

## **AC 2007-481: COMMUNITY COLLEGE TEACHER PROFESSIONAL DEVELOPMENT**

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# **Community College Teacher Professional Development: Year Three Data from an Online Graduate Certificate Program in Community College Teaching**

## **Introduction and Project Overview**

The departments of Adult and Higher Education (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. The 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. Current community college teachers from North Carolina and South Carolina have been recruited into the program. 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 three 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 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 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.

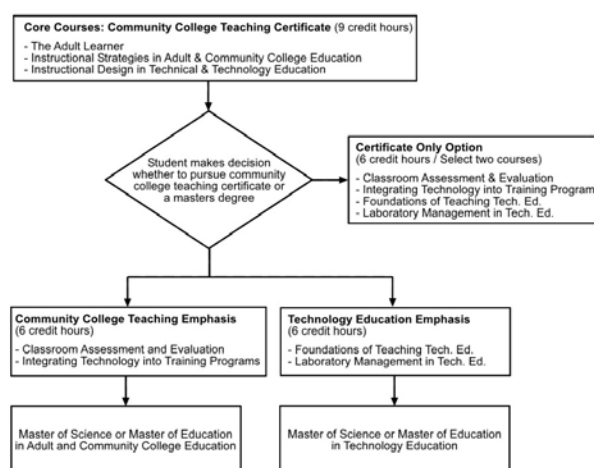


Figure 1. Flowchart for Community College Teaching Certificate.

## **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 <sup>1</sup>. 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 used 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 <sup>2</sup>.

## **Data From Year Three**

Thirty-one students from 19 institutions in North and South Carolina have either completed or are currently enrolled in the Community College Certificate Program (see Figure 2). 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 completed their final course in the program during the spring 2006 semester. The second cohort currently consists of 17 students who are beginning the fifth course in the program. The third cohort has five students who are beginning their second course <sup>3,4</sup>.

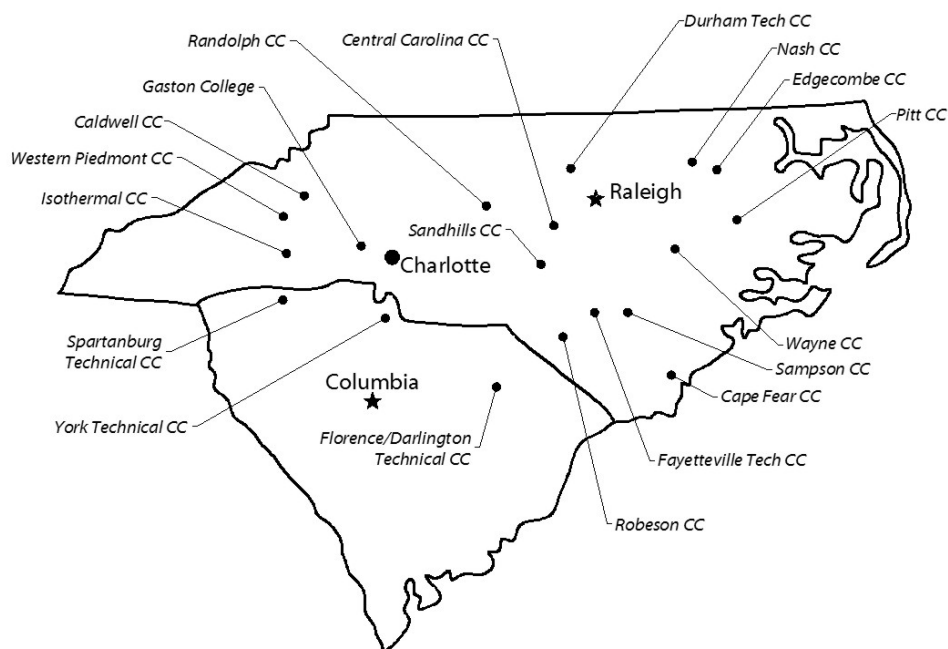


Figure 2. Map of Participants' Locations.

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)<sup>5</sup>. 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 three cohorts.

Table 1. Demographic Data from the Cohorts.

