2006-319: PROFESSIONAL DEVELOPMENT FOR COMMUNITY COLLEGE TEACHERS

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Professional Development for Community College Teachers: Year Two Data from an Online Graduate Certificate Program in Community College Teaching

Introduction and Project Overview

The departments of Adult and Higher Educations (AHE) and Mathematics, Science and Technology Education (MSTE) within the College of Education at North Carolina State University developed an NSF supported graduate certificate program in Community College Teaching (*project #0302839*). The cohort-based program has focused on developing the knowledge and skills necessary to design and deliver course-related content through technology-enhanced learning environments for faculty who teach in Science, Technology, Engineering, & Mathematics (STEM) related areas. The courses developed for the graduate certificate enhance faculty abilities in both online and classroom environments. The program is currently in its third year with the first cohort of community college teachers from North Carolina and South Carolina completing their fifth course. A second cohort began in the fall of 2005. The project meets the broader goals of the NSF-Advanced Technological Education (ATE) program by institutionalizing the means by which working professionals can be recruited to fill shortages in community college faculty teaching positions in STEM fields. It also provides a means whereby current community college faculty can upgrade their instructional skills.

Project Goals

The key goal for the online Community College Teaching certificate program is to provide high quality content and instruction for the systematic development of instructional expertise for regional community college instructors. Questions addressed during the first two years are:

1. Does the program meet the educational needs of adult and distance learners from diverse backgrounds and cultures?
2. Does the Program develop and enhance knowledge and skills for understanding the diverse ways and settings in which adults learn?
3. Does the Program prepare individuals and enhance instructors' abilities to research, design, implement, and evaluate distance learning and classroom instruction?

Core Courses

The first three courses provide an introduction to instructional techniques and technologies as well as lay a foundation for further program options. These courses represent conceptual and technological content that provide learners with knowledge and skills necessary for conducting a variety of approaches to teaching while emphasizing the use of technology in instruction. In addition, courses in the certificate program provide knowledge and skills useful for the design and delivery of content in distance, and in particular, web-based learning environments.

The Adult Learner – This course focuses on the under girding principles in adult education programs including theories and concepts. Emphasis is placed on the interrelationship of the nature of adult learning, the nature of the subject matter and the setting for learning occurrence. The applicability of relevant principles and pertinent research findings to adult learning are discussed in the course.

Instructional Strategies in Adult and Community College Education – This course covers the forms of instruction appropriate for the teaching of adults. Special emphasis is placed upon the methods for maximum involvement of the adult learner. Students study the relevant concepts, theories and principles for selection, utilization and evaluation of instructional strategies with focus on integration of theory into practice. Students develop proficiency in use of applicable teaching techniques for adult and community college education through participation in online and classroom practice exercises.

Instructional Design in Technical and Technology Education – This course involves creating instructional activities for technical and technology education settings. Students examine learning theories appropriate for technical and technology education and explore and apply models for instructional design. Issues relative to electronic applications in technical and technology education classrooms are also explored.

Certificate Options

After completing the 3 core courses, students will make a decision whether to pursue the community college teaching certificate or to apply to a master or doctoral program (see Figure 1). If they elect to only complete the certificate, they will have to complete 2 approved courses from the AHE and/or MSTE departments. If a student wishes to continue on to complete a graduate degree, application must be made to the appropriate department. All core courses in the certificate program transfer into either department.

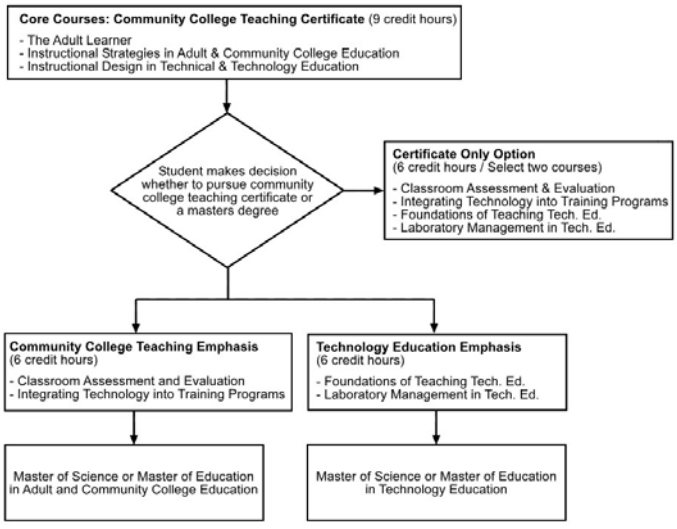

Figure 1. Flowchart for Community College Teaching Certificate.

