially, academically, and making use of valuable resources. This program worked in cooperation with the Maricopa Engineering Transition Scholars (METS) program, also funded by NSF, which informs and encourages community college students to choose engineering or computer science as a career.

The Maricopa Engineering Transition Scholars (METS) was a collaborative project to encourage community college students to pursue a Bachelor’s Degree in engineering or computer science and also to support their transition and matriculation into a Bachelor’s degree program. The project co-owned by the Ira A. Fulton School of Engineering and the Maricopa County Community College District, held events at the community colleges to interest and support students to study engineering. The METS (Motivating Engineering Transfer Students) program is being continued at this time by the Fulton School of Engineering and helps the transition with an orientation program given each semester and provides a METS Center to help support the transfer student in the Fulton School. The METS Center provides a place for the new transfer students to study, use a computer, print, relax, socialize, and eat their lunch. Workshops are also offered on such topics as the 4.0 Plan learning system, resumes, and internships. The Center is staffed with successful transfer students who can answer questions from the new transfer students who frequent the Center.

During the five years of the program, 75 transfer students have held scholarships in the CIRC/METS program. Of these students, 31 (41.3%) are women, 29 (38.7%) are underrepresented minority students, and 50 (66.7%) of the students are either a woman or an underrepresented minority student. This representation of undergraduate women (41.3%) is much higher than the percent of undergraduate women (17.6%) enrolled in engineering and computer science in the college. Only 20.2% of the undergraduate students in engineering and computer science are members of underrepresented groups (African American, Hispanic, and Native American).

A survey was taken of the transfer students in the Fall 2007 CIRC/METS program. The results of this survey will be discussed in the next section.

IV. Transfer Student Survey

During Fall 2007, 24 students held CIRC/METS scholarships and participated in the program. One additional student, who had held a CIRC/METS scholarship during Spring 2007, had no unmet financial need for the 2007-2008 academic year and so did not receive a CIRC/METS’ scholarship for the 2007-2008 academic year. At the beginning of the Spring 2008 semester, these 25 CIRC/METS students were each sent a survey by email asking them to participate. All 25 students completed the survey.
The demographics of the Academic Scholarship Program transfer students are shown in Table I. Of the 25 students, 20 transferred to ASU from a community college and the other 5 (2 women and 3 men) students transferred from a college or university.

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Women</th>
<th>Men</th>
<th>URM</th>
<th>URM Women</th>
<th>URM Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>25 (100%)</td>
<td>9 (36%)</td>
<td>16 (64%)</td>
<td>13 (52%)</td>
<td>4 (16%)</td>
<td>9 (36%)</td>
</tr>
<tr>
<td>Average Age (yrs.)</td>
<td>24.80</td>
<td>24.67</td>
<td>26.25</td>
<td>24.75</td>
<td>25.25</td>
<td>24.38</td>
</tr>
<tr>
<td>Worked while at CC or transfer school (Yes)</td>
<td>23 (92%)</td>
<td>9 (100%)</td>
<td>14 (87.5%)</td>
<td>13 (100%)</td>
<td>4 (100%)</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>Work now (Yes)</td>
<td>17 (68%)</td>
<td>6 (66.7%)</td>
<td>11 (68.8%)</td>
<td>8 (61.5%)</td>
<td>2 (50%)</td>
<td>6 (66.7%)</td>
</tr>
<tr>
<td>Family Commitments at CC or transfer school (Yes)</td>
<td>8 (32%)</td>
<td>6 (66.7%)</td>
<td>2 (12.5%)</td>
<td>4 (30.8%)</td>
<td>3 (75%)</td>
<td>1 (11.1%)</td>
</tr>
<tr>
<td>Family Commitments now (Yes)</td>
<td>52% (13%)</td>
<td>7 (77.8%)</td>
<td>6 (37.5%)</td>
<td>5 (38.5%)</td>
<td>3 (75%)</td>
<td>2 (22.2%)</td>
</tr>
<tr>
<td>Plan to go to graduate school (Yes)</td>
<td>22 (88%)</td>
<td>5 (55.5%)</td>
<td>16 (100%)</td>
<td>12 (92.3%)</td>
<td>3 (75%)</td>
<td>9 (100%)</td>
</tr>
</tbody>
</table>

Table I. Demographics of transfer students by gender and ethnicity relative to gender, average age, hours worked while at CC or transfer school, hours work now, family commitments at CC or transfer school, family commitments now, and plan to go to graduate school.

As can be seen from Table I, there are a few differences between the groups by gender and ethnicity. All students except two non-minority men worked while at the community college or school from which they transferred. A much higher percentage of women had family commitments before transferring and fewer women (percentage-wise) plan to go to graduate school. The four women who either do not plan to go to graduate school (2) or are still not sure (2) all have family responsibilities at home.

Next we consider when their decisions to major in engineering or computer science were made. A second question to consider is at what point in their education did they decide to transfer from the community college or other school to ASU. Tables II and III give us this information.