Gender	Male	Female	Total		
<b>Cohort 1</b>	3 (33%)	6 (67%)	9		
<b>Cohort 2</b>	7 (41%)	10 (59%)	17		
<b>Cohort 3</b>	0 (0%)	5 (100%)	5		
Location	North Carolina	South Carolina	Total		
<b>Cohort 1</b>	7 (78%)	2 (22%)	9		
<b>Cohort 2</b>	15 (88%)	2 (12%)	17		
<b>Cohort 3</b>	5 (100%)	0 (0%)	5		
STEM Area	Science	Technology	Engineering	Mathematics	Total
<b>Cohort 1</b>	3 (33.5%)	2 (22%)	1 (11%)	3 (33.5%)	9
<b>Cohort 2</b>	6 (35%)	6 (35%)	1 (6%)	4 (24%)	17
<b>Cohort 3</b>	3 (60%)	2 (40%)	0 (0%)	0 (0%)	5

***Project Goal #1: Does the program meet the educational needs of adult and distance learners from diverse backgrounds and cultures?***

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 with the exception of the third cohort.

***Project Goal #2: Does the Program develop and enhance knowledge and skills for understanding the diverse ways and settings in which adults learn?***

Community college instructors were asked to respond to Self-Report Inventories after each course. These inventories consisted of then-post questionnaire items and open-ended responses, which asked instructors to describe their impressions of learning units and course materials. The questions measured the extent to which instructors' knowledge of adult learning principles increased and how they envisioned changing future instructional practices.

Comments after the Adult Learner Course

- *My students have varied educational backgrounds, from holders of GED certificates to college graduates. In view of this, I concur with one of Bruner's examples of practice: "The task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding.*
- *Communities of practice are everywhere—we either find one or create one. Once we do, we may start in the margins or peripherals and work toward the core or center as we become more part of the group and more involved in its goals or outcome. It involves a shared practice, rather than a shared interest or geographical location.*
- *Learning is a social activity to a large extent." It's important to provide the support, stimulus, and socialization as part of education.*
- *I was really surprised to see how strongly social context figures into the theories. Along with others, Piaget believed that education is a social process, and Vygotsky emphasized a socio-cultural approach. I was a bit skeptical at first, but after reflecting about what I see in classes, how students relate to me and to each other, and about how difficult this class is for me, I am more of a believer in the need for learning in community. The challenge for online education is to build that sense of community.*
- *Self-directed learning to a large extent is the theory that is used in my classes. While andragogy is also used, the students must learn to rely on themselves to completely understand the material.*
- *Since starting this program, I have learned more about learners and how they relate to different teaching styles. I hope to use this knowledge to provide instructional strategies that work for my classroom.... It has been worthwhile for me.*

Comments after the Instructional Strategies Course

- *This semester I have been exposed to more theories and strategies. In the past I have relied primarily on departmental guidelines. In the future, I will implement some of the strategies I have read about this semester.*
- *I have learned more about learners and how they relate to different teaching styles. I hope to use this knowledge to provide instructional strategies that work for my classroom.*

- *It's good to understand the theory behind the strategies. I plan to review the success of the courses that I taught and review the strategies that I have learned more about. I plan to share the most relevant information with other faculty members.*

***Project Goal #3: Does the Program prepare individuals and enhance instructors' abilities to research, design, implement, and evaluate distance learning and classroom instruction?***

As a result of the then-post questionnaires after the first three core courses, community college instructors assessed their own technology skills before and after the courses. Statistically significant changes existed for the following items:

- Ability to establish and use student- and/or instructor-organized discussion groups/forums (e.g., WebCT, Discussion Board).
- Knowledge of WebCT.
- Knowledge of Centra Symposium.
- Knowledge of computer resources at NC State.

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 and 2006 semesters, 10 community college instructors from the first cohort and 13 from the second cohort were enrolled in Instructional Design for Technical and Technology Education. Figures 3 and 4 present data regarding where and how students connected to these sessions. The community college instructors typically connected from either home or work (Figure 3) using a high bandwidth connection (Figure 4).