Advisory Committee

The advisory committee for the project is comprised of administrators from both North and South Carolina. The committee includes two community college presidents, two administrators from the state systems, three university administrators who specialize in distance education programs, two community college vice presidents in charge of curriculum, and two community college department heads.

Delivery of Course Content

All courses are being delivered through WebCT - Vista. This tool is used mainly to deliver asynchronous material in the course. Asynchronous tools involve instruction through a "different time-different place" mode. Examples consist of discussion boards, blogs, email, online quizzes, streaming audio and video, narrated slideshows, learning objects, and website links. The main advantage of these tools is that participants can access the instruction at their own convenience [1]. Before beginning the program, students were asked to complete an "Online Preparedness Guide Quiz" to determine their readiness for the online courses. One of the biggest concerns for all faculty involved in the project is that the online learning experience is as good as or better than a traditional classroom experience. Traditional face-to-face courses involve having students complete required reading assignments before coming to class and then participate in classroom discussions. Some instructors require students to watch a short video (3-4 minutes) of the instructor introducing the material for the week before completing readings that were on E-Reserves. Additional assignments for units involved posting original ideas on the course discussion board, writing papers, and participating in synchronous web activities.

In addition to the Vista, instructors also use Centra Symposium to deliver synchronous instruction. Synchronous tools involve instruction through a "same time-different place" mode. These tools allow the instructor and students to engage in activities in real-time. Examples of synchronous tools are application sharing, audio conferencing, text chat, web conferencing, white boarding, and video conferencing [2]. Figure 2 illustrates an application sharing example of a web browser. Application sharing allows the instructor to present material, demonstrate software, or turn control of the software over to participants. Figure 3 illustrates an example of using a whiteboard activity to conduct brainstorming activities.

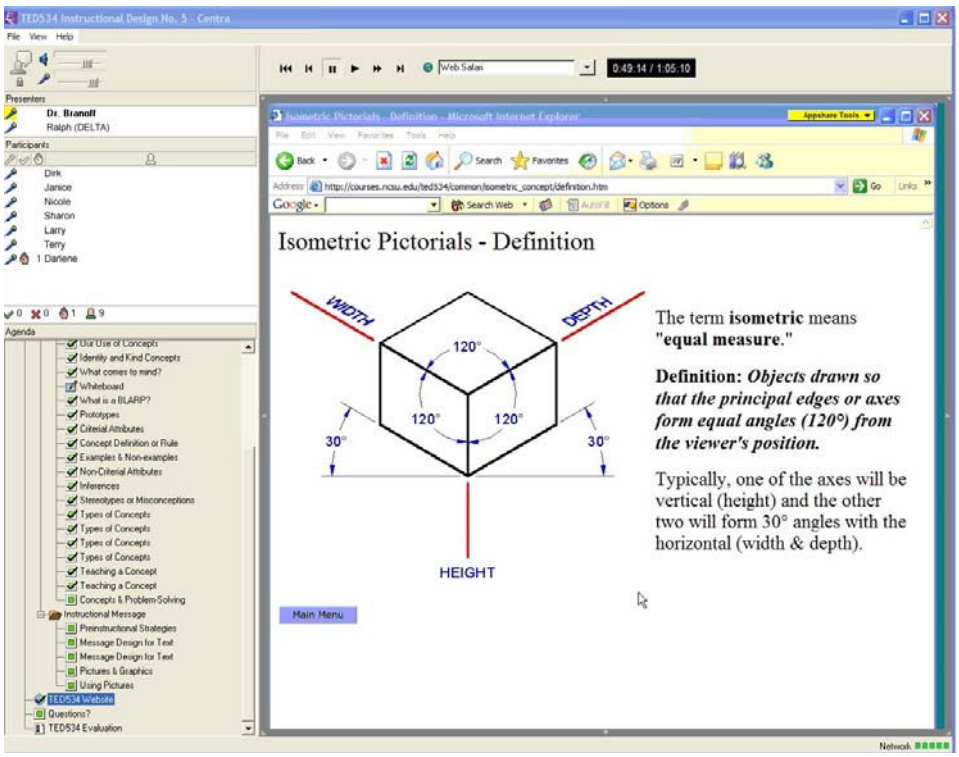

Figure 2. Example of Application Sharing in Centra Symposium.

