Faculty and Peer Mentors within a Critical Thinking Class

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Abstract

This paper presents a retention initiative designed to create a stronger learning community among first term students through the linking of both faculty and peer mentors with Critical Thinking (COLL) classes and to increase the number of students progressing to the third term with the overall goal of increasing completion rates at the DeVry College of Technology, North Brunswick campus. The study focused on nontraditional, commuting, full-time students at a technical proprietary college in central New Jersey.

The initiative also connects students to their program of study and exposes them to program-related technical concepts. Faculty mentors teach a critical thinking lesson with technical application and visit their classes informally throughout the term. Additionally, peer mentors are assigned to each class to work directly with the students, support instructors, and provide yet another connection to the DeVry community. Because of their presence in the classroom and availability throughout the term, peer mentors can become an important part of students’ lives.

Study results indicated that the COLL Mentoring Initiative did positively impact the experimental students. Although the program increased contact with both faculty and peer mentors, peer mentors proved to be the strongest component of the program in terms of their effect on the students. Even though students indicated that faculty mentors did not affect them significantly, the experimental group still rated their impact much more positively than did the control group. Mentoring Initiative students also rated their COLL class activities more highly than control students and appeared to particularly value their group experiences. Study results, however, failed to support hypotheses dealing with a stronger sense of community with the college, intention to reenroll if starting over, and actual rates of retention.

Both quantitative and qualitative data examining both student and faculty response to the new program in comparison to the previous model are presented as well recommendations to further develop the initiative.

I. Introduction

In his examination of college attrition, Tinto began with the words, “More students leave their college or university prior to completion than stay.” This problem is exacerbated among nontraditional students, for far more nontraditional students are leaving college than are traditional students, particularly during their first year. Since DeVry is composed mainly of nontraditional commuting students, the problem is one of extreme importance to us. In order to
connect our students to the college, what we need to do is to create community within the classroom.

How connected students feel to their college, to their peers, and to their instructors and how satisfied they are with their experience appear to be most significant in their decision to stay or leave their institutions. ¹ Our challenge, therefore, is to actively involve students in their learning and to connect students with other students and faculty. Chickering and Gamson identified the first three principles of good practice in higher education as being student-faculty contact, cooperation among students, and active learning. ⁴ Additionally, innovations such as interdisciplinary learning, team-teaching, problem-solving, critical thinking, and learning communities provide opportunities for greater interaction among students and faculty as well as a deeper understanding and an integration of what is being learned.

The Mentoring Initiative was developed to foster relationships that tighten the bonds of a community of learners and promote the social and academic development of students. Within a classroom environment, faculty and peer mentors serve as role models, guides, and resources for information so that learners gain competency and confidence and achieve their academic goals. Both faculty and peer mentors model new roles and skills that instill the values and orientations of the institution and help align expectations. Mentors inspire learners with a vision of their goals and guide them with concrete activities that support and challenge them appropriately. ⁵ Peer mentors socialize new students into the higher education community by modeling and sharing behaviors of successful students and also demonstrating their recently acquired critical thinking skills. Faculty mentors present lessons with technical emphasis and facilitate the critical thinking of learners by exploring options and possibilities. In addition, these activities foster linkages between what students are studying and their career goals.

Most importantly, a mentoring environment demonstrates to the learner that s/he “matters” to the institution. Rosenberg and McCullough speak of the importance of “mattering” and define it as “a motive – a feeling that others depend upon us, are interested in us, are concerned about our fate, or experience us as an ego-extension.” ¹¹ Feeling that they “matter” keeps students engaged in their learning. Beal and Noel found that a strong retention factor is the caring attitude of faculty and staff. ² Within a supportive and caring environment, faculty and peer mentors encourage and prompt struggling students with strategies that enable them to cope with competing demands. As a result, mentoring is a strong layer of support in an institution that provides multiple layers of retention initiatives to help students achieve their academic goals.

The Critical Thinking (COLL) program already provides a unique opportunity to impact first-term students with its focus on problem-solving and critical thinking and encouragement of student connection through teamwork and final course projects. Where we can strengthen the connection is through greater use of both faculty and peer mentors in the classroom in addition to the General Education faculty teaching the course. Team-teaching by Gen Ed and technical faculty and the linking of a COLL class to a technical class have already been proven to be successful on campus. ⁷,⁹ Additionally, many faculty have actively used faculty assistants in COLL classes as teaching assistants, peer mentors, and role models for their students – also with a high level of success.
Students like and do take advantage of the accessibility of faculty assistants/peer mentors whom they meet weekly in class and see on campus throughout the rest of the week as well.

