

AC 2007-1947: WHAT DO OUR STUDENTS THINK IS IMPORTANT DURING FRESHMAN YEAR?

Dan Budny, University of Pittsburgh

Alaine Allen, University of Pittsburgh

Jessica Quarcoo, University of Pittsburgh

What Do Our Students Think Is Important During The Freshman Year

Abstract

The transition from high school to college can be very difficult for many students. At the University of Pittsburgh, we have a system of courses and academic counseling that is designed to address these issues and help with this transition. One major component to help the freshman make this major transition is a series of mentoring courses that the entering student can select for the first semester. This paper will discuss topics the freshman raised with their mentors and what the students think is important during the first year.

Index Terms – Freshman Advising, Mentoring.

Introduction

Numerous studies document the importance of educating new students about their new academic setting [1 - 5]. Indeed, helping students anticipate and understand life changes can help the university realize a significantly higher first-year student persistence rate [6]. For many years, university programs have incorporated these components via the implementation of pre-college orientation programs that include:

1. Raising the knowledge level of first-year undergraduate students with regard to lifestyle changes that can occur in moving to a campus environment [7].
2. Developing an awareness of the services offered by the university is crucial in the creation of a productive adjustment process [8].
3. Expanding new students' knowledge of changes in status, residence, failure, relationships, and authority through both interactive discussions and written materials documenting success strategies [9].
4. Helping students develop a positive attitude toward their first year at the university.

We use our summer orientation programs to address these items, and also help students become aware of the changes that are taking place in their lives and begin the transition in the student's immediate family structure by introducing professional counselors and advisors during the summer registration program. This expansion of their family is continued in the fall semester, in ENGR0081 and ENGR0011, as peer mentors and faculty are added to their family structure. This paper is designed to give a brief overview of our freshman student transition and retention program, and show what our students think is important.

Background information

ENGR0081 is a course that explains the university policies and procedures to the students. It is required for all freshmen engineers [11]. It is a zero credit class, however the freshmen are graded pass/fail based on attendance and participation. The addition of peer mentors in ENGR0081, allows us to provide student success tips as well as survival tips from a student's perspective. This allows us to further expand the student's new family structure by allowing the peer mentors to act as brothers and/or sisters.

In the past this course was a typical introduction to engineering where once a week the entire freshman class would get a lecture on the different fields of engineering. The typical syllabus was an introduction session, followed by eight separate presentations by the different departments within the school of engineering, a study skills session, presentations by the Co-op and study abroad programs, a session dealing with spring semester registration and a “open house” session sponsored by all the departments. Typically there would be no presentation on the last week or the week of Thanksgiving.

By student accounts, the program was “very cold” and the students’ lack of respect for the course resulted in them ignoring most of the material presented in the sessions. To make the course more “active”, the course was modified in the Fall 2001 to include an additional once a week peer mentoring component. Now, students meet twice a week, once in the large group lecture, and once with their respective mentors. With this design, ENGR 0081 has two main goals:

- Primary: Provide peer mentor support to assist the students in a smooth transition from high school to college,
- Secondary: Aid in identifying the engineering program the new students will eventually major in.

The concept behind the mentor component of ENGR0081 is to create a “friendly environment” where the students can feel free to express their feelings and concerns in a non-classroom setting. To accomplish this we have designed small classes (10-15 students per mentor) that initiate a close bond between the freshmen students and their mentor. There are similar programs that use faculty instead of students [12], however, we felt that building a student/student relationship would be more valuable in solving the various transition issues. The classes are based upon a common non-academic theme. The small class size and common interests increases the opportunity for a personal relationship to build between the freshmen and their mentor. Once this relationship is developed between the student and the mentor, we have found that this has improved our ability to present material on transition topics such as: University resources, Wellness, Diversity, Transition from high school to college, Time Management, Working in Teams, Study Skills, Test Preparation, Stress Management, Study Abroad, Co-op, Getting Involved, Building and Creating a Resume, and Spring registration information. By having the mentors “slip” this information into their weekly meeting the students do not even realize they are gaining valuable college success skills.

All mentors select a theme that is based on their own personal interest. The only requirement is the course schedule must fit into one of the pre-designed 30 seminar time slots on Monday through Friday from 12:00 pm - 7:50 pm. The current and/or past themes range from teamwork to sports to exploring Pittsburgh [11].

The Transition Process

Mentoring is often thought to be a lot like coaching. In fact, many mentors do find that their role as mentor takes on the task of coaching the students through the various difficult transitions from high school to college. Making transitions is an integral part of life. It is important that all

participants in the student's life, including, parents, faculty and university staff, understand that during the transition from high school to college, students often experience a sense of loss for what has changed in their life or despair over relationships that have changed or have been replaced [13]. The first year college adjustment embodies both a loss experience as well as an exciting set of new opportunities [14]. These changes can affect the students' first year experience, including their performance in the classroom and their desire to stay in school. The culminations of such experiences are recognized within three major areas of transition:

Academic Transitions

The first transition that many engineering students encounter is within the academic milieu, which is often compounded by the additional challenges these changes elicit. As a student moves from high school to college he/she is channeled through the high school highly structured daily schedule of planned activities. Upon entering college, the same student is now in charge of creating and implementing their own schedule that is typically different each day, may include night classes, and also has free time throughout the day. In addition to time management, other changes that potentially add to transition frustrations are: different teaching styles from high school teachers, walking across campus and going from building to building as opposed to walking through hallways of the same building, being the best student back home is different than competing with all the top students at the university, etc.

Previous studies indicate that a student's first semester success can lay the groundwork for engineering program completion and/or degree attainment [15 & 16]. Therefore, appropriate support systems must be activated during the very first interaction students and their families have with the university. Several positive outcomes have been realized when students and parents are provided time with members of the university community who will continue to work with the first year students. Examples of positive outcomes are:

Students develop more realistic expectations for their upcoming year that translates into lower frustration levels for ideals unrealized [17],

Participating in educational exchanges increase student/parent perceptions as relative equals by the university, and are therefore more likely to become engaged in ongoing open communications [18],

Early awareness of campus resources strengthens and developing a students potential to persist through a four-year college program [19].

Given the three outcomes listed above, it can be hypothesized that a mentoring program that attends to these needs of the students will assist in creating a more successful academic transition experience.