Although these numbers are small, from Table II we can see that there is little difference in the decision time for engineering for women compared to men. The underrepresented minority men and women also made their decisions during times consistent with the non-minority students.
When Engineering Decision Made

<table>
<thead>
<tr>
<th>From the beginning</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>URM Men</th>
<th>URM Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 (16%)</td>
<td>3 (18.8%)</td>
<td>1 (11.1%)</td>
<td>1 (7.7%)</td>
<td>1 (11.1%)</td>
</tr>
<tr>
<td>Middle School</td>
<td>2 (6%)</td>
<td>2 (12.5%)</td>
<td>1 (7.7%)</td>
<td>1 (11.1%)</td>
<td></td>
</tr>
<tr>
<td>High School, Fresh. or Soph.</td>
<td>6 (24%)</td>
<td>2 (12.5%)</td>
<td>4 (44.4%)</td>
<td>2 (22.2%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td>High School, Junior or Senior</td>
<td>5 (20%)</td>
<td>4 (25%)</td>
<td>1 (11.1%)</td>
<td>4 (30.8%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>First year Community College</td>
<td>2 (6%)</td>
<td>1 (6.25%)</td>
<td>1 (11.1%)</td>
<td>1 (7.7%)</td>
<td>1 (11.1%)</td>
</tr>
<tr>
<td>Second year Community College</td>
<td>3 (12%)</td>
<td>1 (6.25%)</td>
<td>2 (22.2%)</td>
<td>2 (15.4%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>ASU</td>
<td>3 (12%)</td>
<td>3 (18.8%)</td>
<td>1 (7.7%)</td>
<td>1 (11.1%)</td>
<td></td>
</tr>
</tbody>
</table>

**Table II. When Decisions were Made to Major in Engineering or Computer Science by Gender and Minority Status.**

Again, although the numbers are small, a slight trend that is visible for differences between men and women is that 55.5% of the women did not decide that they would go on to a 4-year school until after their first year at the community college. On the other hand, only 43.8% of the men did not make the decision to attend a 4-year school until after the first year at the community college. The other slight trend is that a smaller percentage of the underrepresented minority students (30.8%) made their decision to go to a 4-year school after the first year at the community college, while 61.5% of the non-minority students made that decision after the first community college year. Again, these are very small samples, but the slight trend here is that non-minority women are the most likely (60%) to be waiting until after their first year in the community college to decide to go to a 4-year college or university.

The students were asked why they chose to go to a community college. Their answers are not surprising and are similar to results of other similar surveys in the literature. Table IV gives a summary of the results.
Why Attended a Community College? Number of Responses/%

<table>
<thead>
<tr>
<th>Reason</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less expensive</td>
<td>15 (60%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close to home</td>
<td>8 (32%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education is good/better</td>
<td>4 (16%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No HS diploma or did poorly in HS</td>
<td>3 (12%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smaller classes</td>
<td>3 (12%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More interaction with instructors</td>
<td>1 (4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needed to improve their English</td>
<td>1 (4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Took classes there during HS</td>
<td>1 (4%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table IV. Reasons Transfer Students Gave for Attending a Community College.

The transfer students were then surveyed on their experience as a transfer student their first semester at ASU. The ASU Tempe campus is the largest single campus in the nation with over 50,000 students. The students were asked to check all that applied to them and to add others if there were experiences that were not listed. The list of options was designed based on information that transfer students have conveyed to the author over the past five years. As expected, difficult parking was selected by the highest number of students as a first semester transfer problem. Table V summarizes the student responses by gender.

<table>
<thead>
<tr>
<th>First Semester Transfer Experiences</th>
<th>Total/%</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parking was difficult</td>
<td>18 (72%)</td>
<td>12 (75%)</td>
<td>6 (66.7%)</td>
</tr>
<tr>
<td>2. Did not know where resources were</td>
<td>14 (56%)</td>
<td>11 (68.8%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>3. Classes were faster paced</td>
<td>12 (48%)</td>
<td>10 (62.5%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>4. Hard to get to know professors</td>
<td>12 (48%)</td>
<td>10 (62.5%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>5. Classes were harder than expected</td>
<td>11 (44%)</td>
<td>8 (50%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>6. Hard to get into study groups</td>
<td>10 (40%)</td>
<td>7 (43.8%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>7. Did not spend much time on campus</td>
<td>10 (40%)</td>
<td>7 (43.8%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>8. Felt like a freshman all over again</td>
<td>9 (36%)</td>
<td>7 (43.8%)</td>
<td>2 (22.2%)</td>
</tr>
<tr>
<td>9. Lonely</td>
<td>9 (36%)</td>
<td>5 (31.3%)</td>
<td>4 (44.4%)</td>
</tr>
<tr>
<td>9. Lost</td>
<td>9 (36%)</td>
<td>6 (37.5%)</td>
<td>3 (33.3%)</td>
</tr>
<tr>
<td>11. Overwhelmed with classes/logistics</td>
<td>7 (28%)</td>
<td>5 (31.3%)</td>
<td>2 (22.2%)</td>
</tr>
<tr>
<td>12. Worked too much to do well academically</td>
<td>6 (24%)</td>
<td>4 (25%)</td>
<td>2 (22.2%)</td>
</tr>
<tr>
<td>13. No easy classes left to take</td>
<td>4 (16%)</td>
<td>2 (12.5%)</td>
<td>2 (22.2%)</td>
</tr>
<tr>
<td>14. Had a friend/mentor who helped me</td>
<td>4 (16%)</td>
<td>2 (12.5%)</td>
<td>2 (22.2%)</td>
</tr>
<tr>
<td>15. No problems</td>
<td>3 (12%)</td>
<td>3 (18.75%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Table V. First Semester Transfer Experiences by Gender.