II. DeVry University

The DeVry University is a proprietary system of 25 campuses in the United States and Canada that offer Bachelor and Associate degrees of science and also technical certificates in a limited number of professionally focused fields. The major fields of study are electronic engineering, telecommunications, computer information science, business, and electronics and computer technology. The system is, for the most part, non-residential and attracts an ethnically diverse group of primarily first generation nontraditional college students with an average age of about 25. The student population has been predominantly male with females today composing approximately 25% of the student body. Students study year round in a trimester system.

III. The Critical Thinking Program

All first-term students are required to complete the Critical Thinking course in which they are introduced to critical thinking and problem-solving strategies in a collaborative environment and learn how to evaluate their thinking processes and assume responsibility for their own learning and growth. Considered to be the “hub” of the first-year experience, the Critical Thinking course also connects students to their program of study and exposes them to program-related technical concepts. Students are encouraged to think both creatively and critically as they immerse themselves in the problem-solving process which they learn is “primarily a way of thinking, of analyzing a situation, and of using reasoning skills not learned through the memorization of specific facts.” Early in the term, students form teams and work together the rest of the term to produce a project involving in-depth research, creativity, and a written report as well as an oral presentation. Degree students receive institutional credit for the two hour a week course and earn a grade which is not calculated into their cumulative grade point average.

IV. The Mentoring Initiative

As part of a general orientation to the college in the past, all first-term students were required to attend a full-day orientation session before the beginning of the term. During this program, students also attended a mentoring session and were assigned faculty and peer mentors. This session was designed to facilitate the students’ entrance into their college life by providing them with additional faculty and student support. What became problematic, however, was that as the initial mentoring contact was brief and only one activity during orientation, mentoring contact became difficult to sustain throughout the term.

In response to the need for more meaningful and sustained mentoring, the COLL Mentoring Initiative involving all daytime students was developed. Instead of meeting with students before the term, technical faculty mentors are assigned to a specific critical thinking class that is intended to be program specific. Thus, the faculty mentor teaches in the students’ major field of study: electronic engineering, telecommunications, computer information science, business, or
electronics and computer technology. Subsequently, mentors can demonstrate critical thinking in their technical field and model technical thinking. Expanding the role of faculty mentors from an initial welcoming and support function to one of direct involvement with students during the term strengthens not only the mentors’ connection to their mentees but also reinforces the importance of critical thinking in students’ professional and personal lives.

Faculty mentors initially meet with their COLL mentees during the first week of the term to introduce themselves. Later, they visit their classes informally throughout the term to develop their relationship and invite students to meet with them individually for advice, help, or just conversation. On-line communication is also encouraged. Finally, technical mentors teach or team-teach with COLL faculty a critical thinking lesson with technical application. Expanding the role of faculty mentors from an initial welcoming and support function to one of direct involvement with students during the term should strengthen not only the mentors’ connection to their mentees but also reinforce the importance of critical thinking in students’ professional and personal lives. The model is designed to enable mentors to develop a more meaningful and satisfying relationship with their mentees – a relationship difficult to achieve after having met only for a brief time during orientation.

In addition, peer mentors are recruited, trained, and assigned to all daytime COLL classes. Mentors are required to have a minimum GPA of 3.0/4.0 and demonstrate leadership and strong interpersonal communication skills. Ideally, peer mentors are enrolled in the same program as their mentees. All peer mentors attend periodic peer mentor training sessions which include topics such as conflict resolution, effective listening and communication, and understanding cultural differences. The mentors’ role in the classroom is to guide and support a group of first-term students and also to work as faculty assistants to the COLL instructors, often team-teaching lessons. As successful students, mentors become role models in a position to significantly impact their mentees’ lives.

During the first class, peer mentors introduce themselves to their mentees and share their suggestions about how to succeed at DeVry. During subsequent classes, mentors guide, direct, help, and instruct students as they work in pairs and groups. They also later record attendance and assignment grades. Their advice becomes even more meaningful to the students as they talk about their own experiences as first-term students and especially their final projects. Additionally, they review and discuss each week’s lesson and the classes’ dynamics with the COLL instructors in order to identify students in need of intervention and additional support. In this way, peer mentors work directly with the students, support the instructor, and provide a strong connection to the DeVry community.