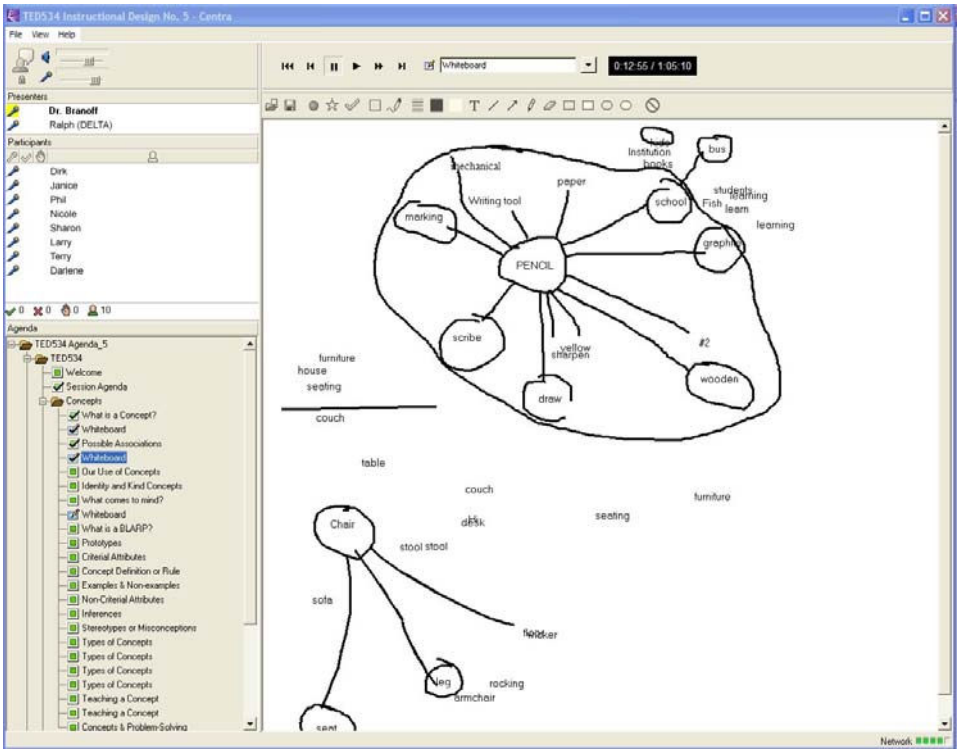

Figure 3. Brainstorming Activity Using the Whiteboard in Centra Symposium.

Data From Year One

The Community College Certificate Program currently has 26 participants from 29 institutions in North and South Carolina (see Figure 4). The participants are community college faculty in the following areas of study: anatomy & physiology, biology, chemistry, civil engineering technology, civil engineering & surveying technology, computer programming, developmental arithmetic & algebra, distance learning, electronics, geology, health sciences, industrial systems technology, laser & photonics technology, mathematics & science, and mechanical engineering technology. A majority of the participants already have master degrees in their content area.

The Certificate Program is cohort-based. Nine individuals from the first cohort will complete their final course in the program during the spring 2006 semester [3]. The second cohort currently consists of 17 students who are beginning the second course in the program.

