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## The Effects Of Requiring Student Conference Participation On Computer Language Course Completion Rates

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One of the principal difficulties in conducting computer science language courses via distance education is the lack of face to face interaction common in the classroom setting.

One difficulty in particular is the lack of interaction between students. In a normal classroom, students interact with one another in informal group meetings during breaks and between classes. It has been observed that such student interactions have a very beneficial effect on overall student course completion, success in assignments and final course grade.

The challenge in distance education is to find a good mechanism to duplicate this impromptu face to face process. Many on-line courses now offer an on-line conference capability as part of the course in an effort to supply this learning component. An informal survey of on-line students undertaken over the past 5 years has indicated that, in the absence of provided conference capability, some students will seek collaboration using external means such as MSN Messenger and Yahoo groups. Unfortunately, such groups are "invitation only", and therefore the instructor has no real mechanism to observe the discussion and evaluate its effectiveness.

In an attempt to capture the collaboration and allow instructor interaction, conference facilities have been offered at Athabasca University for our on-line graduate courses for some time. My own involvement with such course conferences began in 2001 when I began teaching COMP501, a first course in Java programming for graduate students.

Experience of these years has demonstrated that offering a conference does not in itself promote collaboration. In the years since 2001, numerous attempts have been made to make the course conference a place to encourage collaboration between students. Unfortunately, none of the optional techniques have had much success. From 2001 to 2005, student participation was under 2% of the enrolled students in each semester. Those who might benefit the most from discussing the course and assignments with others in the class were frequently those who used the conference the least.

In 2005 the author decided to experiment with alternative options and made conference participation mandatory, worth 15% of the final course mark. In conjunction with this change, a document entitled "Conference Guidelines" was prepared and placed in the required course reading. The document reiterated the mandatory participation requirement and outlined the overall conference topics. The document also contained two key sections – "Expectations" and "The Rules" which explained both the purpose of the conference as well the instructor's expectations for student participation.

Some highlights from the Expectations section include:

*You are graduate students, enrolled in a graduate degree program. You should at all times conduct yourselves as both Information Technology Professionals, and as Graduate Students. You are expected to be 'computer savvy' enough to complete this course without significant difficulty. Should you encounter difficulties, expect to do some "legwork" (i.e. internet searches) as well as asking on the conference.*

*At the beginning of the course, introduce yourself to everyone by posting your biography (both personal and professional) on the Bios topic. Be sure to say why you are taking this course and what you hope to get out of it.*

*As the course progresses, you should post at a minimum once per week on each of the unit topics. This post can be questions, observations, ideas or just stuff you've found - anything relevant to the topics in the various units.*

*You will find that the conference can be a great asset to your enjoyment of this course. You are encouraged to collaborate on assignments (but not the final exam).*

In addition to these expectations, the section titled "The Rules" laid out the groundwork for participation in the conference:

- *If you have a question about the course, a unit, example or exercise, **POST IT**. This course is conducted via the conference. Email (to the instructor) is reserved for personal matters (i.e. extension requests) and submitting assignments).*
- *If you see a question on the conference, and you know the answer, think you know the answer, or are facing the same situation, then post it. Obviously, if you know the answer you are expected to post it. However, it is often merely enough to know that you are 'not alone' when facing a difficult concept or exercise. It's not just that 'misery loves company'. Rather, you can start a discussion with those facing the same difficulty and very often together you can solve it instead of getting frustrated alone.*
- *You must post to get the conference marks. However, 'nothing' posts will not count.*
- *The instructor will monitor the conference and **will** answer any questions sitting unanswered on the conference.*
- *Foul language will **NOT** be tolerated. Neither will any offensive postings. Again, you are IT professionals and graduate students. Use courtesy and common sense in all postings.*

The purpose of the rules was to encourage students to post – not just problems and solutions, but also expressions of encouragement. Rather than merely posting solutions, the goal was to encourage discovery, discussion and debate.

From the very first implementation, student participation not only improved (as expected), but the nature of conference posts became dramatically different. Past conference exchanges were very brief and contained minimal information – usually whether or not a student had completed an assignment, and some few postings on the makeup of the final exam. After the move to mandatory posting, the posts became significantly more detailed in discussing the requirements of the assignments, seeking clarification and discussing possible solutions to the various questions.

There are always some students who cannot complete a course due to work related or personal reasons. When those students re-enroll in the course, they immediately begin posting on the conference, and start discussing the course and the assignments in detail with their new classmates – effectively seeding the discussion.

The role of the instructor in these conference postings is not to answer all the questions, but rather to act as moderator and facilitator for the discussions. It is now very rare for the instructor to answer a question directly as students tend to be very quick to offer assistance to one another. Rather, the instructor occasionally makes encouraging comments, or may highlight one proposed technique as the most effective, if for example the discussion seems to have stalled as to what is the “right” approach.

Most commonly, the instructor postings are now reduced to mostly simple news items of importance to the students taking the course, or corrections to web links that may have become dead since the semester began.

A further common difficulty associated with computer language courses (a.k.a. programming courses) is the completion rate. Completion rates for computer language courses, especially “first programming” courses is frequently quite low – below 50% in many cases. One of the goals behind encouraging student collaboration is that students who feel they are making progress frequently have greater overall success in the course.

At the time mandatory collaboration was begun (2005), completion rates in COMP501 were averaging 47%, with a low of 30% and a high of 54% in semesters from 2001 to 2005). From the initial mandatory collaboration course, completion rates jumped to between 44% in the initial semester to a high of 75% with the overall average from 2005-2007 being 61.5%. No other significant changes to course delivery process were made during this time.

The overall results demonstrate a positive relationship between mandatory conference posting requirements and course completion rate.

Future research in this area will concentrate on assessing some specific benefits of the conference experience, utilizing surveys of the students to guide in the enhancement of the conference. Instructor participation will also be studied to seek to optimize instructor interaction with students in the collaborative environment.

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