A Transition To Distance Education: Lessons Learned

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Developing and implementing distance education courses for the clinical laboratory science (CLS) profession is becoming an option in both the undergraduate and graduate experience. Whether it is done to remove geographic barriers for students, as is the case here, or to offer continuing education to those already in the profession, the design of the course can impact the outcome. In this study, students were faced with transitioning from the traditional “on campus” classroom to a totally distance education format in their final semester of a CLS bachelor’s degree program after a successful professional practice experience. Previously, we had reported on the importance of preferred learning style(s) in trying to identify why some students may fit in or perform better in some parts of the laboratory experience than in others during their professional practice or as new graduates, and in this study, we used the data on preferred learning style(s) to help develop and deliver distance education curriculum.

**Materials and Methods**

To assist in the development of distance education curricula, students (Table 1) completed a learning styles inventory. Figure 1 identifies the percent selected responses per learning style for each participant in the cohort. The distance education courses were designed and developed in an attempt to address the preferred learning style(s) of the students. All courses were delivered using the course management system WebCT, along with some additional learning strategies.

To address the auditory learning preference, the course content was delivered with an optional audio component. This was accomplished by preparing a separate CD that was given to each student at the beginning of the semester. The instructor’s narrative was embedded within the lecture material and could be turned on or off depending on the student’s desire to hear the narrative.

To address the visual preference, course content included several links to pictures, photos, charts, and other educational information, as well as, the textbook(s) required for the course. Additional resources included a variety of original diagrams and charts that could be downloaded. Visual learners sometimes need to write information in order to feel that they have completed the learning process and the option of electronic or hard copy submission of assignments would allow for this.

For those with kinesthetic preferences, the designers were challenged because students were not going to be on campus for any “hands on” time. Additionally, the course content included more advanced concepts which often do not have a separate “hands on” component even in the traditional student classroom or laboratory experience (eg, mycobacteriology, molecular diagnostics). Activities included challenges such as open book quizzes and homework with manipulative activities assigned to reinforce the presentation of the course content. In addition, students were allowed to complete the requirements of the coursework in their own time and space. Essentially, these courses were totally self paced allowing students to put their “hands on” the course work when they wanted to and to be the ultimate time manager of their efforts. Each designer had a suggested schedule of weekly accomplishments; however, the schedule was only a suggestion and not a requirement if the student preferred to have a different time line for completion. These distance education courses were implemented with the following results.

**Discussion**

During the first week of the semester; all students signed on and gathered the necessary information for each course. Many e-mailed the designers with questions and comments on a regular basis. During the third week of the semester, the designers began...
to notice different trends in student effort. Since each student was able to pick and choose which course or courses they would begin and when, it became apparent that 3 distinct groups of students were emerging within this cohort (Table 1).

Some students chose to use the suggested schedule proposed by the designers and to complete some assignments in one course and then some in another course, much like the ebb and flow of the gentle waves (GW) on the beach. The GW's did a little here and a little there, making progress in several courses but at about the same rate in each course.

Other students chose to work on just one course at a time. When polled, these students indicated that the course content was something they really enjoyed, so the chemists were focusing on the chemistry course and the microbiologists gravitated to the microbiology coursework and "stayed their course" much like the breaking waves (BW) on the beach, full speed ahead in just one area until it was completed.

Since the courses were self-paced, and there were no punitive measures for students being absent, this last emerging group of students decided that they needed a break from coursework and after the first 2 weeks did nothing for a period of time. Prior to taking courses, all students were informed that incompletes would only be given for documentable life events within the time frame of the course, and these senior level courses would not be offered again until the next academic year. Once this group recognized the amount of time left in the semester and their lack of effort to date, they all increased their efforts much like that of the tidal wave (TW) that comes in and covers the entire beach, beachfront property and beyond.

While the tidal wave approach was perhaps not the best way for these students to complete their final semester, it was not unlike the episodes of "senioritis" that plague the traditional classroom cohorts. This behavior was expected and in anticipation of that, weekly reminders were sent to the entire cohort with the number of days and minutes remaining in the course. To help students gauge the time needed to complete assignments, the designers also shared the range of time it had taken others to complete the various aspects of the course in order to help convince the TW group that time was of the essence.

For those who rode the tidal wave action, there were some tense moments and stressful times that will not soon be forgotten but the good news is that no matter which "wave" the members of this cohort chose to ride, in the end they were all successful in meeting the requirements of the course and for graduation. Student evaluations were positive regarding the delivery format with all of those respondents indicating this was either an acceptable, good, or excellent way to deliver these courses.

Our data indicates that the transition to distance education can be done successfully especially when the course is designed to meet various preferred learning style(s). This information is also helpful for those professionals who are trying to decide if distance education is a viable option to meet their continuing education goals. Before enrolling in any distance education course, it would be worthwhile to ask about course delivery methods and strategies. If you have a preferred auditory learning style, is there an auditory component to the course work? If you are mainly a visual learner, are there links and other enhancements that will meet those needs? If you are a kinesthetic learner is the course designed to give you a "hands on" experience in some way so that your preferred learning style can be addressed? These are very fair questions to ask before enrolling in any course.

Being successful in the distance education classroom may be a very different experience than being successful in the traditional "on campus" classroom but asking good questions before enrolling can be the first step in becoming a successful distance learner. Distance education formats are not a "one size fits all" and it is imperative to look for a "compatible match" when searching for opportunities in distance education.

Figure 1. Learning styles.