Family Transitions

For most first year students, arriving on campus initiates the progression from family and compliance, to residence hall living and independence. Being away from home for the first time is typically a period when students test their freedom, and begin apprehensively enjoying their challenging new environment. Simultaneously, parents may be either celebrating the departure of their child or trying to convince the student to come home every weekend. Additionally,

parents might encourage the student to make new friends, or afraid of losing their child, they might prevent the student from making many university-related connections.

In our mentor sessions, students are told that the entire family is going through a change and is experiencing both excitement and sadness. It is okay and natural for the student to feel homesick and have doubts. Therefore, it is important to communicate both spontaneously and on a regular basis with their family.

Interestingly, what a family may not realize is research has discovered that leaving home often fosters improved relationships with parents via the compilation of new-found freedom to express affection while the student has begun individuating into an adult [20]. Furthermore, as a young person evolves into adulthood, they come to consider themselves to be more equal to their parents, and therefore more open to respecting each other's viewpoint. Recognized as mutual reciprocity, this developmental transformation of student/parent relations can lead to a positive family transitional experience [21].

Another benefit of the mentor program is discovered when students find they are able to confidently share relevant university information with their parents. Since parents are important to a student's perception formation, it seems likely open and accurate communications can lead to realistic expectation formation between the two groups [22]. The assumption is a satisfied student equals a happy family, which translates directly into the efficacy of the family's transitional success.

Personal Transitions

Being at a university means being a newcomer in a strange, and possibly lonely community. Some days students may want to fly, run, walk, or drive home. There will be days where the student feels they cannot stand one more day in the residence halls, in the large lecture, with their roommate, with their professors and teaching assistants, or their load of courses. These personal transitions can consume a first year student's thoughts if they are unable to seriously focus on why the university experience is important to their career goals. Insights from mentors can be very helpful. There may be what appear to be insurmountable personal changes during the first year, and research on student persistence supports the importance of linking students to appropriate support personnel to assist with these challenges.

According to Greenberger (1982) psychosocial maturity, an important element in college student success development, is the capacity of an individual to function without the influence of parents [23]. Consequently, it would seem natural to assume a student functioning without parental supervision is developing psychosocial maturity. However, eliminating parents from a student's life is neither possible nor productive. Therefore, the challenge for the mentors is to help students establish clear boundaries with parents, without cutting them from the communication loop completely. Numerous studies document the importance of interaction with the freshmen during their first semester [24 – 27], thus, the mentor program has the potential to establish an environment that reinforces the existing student support system.

Program Evaluation

The mentor program has had a significant impact on the retention and performance of the freshman. Table 1 lists the academic results for the end of the first semester for the past 9 years. The table lists the percent of students that made honors, were placed on probation, and the first semester GPA. The data shows that the performance of the freshman has been greatly improved since the mentor program was created. The percentage of students on first semester honors (above 3.5) has increased, the number of students on first semester probation (below 2.0) and the number of students with a GPA below 1.5 has been reduced, the GPA has increased by almost a half a point (C+ to a B-) and the number of students leaving engineering has been reduced. Regarding the transfer population, the 9.18% transfer out value consists of two parts: 1) Transfer to another program within the university and 2) Students that leave the university. Part of the homework assignments in the student's first semester courses is for the students to also learn about other fields in the sciences that are related to engineering, this knowledge is allowing the students to make a much more informed decision when they leave engineering. Thus, over the past few years less than 2% of the transfer out population is students leaving the university the rest is students transferring to other programs within the university. To test the impact the mentors are having, we asked the students to rate how confident they were on making their decision on what major they would select. On a scale of 1 to 5 with 1 being Not confident to 5 being very confident, the average score for the past two years has been a 4.4. We also asked the students if the mentors had an impact on helping them select a major or provided insight to help them make a decision. Over the past two years, 50% of the students stated the mentors helped them in making their decision. We do not have data prior to 2000 so an exact delta change is not possible but based on experience from the advisors the percentage of students leaving the university was larger than 2%. Thus, the mentor program is also helping us retain students within engineering and within the university.

TABLE 1
COMPARISON OF STUDENT PERFORMANCES

	1997	1998	1999	2000	Before Average
Fall Term Starts	329	366	390	407	
Transfers Out	7.60%	8.74%	9.74%	14.99%	10.46%
Term Honors	19.76%	19.40%	20.26%	24.32%	21.05%
Term Probation	20.36%	16.94%	20.00%	21.62%	19.77%
Total QPA, 1.5 or below	8.21%	8.74%	12.82%	10.07%	10.05%
Average QPA	2.44	2.70	2.58	2.65	2.59

	2001	2002	2003	2004	2005	After Average
Fall Term Starts	382	378	394	428	429	
Transfers Out	9.95%	7.14%	10.15%	10.75%	7.93%	9.18%
Term Honors	22.77%	34.66%	27.41%	33.64%	27.51%	29.20%
Term Probation	12.83%	8.99%	12.94%	15.89%	20.28%	14.19%
Total QPA, 1.5 or below	6.02%	4.50%	7.61%	7.94%	12.82%	7.78%
Average QPA	2.85	2.98	2.87	2.73	2.67	2.82

Based on data from exit surveys we have concluded that one of the major reasons for the low grades and lower retention from 1997 – 2000 was a result of the major increase in work load from high school to college. For example, this past year we asked the students to give us the number of hours they spent on homework in high school as compared to the number of hours in college. The median number of hours spent in high school was 2 hours (35% of the students said they spent zero hours in high school) as compared to 15 hours in college. We also asked the following additional questions:

“Compared to my high school experience, the amount of work I was required to do for the freshman program was greater”

“I spent the appropriate/necessary amount of time studying for exams”

On a scale of 1 to 5 (1=strongly disagree and 5=strongly agree) the average response was 4.6 and 3.5 respectively. Thus, basically everyone thought the amount of work was much greater, but they did not feel the amount of time was out of line. In fact when asked “Based on the total hours, do you feel that the amount of time required of you academically as a freshman engineer was too great, too little, or just right?”, 70% of the students responded that the amount of time was “just right”. To test if the mentors have help the students make this adjustment in the extra work load, we asked the students if the mentor were helpful in navigating through this new workload. For the past two years 70% of the students responded positively. Thus, this attitude of acceptance of the amount of required work is the direct result of the influence of the mentors, and we believe this is one of the major reasons for the increase in GPA and the increase in the retention rate.