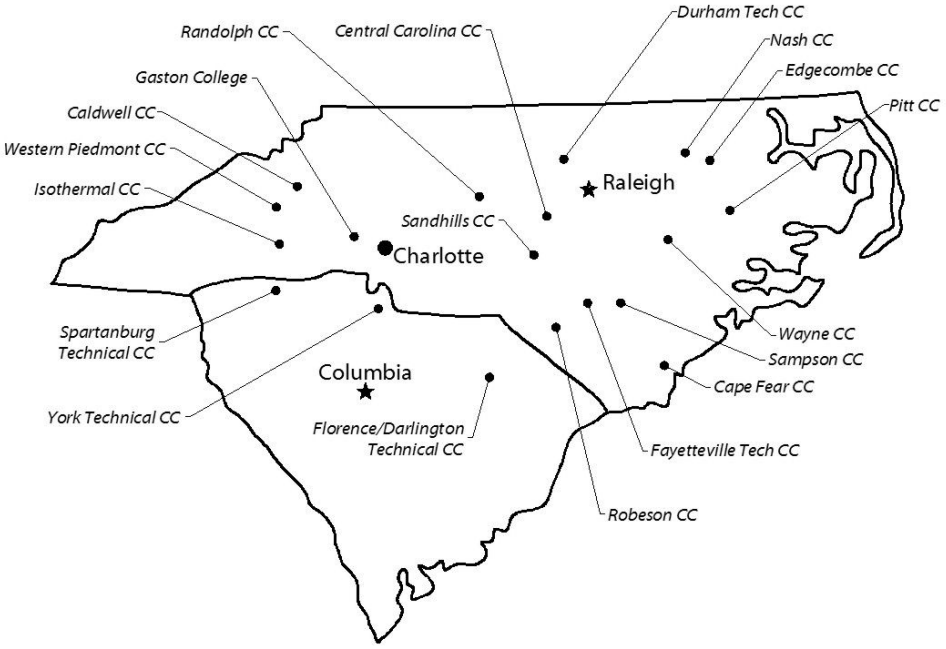

Figure 4. Map of Participants' Locations.

Since the Online Graduate Certificate Program in Community College Teaching is funded by the National Science Foundation, the program must be evaluated by an outside agency. The external review for this project is being conducted by the Research Triangle Institute (RTI). RTI is conducting electronic skill inventories during each course, reviewing portfolios of student work, collecting and analyzing contact logs between students and faculty, reviewing recruitment plans, and reviewing curriculum materials from each course. Table 1 shows demographic data from the first and second cohorts.

Table 1. Demographic Data from the Cohorts.

Gender	Male		Female		Total
Cohort 1	3 (33%)		6 (67%)		9
Cohort 2	7 (41%)		10 (59%)		17
Location	**North Carolina**		**South Carolina**		**Total**
Cohort 1	7 (78%)		2 (22%)		9
Cohort 2	15 (88%)		2 (12%)		17
STEM Area	**Science**	**Technology**	**Engineering**	**Mathematics**	**Total**
Cohort 1	3 (33.5%)	2 (22%)	1 (11%)	3 (33.5%)	9
Cohort 2	6 (35%)	6 (35%)	1 (6%)	4 (24%)	17

Most participants in the program have been females from North Carolina. There has been a fairly equal distribution of individuals from the science, technology and mathematics areas.

The following are comments made by the first cohort students after completing the Instructional Design in Technical and Technology Education course during the 2005 summer session.

As a result of this course, what are you doing (or will you do) differently relative to your instructional practices?

- I will become more involved in developing the materials for the courses in my department. I have become more confident in Instructional Design and Blackboard.
- I will definitely take my students" backgrounds and learning styles into consideration.
- I intend to write specific objectives with specific strategies to accomplish each one.
- I will think through the process and use the planning process to design my instructional materials.
- I created a new unit to use in my traditional and hybrid course. I will be able to make it an optional unit for my students and give students extra credit when they are successful.

What things did you like best about the Centra Symposium sessions?

- It allowed us to connect in real time. It was a great way to share and discuss our projects.
- The "group feel"... it was nice to "meet" my cohort.
- The ability to talk while projecting PP or some other file.
- Being able to ask a question and get an answer right away.
- I liked the instructor going over the chapters and keeping us informed of expectations for the assignments. The text was very good, too.

What things did you like least about the Centra Symposium sessions?

- Nothing really, it would have been nice if the instructor didn"t have to teach everyone how to use it every time, but this is a problem with the students, not Centra or the instructor.
- I could never get the app share to work as well as the others.
- I did not have enough experience with the software to use the tools effectively.

- I don't like having to stay on the computer over 1 hour and 15 minutes. That did not happen often. So, I appreciate that. On the computer over an hour is not the same as face-to-face. However, we were very active on the computer – break out sessions, or writing on the white board, and that helps the class to go by quicker.