Table V shows that a higher percentage of men than women experienced the first eight obstacles when they first transferred to the big university campus. There are only two categories which seemed to bother women slightly more than men: being lonely and not having any easy classes left to take. A slightly higher percentage of the women had a friend or mentor who helped them with the transition. Although three men marked that they had no problems, each also marked several of the negative experiences listed. Three students listed additional problems: missing a lot of school due to religious holidays, taking too many credits the first semester, and being
ignorant of using blackboard for a class since no announcement was made that class material was posted there.

When asked to list what encouragers and “helps” they had received that have helped to make their transfer successful, the following items were given:

- **CIRC/METS Program**
  - Lectures, workshops and scholarship
  - Learned about various resources available to me
  - Mentoring by the CIRC/METS director
  - CIRC/METS program has motivated me
  - METS Center – free printing, place to study, food
  - Presentations of Guaranteed 4.0 Plan for systematic learning
  - CIRC/METS is one of my biggest and probably the only actual help that I ever had since I transferred
  - I would honestly have to say that the CIRC/METS program made my transfer a success. I relearned how to study and was able to narrow down even further my career interests.

- **Immediate and Extended family encouragement/friends**
  - Encouragement from a friend not to give up
  - Friends already at ASU; when I transferred I met a lot of students from my community college who also transferred

- **Professors and advisors**
  - Email information on opportunities available on campus
  - Some faculty have been encouraging
  - Going to teacher’s office hours! (part of the 4.0 Plan) and getting to know professors

- **Staff**
  - Getting to know staff, especially in your department

- **Students**
  - Getting to know other students
  - Joining study groups
  - Information from students who have already had the classes I will be taking.

- **Student societies**
  - Being invited to such meetings and organizations
  - Getting involved with community societies, professional engineering society, and department service group
  - Holding responsible positions and leadership opportunities

- **ASU website information**
- **Gained confidence from my internship**
- **Grants and other scholarships; Scholarship mentor**
- **Free bus pass**

When asked if the college transfer process is different for a woman than a man, none of the students believed that this was true. When asked if there are any transfer program helps that are needed especially or only for women, the answer was “No” for every student. When asked what
help/activities the student would like to see added for transfer students (women, men, or both), one student suggested a stronger mentor program. The METS Center does have a student-run mentorship program that pairs community college students or transfers with students who have already successfully transferred to the college.

V. Conclusions and Summary

This survey study is limited to the small population (n=25) of CIRC/METS students for Fall 2007. All of the students participated, so there is no need to wonder if we would have found different results with students who chose not to participate. Future studies could survey more CIRC/METS students or transfer students who are not in a special transfer program to compare their experiences with the current study group. This student survey indicates that women and men transfer students seem to be quite similar in experiences and needs. The demographics of the men and women are similar. Their reasons for attending a community college are similar and their first semester transfer experiences are similar. A higher percentage of the women transfer students have family responsibilities and felt lonely when they first transferred. All of the men transfer students plan to go to graduate school. Two of the women do not plan to attend graduate school and two of the women have not yet made a decision on graduate school. All four of these women have family responsibilities.

No transfer students, female or male, in this study thought that there was a need for any special provisions or programming specifically for women transfer students. This conclusion can be interpreted that the present CIRC/METS program is meeting the present needs of both men and women transfer students. Perhaps the following aspects of the CIRC/METS Program are factors in this conclusion: the program is directed by a woman who acts as a role model and mentor to the women students, 36% of the students in the program are women, and women engineers and computer scientists often come as role models to share their experiences with the students in the CIRC/METS workshops.

This set of transfer students experienced all of the usual difficulties faced by new transfer students, especially when transferring from a small community college campus to a large university campus. However, a higher percentage of men experienced the eight most common transfer problems: parking, not knowing where resources were, faster paced classes, hard to get to know professors, classes harder than expected, hard to get into study groups, did not spend much time on campus, and felt like a freshman all over again. This study shows why it is so important to have a special program to encourage and to help new and continuing transfer students, both women and men.

References