To test the impact the mentors are having on the transition process we asked the students if they experienced one or more of these three transitions and if so did their mentor help with this transition. Table 2 shows the results for the past 2 years. The first column titled “Issues” is the percent of students that stated they experienced transition issues, in the three different areas. The second column titled Helped is the percent of students that stated their mentors helped them with these issues.

TABLE 2
STUDENTS THAT EXPERIENCED PROBLEMS AND THE MENTORS HELPED WITH THE SOLUTION

Fall Term	Academic		Family		Personal	
	Issues	Helped	Issues	Helped	Issues	Helped
2004	96%	88%	70%	42%	90%	66%
2005	96%	79%	66%	31%	86%	51%

The results show that almost all the students are experiencing problems adjusting to either the Academic, Family or Personal changes and the mentors are having a large impact on helping the students. In fact if you ignore the Academic issues and only analyze the Family and Personal issues, for the 2004 and 2005 years, 93% and 89% of the students stated they had issues with at least one of these areas.

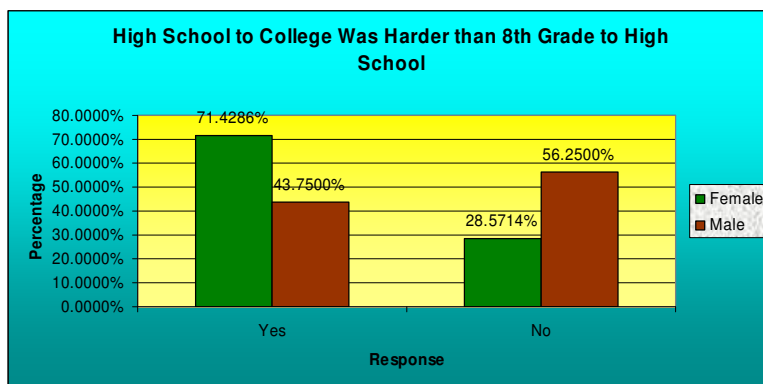
This data supports the findings of researchers studying other college majors, in that students' emotions play a major part in their first year retention, and that mentoring can have a big impact of helping the students through these issues. This finding is reinforced when you look at the difference in the data from 2004 to 2005. Notice how the percentages are smaller in almost every area for the year 2005. The difference between 2004 and 2005 was the type of mentoring that was done in these two years. In 2004 the mentoring was very structured and the mentors took a pro-active role in talking to the students before the students had any issues. In 2005 the mentors took more of a wait and see approach be re-active more than pro-active. Thus, the students did not feel the mentors were as helpful, but if you look at the data in Table 1 you can also see that the students performance is poorer in almost every area. The conclusion we make from this is the students need a very active approach to mentoring and you can not wait until they tell you they need it, you must be pro-active and provide the help before the student thinks they need it.

If you sort the data in Table 2 by gender there is no difference between the males and females for 5 of the 6 transition issues listed. However, for the Family transition issues the males respond was twice that of the females when asked if the mentors had an impact. Thus, the males actually had a harder time making the Family transition than the females and mentoring has more impact for the males than the females. When this data is shared with faculty members this is the opposite of what would be expected. Thus, when discussing issues of transitions you must be careful not to stereotype the students.

What do the Students think?

With the retention success we are having as a result of addressing non-academic issues, we decided to take this a step further and this year during the 4th week of classes, we asked the students what they thought. In the introduction to engineering course, we grouped the students into teams of two and had them conduct a survey among their fellow students. They could ask any question they wanted so long as they questioned a first term student and it addressed an issue they thought was important. They had to survey at least 30 students with 50% being male and female. They then have to compile the survey and present it in a graph using Excel. Thus, the assignment was a spreadsheet application, but we were also looking at what they surveyed and not just how they presented the data. We collected over 170 surveys.

A few of the student survey results are given below.



Question: Transition from high school to college was harder than transition from 8th grade to HS