How has participating in an online format influenced the course experience?

- [The instructor] made such an effort to keep us connected via weekly Centra sessions that other than seeing each other, it was almost like a seated course. I guess the major influence is that it has forced us to gain more experience with computer applications and e-mail.
- 'Mmmmmm... I"m not really sure about this question. It is an online course, the experience was a good one.
- Becoming part of the larger piece helps address the doubts and fears of online teaching.
- Online is always better for me, because I need to be able to work late at night and early in the morning.
- We have to communicate with our classmates more. We can actually email anyone and get feedback. I think we have a stronger relationship because of the online format.

Please describe what you would like to accomplish through this program.

- I plan to complete the certificate program and continue at NC State for a Masters degree.
- I would like to get a better idea of how to better deliver my content in the online environment.
- I hope to accomplish a greater respect and understanding of teaching science classes in an online environment. I have a better philosophy of the online delivery option now than I did prior to enrolling in the certificate program.
- I would like to be able to design more effective instruction.
- I would like to earn the certificate, and move closer to another degree. I don't know exactly what degree I want after the Educational Specialist. I want the curriculum content to fall back on.

In addition to these data, North Carolina State University faculty also have access to data collected from the distance education group on campus for each Centra Symposium session. During the summer 2005 semester, 10 community college instructors from the first cohort were enrolled in Instructional Design for Technical and Technology Education. This course included nine Centra Symposium sessions. Figures 5-8 present data regarding where and how students connected to these sessions and the effectiveness of Centra to deliver the instruction. The community college instructors typically connected from either home or work (Figure 5) using a high bandwidth connection (Figure 6). Figures 7 and 8 illustrate that participants felt that they would use Centra again and that it met their expectations.

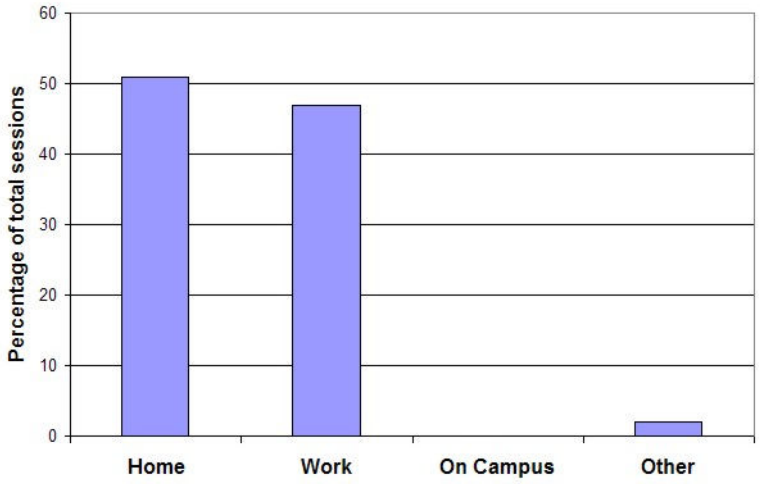

Figure 5. Location From Which Students Connected.

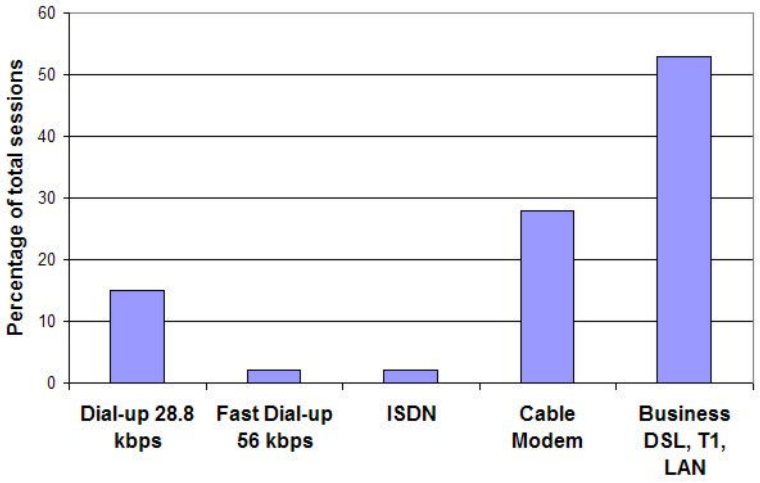

Figure 6. Bandwidth of Student's Connection.