Because of their weekly presence in the classroom and availability throughout the term, peer mentors become an important part of COLL students’ lives. Generally, students feel comfortable asking mentors for help or information about DeVry, their COLL class, homework, scheduling, studying, reregistering, and just about anything else about college life. Mentors are often approached by their students in the hallways, through email and sometimes even by telephone. Thus, mentoring increases the frequency of communication and students’ connection to DeVry
and the likelihood of first-term success.

As a result of their participation in the program, peer mentors face many new challenges and opportunities to grow and develop their personal and professional skills and abilities. Not only are they in a position to impact their students’ lives and support them during their first term, mentors can develop professional relationships with faculty, expand their networking opportunities, develop their resumes, have fun teaching, and make new friends.

The COLL Mentoring Initiative supports all first-term students; however, the targeted population is the under 21 year old who is a first time college attendee or who has been unsuccessful in prior academic experiences. The over 21 population tends to succeed at higher rates than younger students. The goal is to increase the number of students who progress to the third term with the overall goal of increasing completion rates. Data gathered from 1998 to the present indicate that of the 17 to 21 year old population, 45% of developmental students (students entering DeVry with substandard verbal and/or math entrance scores) and 54% of standard students (students entering with college level test scores) enter their third term of study whereas third term retention for the over 21 population is 10% higher for developmental students and 8% higher for standard students. Creating a community of learners using faculty and peer mentors and demonstrating critical thinking with a technological focus can provide an enriching and supportive environment, strengthen students’ connection to their academic experience, and increase the likelihood of students completing their education.

V. Hypotheses

The research hypotheses tested were that the experimental group experiencing the Mentoring Initiative would have significantly higher levels of interaction with and more positive perceptions of their faculty and peer mentors, as well as more positive perceptions of feeling part of the DeVry community, a higher rate of retention than the control group, and would affirm their decision to enter DeVry.

VI. Research Design

This study employed both quantitative and qualitative research methodologies to compare the perceptions of the Mentoring Initiative COLL students with the students in the earlier mentoring model, to understand from their viewpoint their perception of both programs, and to monitor retention.

The study utilized a post-test only control group design comparing groups only at the end of the term, assuming randomization to make the groups comparable. Six critical thinking classes taught by the same two instructors were surveyed in two subsequent 15 week terms, Spring 2002 and Summer 2002. The earlier orientation model was utilized in the spring term whereas the Mentoring Initiative began in the summer term. Both of the instructors involved in the study, a female evening dean who teaches as an adjunct and a male General Education instructor and previous counselor, had taught the class before, worked with faculty assistants, and came to the
class with many years of varied experience at the college. The number of students experiencing the first orientation model, the control group, was 97, and the number in the second, the experimental group experiencing the Mentoring Initiative model, was 104. In the control group, the female instructor taught two classes, and the male instructor taught the other four classes whereas in the experimental group because of scheduling difficulties, the female instructor taught only one class, and the male instructor taught the other five classes.

Both the experimental and control groups experienced the same curriculum and were required to complete the same course requirements. The format of both groups included small group collaborative activities, a cooperative learning final course project (written and oral), individual assignments, some lectures and class discussions, as well as individual and group conferences. Both instructors utilized faculty assistants in class to take attendance, handle paperwork, keep records, and occasionally answer student questions and clarify assignments. The male instructor worked with an assistant in only two of his four classes in the control group.

VII. Instrument

The COLL First Term Student Survey was developed by one of the researchers for this study (Appendix A). The survey consisted of 11 questions: the first five survey items contained a four-response Likert scale and the sixth item asked for yes, no, and unsure responses while the next four items, #7, #8, #9, and #10, consisted of open-ended questions with the last item, #11, asking for additional comments. The range of values for the two response items, item #1 and item #3 asking for specific numerical counts of faculty and mentor visits, was as follows: 0 as Not at all, 1 as 1 time, 2 as 2 times, 3 as 3 times, and 4 as 4 or more times. The range of values for item #2, item #4, and item #5 asking for evaluative responses was as follows: 0 as Undecided, 1 as Strongly disagree, 2 as Disagree, 3 as Agree, and 4 as Strongly agree. The 11th open-ended question asking for additional comments was not considered in this study due to an extremely low student response rate.

The surveys were completed anonymously during either Week #14 or Week #15 of the term and were identified only by class section and date. All student responses were assigned consecutive identification numbers and sorted by class.