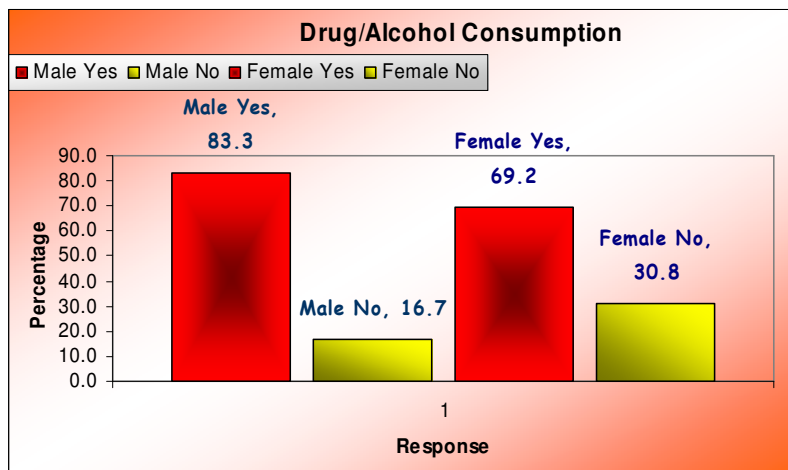
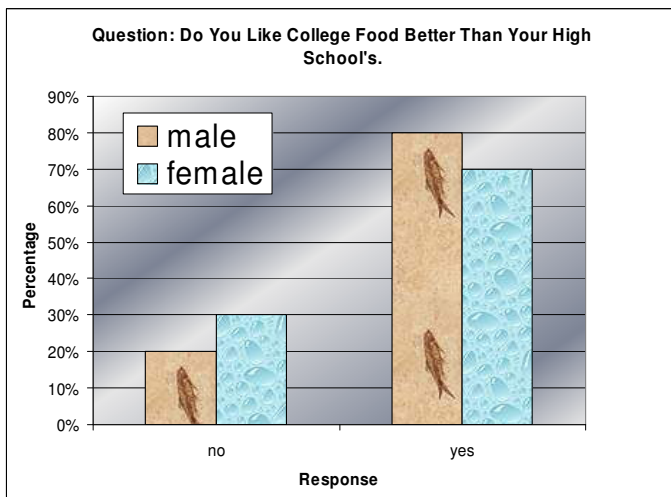
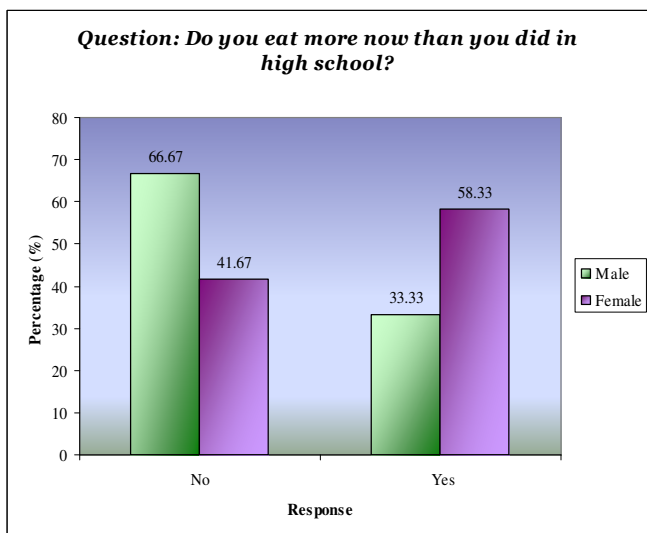
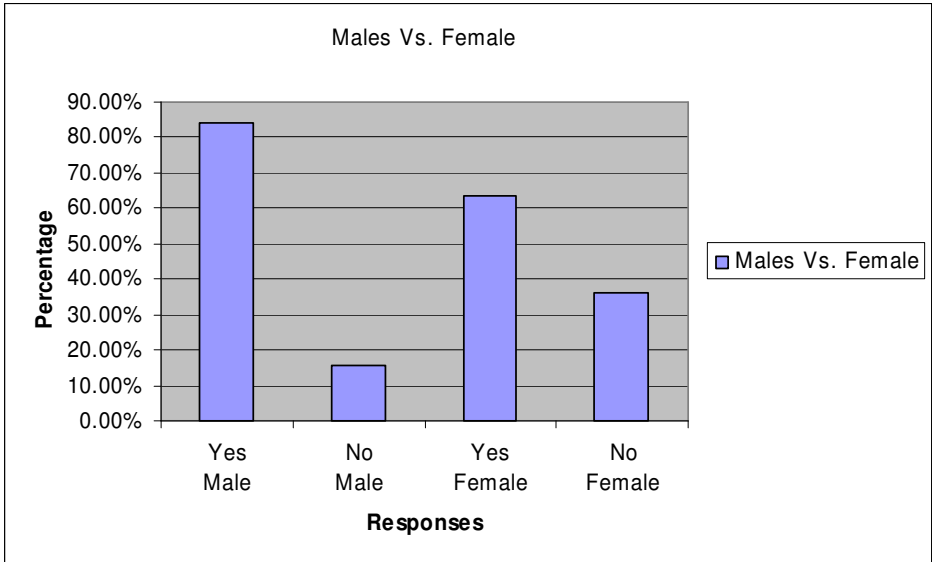
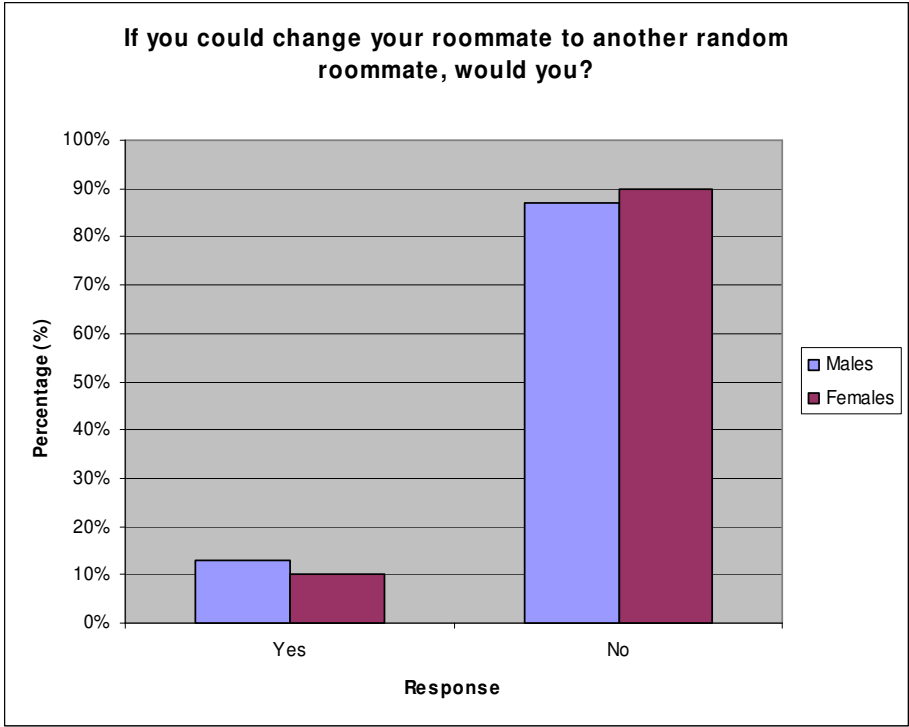
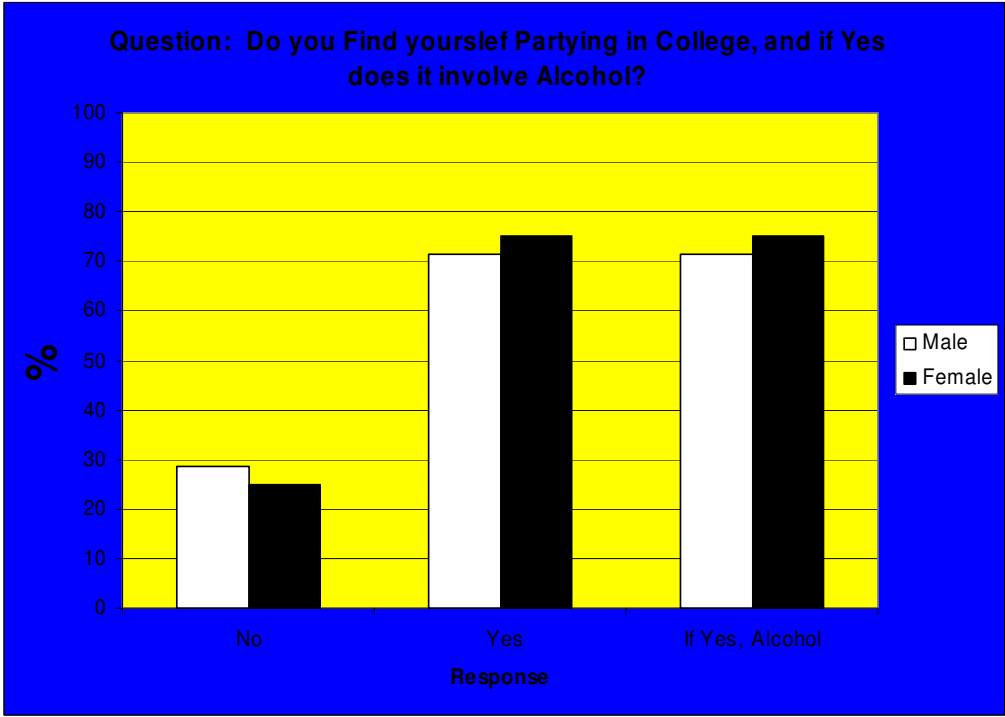
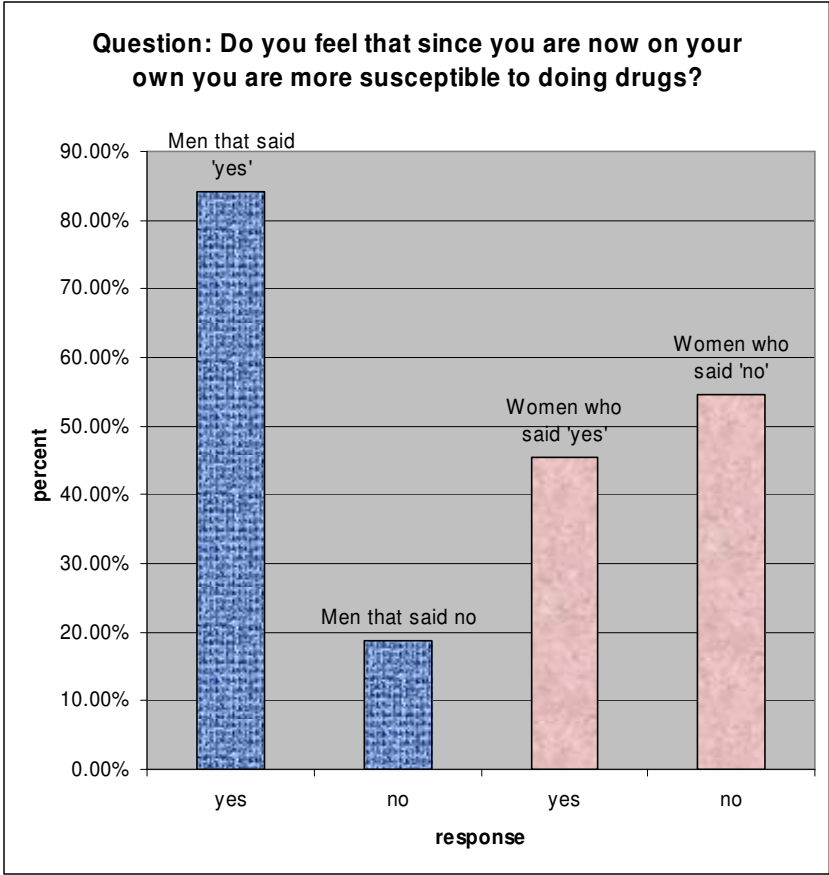