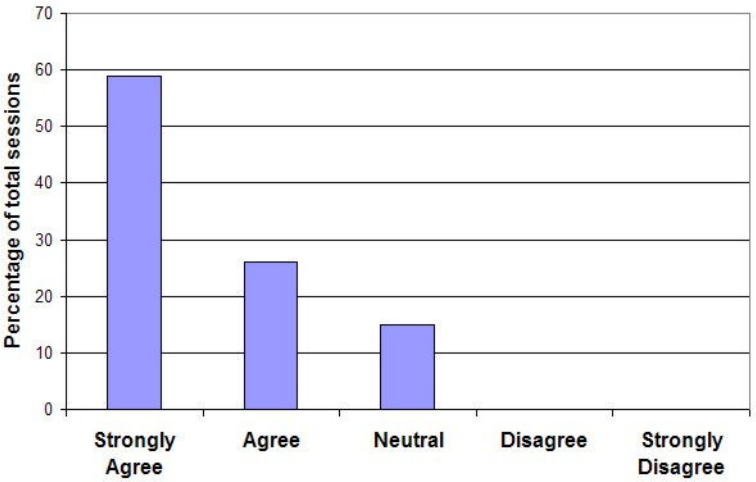

Figure 7. "I Would Be Interested in Using Centra Again".

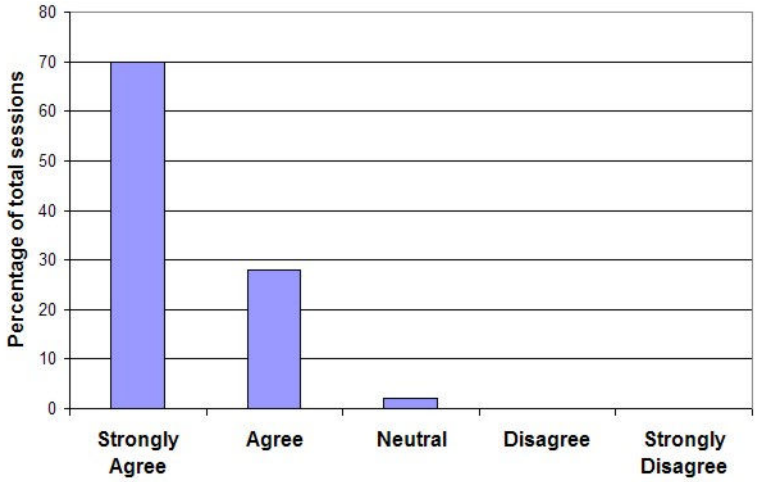

Figure 8. "Centra Met My Expectations".

Reflections and Conclusions

Although the first cohort has not finished the fifth course, preliminary data give some indication of the effectiveness of the program. Comments here are organized based on the year-two goals of the program.

Does the program meet the educational needs of adult and distance learners from diverse backgrounds and cultures? Comments made by students in post-course surveys indicate that the program is meeting the needs of community college instructors. The demographic data indicate that the program is meeting the needs of instructors from rural and suburban areas, however, better strategies are needed to recruit participants from South Carolina and to recruit individuals of color.

Does the Program develop and enhance knowledge and skills for understanding the diverse ways and settings in which adults learn? Community college faculty are incorporating the knowledge and techniques learned in the certificate program into their own classroom practices. Participants indicated that studying adult learning theory and instructional design methodology has helped to evaluate how and what they teach and design more effective instruction in their face-to-face and online courses.

Does the Program prepare individuals and enhance instructors' abilities to research, design, implement, and evaluate distance learning and classroom instruction? Most participants had interacted in an online environment before enrolling in the program. Their ability to use tools like Centra, WebCT, and file manipulation tools has increased significantly.

As the result of feedback from participants, the project team has instituted a one day orientation session on the campus of North Carolina State University. Goals of this session are to acclimate individuals to the course management tools (WebCT and Centra Symposium), give them a chance to meet the instructors as well as other participants, collect relevant information from the students, and allow them to make a final decision about whether the program is right for them.

Bibliography

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