VIII. Data Analysis

For this study, several forms of analysis were utilized to measure differences between the two groups. First, descriptive statistics were employed to describe and compare the perceptions of both experimental and control students. Next, using the statistical functions built into Excel 2000, a series of two-sample one-tailed t-tests assuming unequal variances were performed on the first six survey items.

In order to organize the responses to the four open-ended questions, the researchers developed a coding system. Bogdan and Bicklen suggest searching through the data for patterns as well as topics which become the coding categories.3 The most useful categories were “Perspectives
IX. Summary of Results

The research question asked if the Mentoring Initiative students would have higher levels of interaction with their faculty and peer mentors and perceive them more positively than the students in the earlier orientation model, have better retention, and affirm their decision to enter DeVry. Three out of the first six survey items proved to be significant at or above the alpha level of .05. These items were #1 asking how many times students met with their faculty mentors during the term, #3 querying how many times students met with their peer mentors during the term, and #4 dealing with how helpful students perceived their peer mentors to be. Clearly, positioning both faculty and peer mentors within a class for the entire term had the anticipated result of increasing student access to both mentors. However, even with increased interaction with faculty mentors, students did not indicate that they felt the contact to be particularly helpful, item #2. In marked contrast, students overwhelmingly specified that they found their peer mentors to be very helpful. Clearly, the results of the study indicate that it was the peer mentoring component of the initiative that proved to be of most value to the students.

Table 1

<table>
<thead>
<tr>
<th>Summary of COLL First Term Student Survey Items Attaining Statistical Significance</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #1. About how many times have you met with your faculty mentor this term?</td>
<td>2.61</td>
<td>.005**</td>
</tr>
<tr>
<td>Item #3. About how many times have you met with your peer mentor this term?</td>
<td>7.77</td>
<td>.000001**</td>
</tr>
<tr>
<td>Item# 4. My peer mentor was...</td>
<td>2.55</td>
<td>.006**</td>
</tr>
</tbody>
</table>

Note: One tailed t-tests with the upper tail critical were performed on all items.

* p<.05.
** p<.01.
*** p<.000001 (practically negligible).

Qualitative data corroborated the above results. The Mentoring Initiative experimental students rated their experience with their peer mentors much more positively. While 18% of the control group responded positively to their peer mentors, 51% of the experimental group rated their mentoring experience positively. Students wrote about how the mentors made the class easier to understand by giving good advice and additional explanations and how their presence in the classroom made the students feel more secure. They liked that they had another person to approach for help and that the mentors could relate their own experiences in the course. As one student wrote, “Just knowing someone has been in the same position I am makes me feel more comfortable.” Students also indicated that they benefited from the peer mentors’ insights not only about the critical thinking class but also about the rest of the curriculum.
Interestingly, although four of six control classes did have faculty assistants in the class, their impact was rather minimal. One of the instructors indicated that she felt that having clearly defined peer mentor roles empowered the mentors to be so much more proactive in their interaction with the COLL students. Also, the peer mentors did participate in specific training that faculty assistants had not experienced. Particularly, the potential impact the mentors could have on their students was emphasized, and it appeared that the mentors successfully followed through on this part of the program.

Although students indicated that faculty mentors did not affect them significantly, the experimental group still rated the impact of their faculty mentors much more positively than did the control group. Positive response to faculty mentors increased from a 25% rating from the control group to a 38% rating by the Mentoring Initiative students. Certainly because faculty mentors were not as constant a presence in the classroom, a reasonable assumption would be that their impact would not be as significant as that of peer mentors. Still, students did appreciate their presence. They indicated that they liked having another faculty member as a resource and especially appreciated hearing about their experience and receiving advice about their fields. One student wrote that the faculty mentor “made me think about future implications.” Faculty, too, were enthusiastic about working with first-term students and appeared to derive satisfaction from the experience.

In response to survey question #9 which asked about which factor made the students feel more comfortable becoming part of the college, both the experimental and control groups indicated that it was the people at the college, their peers and the faculty that facilitated their entry into the college. The Mentoring Initiative group, however, also specifically mentioned the presence of their peer mentors and emphasized the importance of working in groups as a way to become part of the college community. They also indicated that the Critical Thinking class helped them feel more comfortable.