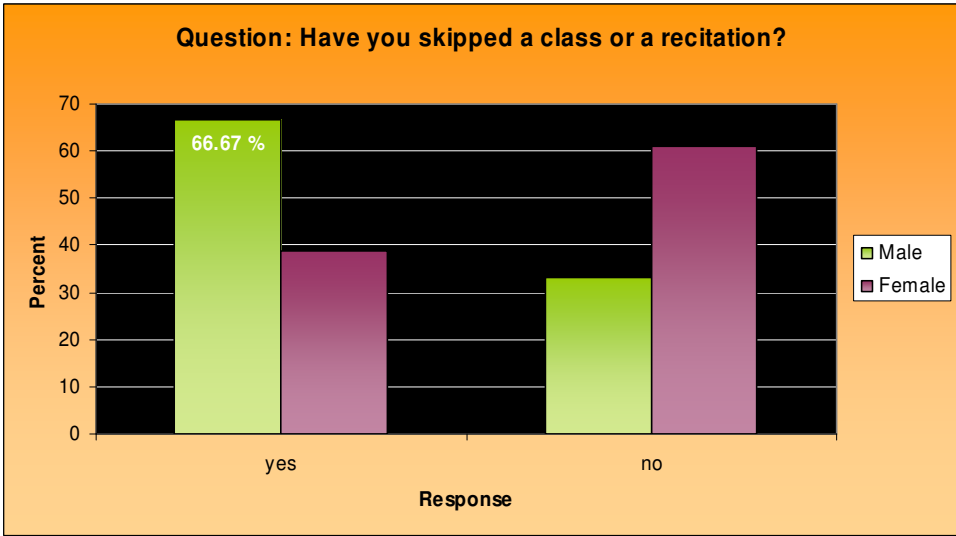
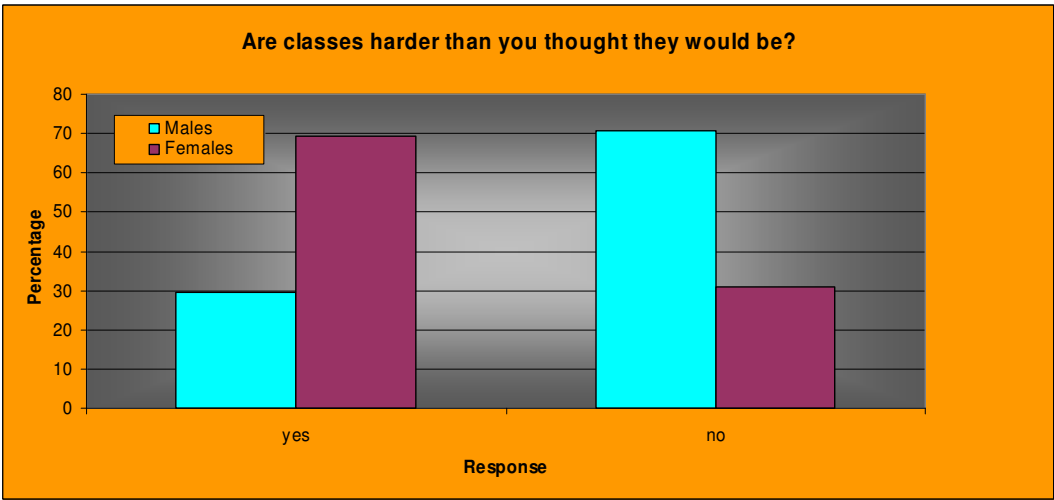
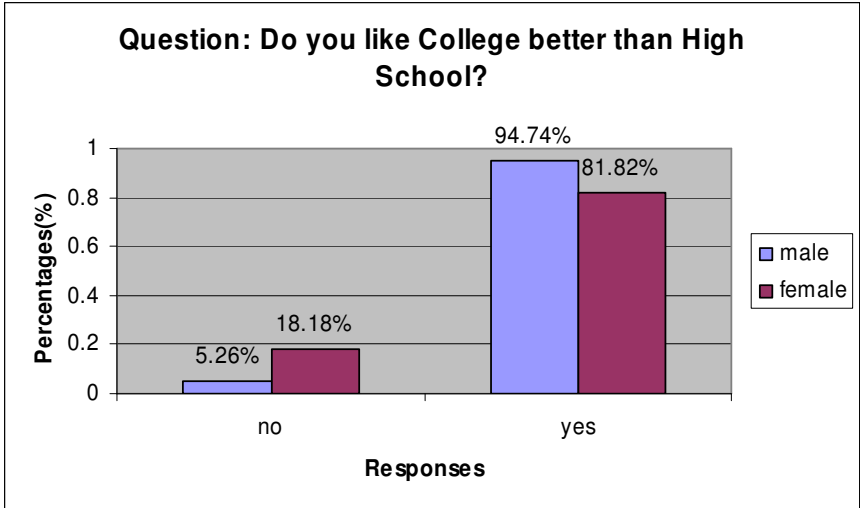
Figure: Has your drug and/or alcohol consumption increased since coming to college?