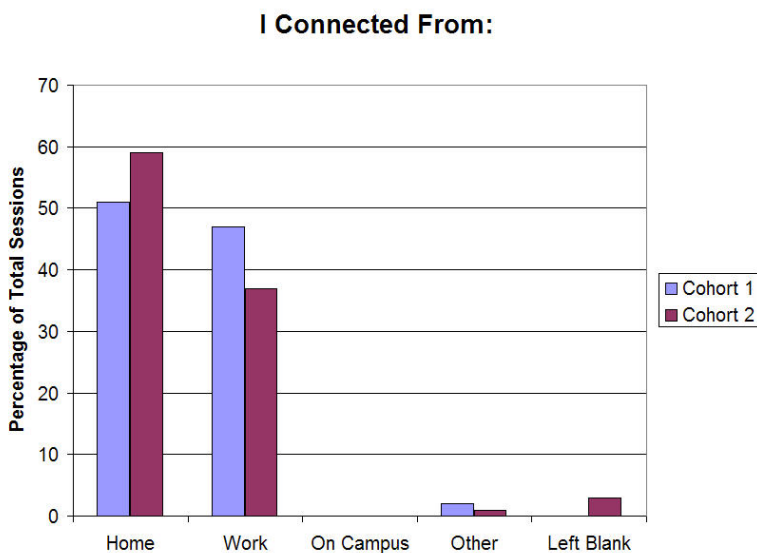


Figure 3. Location From Which Students Connected.

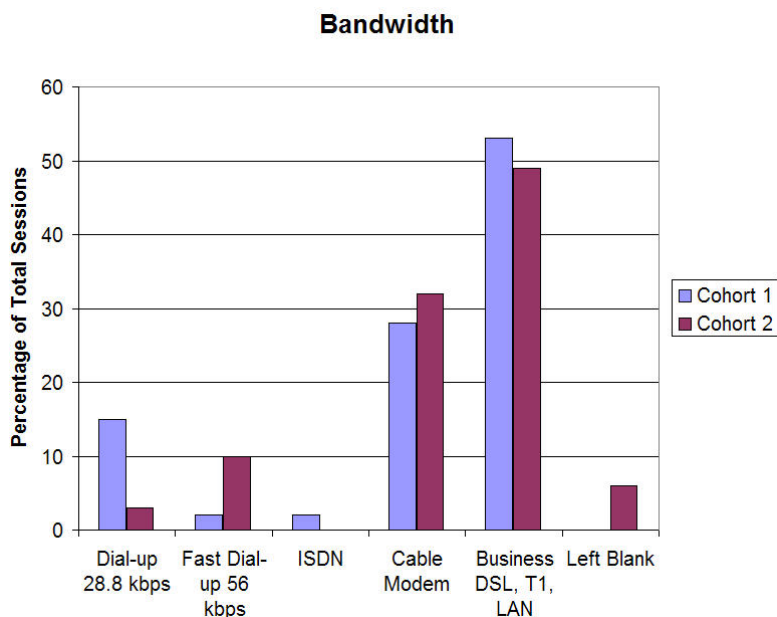


Figure 4. Bandwidth of Student's Connection.

### Reasons for leaving the program

Participants who dropped out of the program during the first and second cohorts were asked to complete surveys related to the reasons for dropping out. Table 2 summarizes the reasons.

Table 2. Reasons for Dropping Out of the Certificate Program.

Reason	N	%
I found that I had too many other commitments in my life to continue this program.	8	50
My work hours increased/changed	4	25
The course content was different from expected or needed	2	13
Unexpected emergency	2	13
Accepted into a Ph.D. program	2	13
High cost of the course	1	6
Mismatch of online learning and my learning style	1	6
Prefer traditional class setting	1	6
No one cares about my progress	1	6

### Reflections and Conclusions

After completion of the program by the first cohort, preliminary data give some indication of the effectiveness of the program. For those who have completed the program or who are near completion, most have successfully integrated material from the courses at NC State into their own teaching. 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. 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.

Attrition has been a problem in the program. The main recommendations for decreasing attrition are to provide better advising to participants before entering the program and to provide better communication between participants and faculty after entering the program.

As a result of feedback from participants, the project evaluator, and NSF staff, faculty at NC State are investigating alternative ways to deliver the certificate program. Possible alternatives include modifying the certificate to be a series of workshops instead of 5 graduate courses.

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