When asked in question #10 which activity/project/lesson was of most value to them during their first term, the experimental students mentioned specific work from the COLL class much more frequently, 47% compared to 20%, than the control group did. The final course project was cited as being of single most value to the students, but many other course projects were listed as well. The students seemed to benefit from the experience of working as a team to create, manage, and produce a significant group project. In addition to learning how to work together and function as a team overcoming many challenges, they wrote about learning how to manage both their time and tasks more effectively so that they became generally better skilled at project management. Although the control group also completed final projects, why the experimental students valued the experience more highly could be related to the presence of the peer mentors who shared their final project experiences and emphasized the importance of the project and also teamwork in subsequent terms.

Why the other survey items, #5 dealing with feeling part of the DeVry community and #6 asking if students given the opportunity to start again would do so, did not prove to be of statistical
significance is not clear. Evidently, the majority of first-term students are generally satisfied with their experience so that the Mentoring Initiative proved most impactful in providing peer mentors and in enhancing the group experience and teamwork skills.

Also, overall attrition still remains a problem when compared with the high retention experienced the prior summer term; however, when compared to the retention into the second term of the Spring 02 cohort, the summer cohort’s retention was 15% higher. Also, when first term attrition is compared to the attrition of the total population, the first term showed less loss proportionately. In Summer 01, first-term attrition accounted for 37.7% of the total attrition, whereas for Summer 02, this number dipped to 33.5%. These cohorts will be tracked to their third term of enrollment.

IX. Conclusions

Research data, both quantitative and qualitative, clearly indicate that the Mentoring Initiative positively impacted first-term students. Students very much appreciated having peer mentors in COLL classes for additional advice and support. It appears that the presence of these mentors also positively affected students’ reaction to the course with particular emphasis on the benefits of group projects. While not statistically significant, students did indicate that they liked having faculty mentors in their COLL classes. Perhaps the fact that the mentors visited the classes only occasionally diminished their impact in the students’ eyes and possibly a few more informal brief visits might produce a different result.

That the rates of retention did not improve is, of course, disappointing. However, when placed within the context of a recession along with the specific aftermath of the events of September 11th and the campus’ proximity to New York City, perhaps the results are not so surprising.

X. Recommendations

The study’s findings suggest opportunities that might strengthen the efficacy of the Critical Thinking Mentor Initiative. The following recommendations could increase the impact of the program for the nontraditional commuting student population of the college.

1. Continue to support and monitor the COLL Mentoring Initiative. As the program develops further and faculty become more involved, the program may impact students even more.
2. Register students into program specific critical thinking classes. In this way, students will get to know other students interested in the same field and have the opportunity to form study groups and establish stronger connections to the college early in their academic careers.
3. Schedule faculty mentors to work with program-specific COLL classes in their areas of expertise.
4. If possible, arrange for technical mentors to teach at least one other course the students are taking concurrently. Such an increased interaction could strengthen the connection between the mentors and their students as well as the connection between the critical thinking class and technical classes.
5. If possible, place peer mentors in classes with students with the same major. Although this factor does not appear to be as critical as the above suggestions, it might very well prove to have a positive effect.
6. Expand the peer mentor training program to include topics such as student development theory, learning styles, and an additional awareness of campus resources.

The Mentoring Initiative has thus far made a positive contribution to the experiences of first-term students. It is hoped that with continued development, the program will impact students even more, strengthen their connection to the college community, and support the successful completion of their programs.

Bibliography

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Appendix A

COLL FIRST TERM STUDENT SURVEY

Dear First Term COLL Student:

We are committed to improving the experience of first year students, but to do so, we need your assistance. Please take a few minutes to give us YOUR input by completing this survey. No personally identifying responses will be disclosed, and all of your responses will be kept completely confidential. THANK YOU for your time and thoughtful participation.

_______________________________________________________________

Date:

Class & Section:

Directions: For each question, please circle the number of your response, unless further directions indicate otherwise.

1. About how many times have you met with your faculty mentor this term?

0. Not at all 1. 1 time 2. 2 times 3. 3 times 4. 4 or more times

2. My faculty mentor was:


3. About how many times have you met with your peer mentor this term?


0. Not at all  1. 1 time  2. 2 times  3. 3 times  4. 4 or more times

4. My peer mentor was:

5. Because of my experiences this term, I feel like a part of the DeVry community.

6. If you could start over again, would you enroll at this campus?
   1. Yes  2. No  3. Unsure

7. How has having a faculty mentor affected you this past term? Explain.

8. How has having a peer mentor affected you this past term? Explain.

9. What has helped you the most feeling comfortable and becoming a part of this college?

10. If you think back over the term, which activity / project / lesson did you feel was of most value to you. Explain.

11. We welcome any other comments.