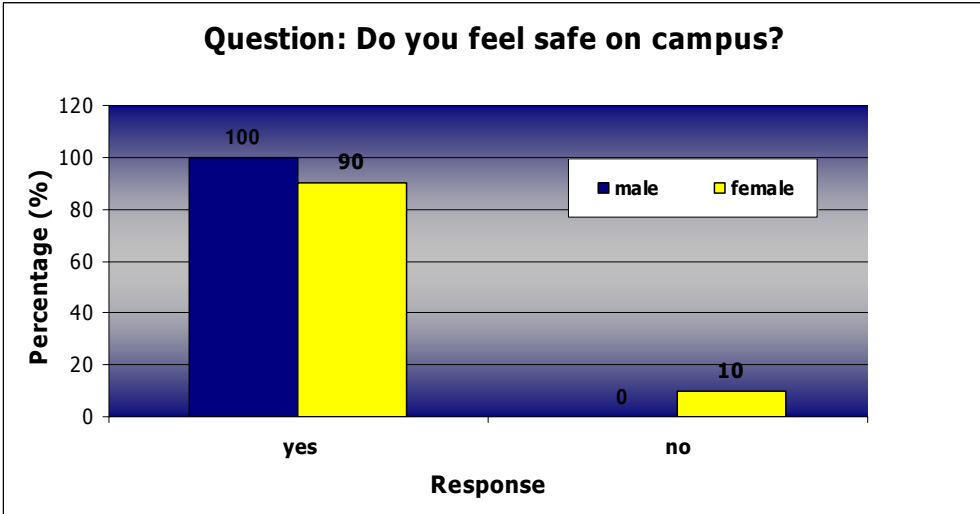
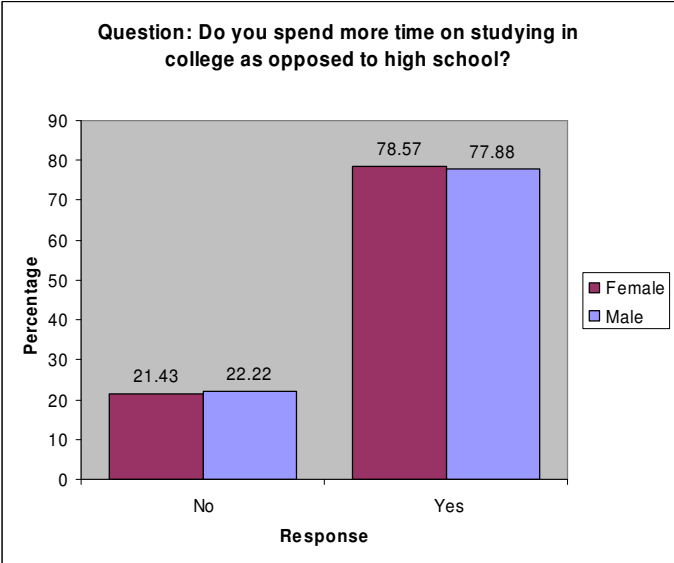
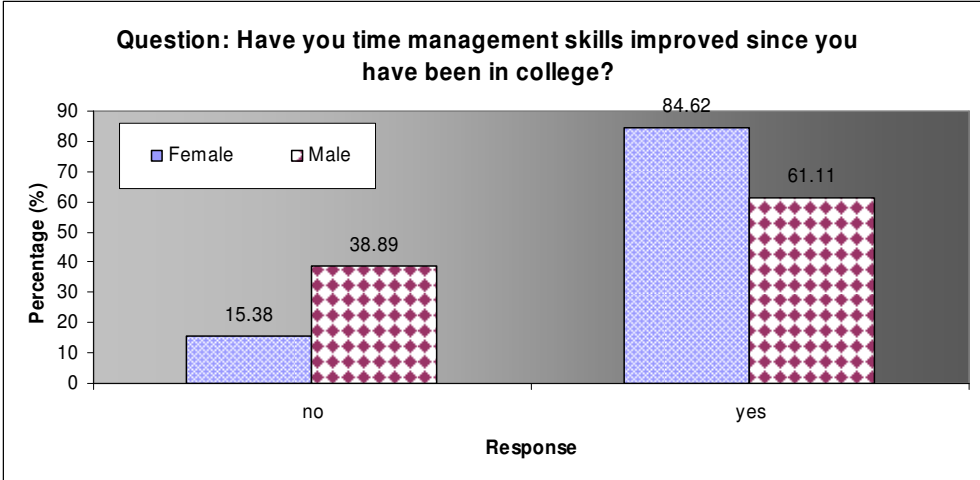


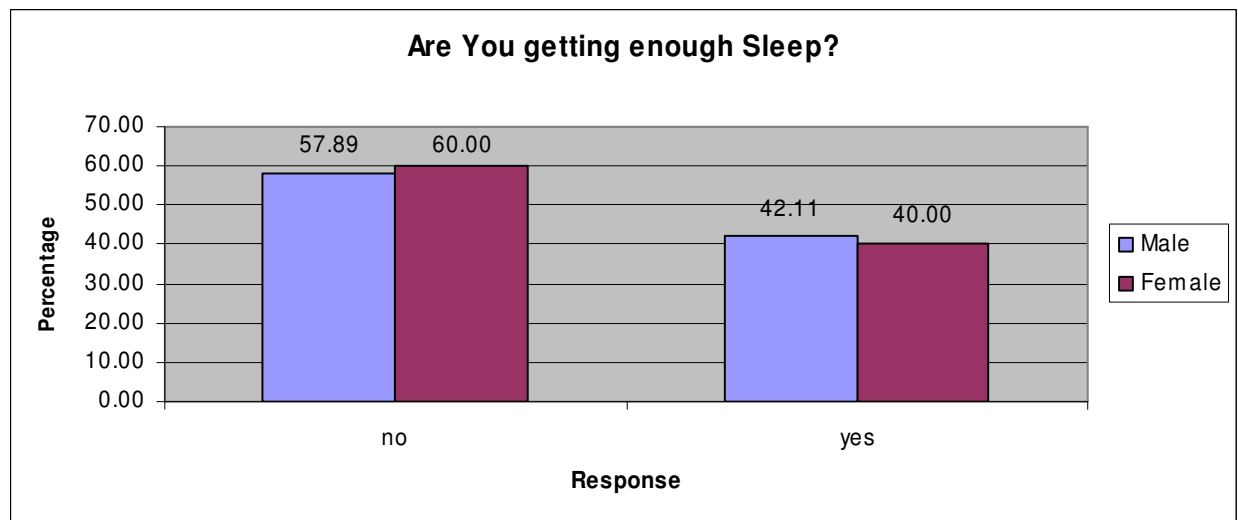
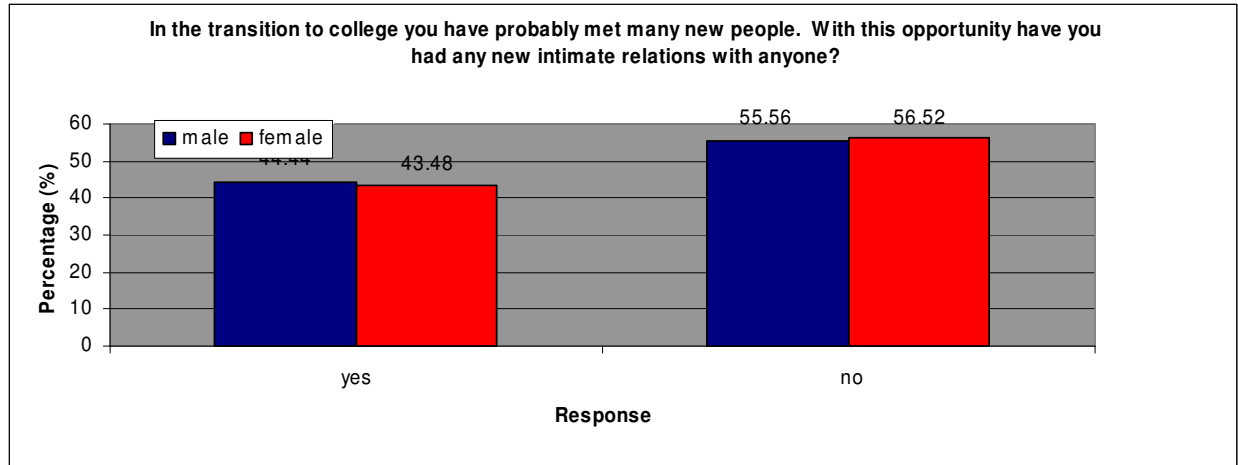


Question: Now that you live in college does money affect you more than when you lived at home?









If you sort the 170 various survey questions into common topic areas we came up with the top 10 issues that were of most interest to the incoming freshman during the first four weeks of the semester, they are:

1. Do you feel as though you get enough sleep?
2. Has high school prepared you well for college?
3. Do you feel safe on campus?
4. Have you entered into any new romantic relationships since you've been here?
5. Do you feel as though partying gets in the way of schoolwork?
6. Do you exercise more or less than you did while in high school?
7. Are you homesick?
8. Do you like your campus food options?
9. Do you feel more susceptible to doing drugs/alcohol now that you're in college?
10. How confident are you in your time management skills?

Thus, in another homework assignment we asked these 10 questions to all the freshman. The summary of this survey are listed below.

70% of the students stated they were not getting enough sleep
66% of the students felt high school prepared them for college
94% of the students feel safe on campus
24% of the students have made new romantic relationships
22% of the students believe partying is getting in the way of classes
46% of the students feel they get the same exercise
19% were homesick
57% of the students were happy with the food
41% of the students feel the pressure to do drugs and/or alcohol
47% of the students are confident with their time management

After the first round of tests we asked the students a few more questions and their results were:

- 46% agree that they will need tutoring this term.
- 65% agree that having a romantic interest will impact their academic performance.
- 51% agree that help is made readily available to them (academic & personal).
- 47% are neutral when it comes to a preference of studying with a group versus alone.
- 35% are neutral when asked if high school prepared them well for college.
- 53% agree that classes are tailored for everyone, regardless of race or gender.

Summary

These results show that the students have limited life experiences and many times rely on past success to assume future performance. At the beginning of the semester they thought their high school background would be enough to be successful, yet after the first test the students thought they needed tutoring and no longer felt their high school background was enough. The same issue was found regarding the impact romantic interactions would have on their academic performance. Yet when told this very same information at the start of the semester they were not willing to believe it. It is because of this action that we believe it is important to provide continuous advising, and we believe the mentoring program is ideal for this task.

We believe that discussing the various transition issues is the key to helping students maximize the opportunity to be successful during their first year. We also believe linking the mentoring with the Engineering Problem Solving course has been a major success. It provides the university an opportunity to take a proactive approach to counseling, by staying on top of the students' first semester transition. By using mentors to provide this interface we are using a non-threatening peer counselor to act as our eyes and ears so we can provide help without the student even knowing we are getting involved.

The results of the student survey are supporting the findings of researchers in that engineering students are no different from any university freshman. Freshman have many transitions issues, when asked what they think is important, our students told us what was important to them was all the non-academic issues of living on their own. They are all having issues with sleep, food, relationships, drugs/alcohol, and all the other basic life issues.

We believe our students are telling us that the non-academic issues that they must deal with on a daily basis are as important to them as the academic issues they deal with. At the University of Pittsburgh we deal with this by providing them with pro-active advising in the form of peer advising.

References

- [1] Boyer, E. L. (1987). *College: The Undergraduate Experience in America*. New York, NY: Harper & Row Publishers.
- [2] Chickering, A. W. and Associates. (1981). *The Modern American College*. San Francisco, CA: Jossey-Bass Publishers.
- [3] Coburn, L.C. & Treeger, M.L. *Letting Go: A Parents Guide to Today's College Experience*, Bethesda, MD: Alder & Alder.
- [4] National Research Council. (1996). *National Science Education Standards*. Washington, DC: National Academy Press.
- [5] Tomlinson, C. A. (1999). *The Differentiated Classroom: Responding to the Needs of All Learners*. Alexandria, VA: Association for Supervision and Curriculum Development.
- [6] Shuman, Larry, Cheryl Delaney, Harvey Wolfe, Alejandro Scalise & Mary Besterfield-Sacre, (1999) *Engineering Attrition: Student Characteristics and Educational Initiatives*, Proceedings of American Society of Engineering Educators Annual Conference, Charlotte, NC.
- [7] Tinto, Vincent, (1993) *Leaving College: Rethinking the Causes and Cures of Student Attrition*. (2nd. ed.). Chicago: University of Chicago Press.
- [8] Levitz, R., & Noel, L. (1989). Connecting students to institutions: Keys to retention and success. In M. L. Upcraft, J. N. Gardner, & Associates (Eds.), *The Freshman Year Experience: Helping Students Survive and Succeed in College* (pp. 65-81). San Francisco: Jossey-Bass.
- [9] Kenny, M.E., K.G. Rice, (1995) *Attachment to Parents and Adjustment in Late Adolescent College Students: Current Status, Applications, and Future Considerations*. *The Counseling Psychologist*, Vol. 23, pp. 433-456.
- [10] Dan Budny, " Integrating the Freshman Seminar and Freshman Problem Solving Courses", *2001 IEEE/ASEE Frontiers in Education Conference, Oct. 2001, Reno, NV, pp. F4B-21 - F4B-26*.
- [11] Dan D. Budny. "The Freshman Seminar Assisting the Freshman Engineering student's Transition from High School to College". June 2001, American Society for Engineering Education 2001 Annual Conference, Albuquerque, New Mexico, pp. 1-7.
- [12] Dan Budny, " Working with Students and Parents to Improve the Freshman Retention ", *2001 IEEE/ASEE Frontiers in Education Conference*
- [13] Paul, Elizabeth L., Sigal Brier, (2001) *Friendsickness in the Transition to College: Precollege Predictors and College Adjustment Correlates*. *Journal of Counseling & Development*, Vol. 79 Issue 1, pp 77-90.
- [14] Weidman, J., (1989) *Undergraduate Socialization: A Conceptual Approach*. *Higher Education: Handbook of Theory and Research*, Vol. 5, pp. 289-332.
- [15] Shuman, et al, op. cit.
- [16] Budny, Dan D., William LeBold, & G. Bjedov, (1998) *Assessment of the Impact of Engineering Courses*. *Journal of Engineering Education*, Vol. 87, No. 4.

- [17] Stern, G.G., (1966) *Myth and Reality in the American College*. AAUP Bulletin, 52, 408-414.
- [18] Kafka, R.R. & P. London, (1991) *Communication in Relationships and Adolescent Substance Abuse: The Influence of Parents and Friends*. Adolescence, Vol. 103, pp.587-598.
- [19] Gerdes, Hilary, Brent Mallinckodt, (1994) *Emotional, Social, and Academic Adjustment of College Students: A Longitudinal Study of Retention*, Journal of Counseling and Development, Vol. 73, Issue 3, pp. 281-289.
- [20] Sullivan A., & K. Sullivan, (1980) Adolescent-Parent Separation. Developmental Psychology, Vol. 16, pp. 93-99.
- [21] Wintre, Maxine Galander, Mordechal Yaffe, (2000) *First Year Students' Adjustment to University as a Function of Relationships with Parents*. Journal of Adolescents Research, Vol. 15 Issue 1, pp.29-38.
- [22] Pancer, S. Marl, Bruce Hunsberger, (2000) *Cognitive Complexity of Expectations and Adjustment to University in the First Year*, Journal of Adolescent Research, Vol. 15, Issue 1, pp. 38-58.
- [23] Greenberger, E., (1982) *The Measurement and Structure of Psychosocial Maturity*. In D. McClelland (Ed.), *The Development of Social Maturity*, (pp. 155-189). New York: Irvington.
- [24] Chickering, Arthur and Schlossberg, N.K., *How to Get the Most Out of College*, Allyn and Bacon.
- [25] Hanson, Jennifer, *The Real Freshman Handbook : An Irreverent & Totally Honest Guide to Life*, Houghton Mifflin Co, April 1996
- [26] Tyler, Suzette, *Been There Should've Done That : 505 Tips for Making the Most of College*, Front Porch Press, May 1997
- [27] Marian Edelman Borden, Mary Anne Burlinson, Elsie R. Kearns, *In Addition to Tuition : The Parents' Survival Guide to Freshman Year of College*, Checkmark Books, April 1996.
- [28] Tendy, S. M. & Geiser, W. F. "The Search for Style: It All Depends on Where You Look," *National FORUM of Teacher Education Journal*, Vol. 9, No. 1, 1998 – 1999, pp. 3 – 15.
- [29] Kolb, D. A. *Experiential Learning: Experience as the Source of Learning and Development*, 1984. Englewood Cliffs: Prentice Hall