THE USE AND PERCEIVED EFFECTIVENESS OF INSTRUCTIONAL PRACTICES IN TWO-YEAR TECHNICAL COLLEGES

by

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(Under the Direction of Desna L. Wallin)

ABSTRACT

This study obtained data from full-time and part-time faculty at eight member institutions of the Technical College System of Georgia on the instructional practices they used most often to engage students in course content. The goal of the study was to determine whether survey respondents used traditional teacher-centered practices or active and collaborative techniques associated with the learner-centered paradigm. The survey also collected data on whether survey participants perceived the instructional practices as being effective in aiding students in mastering three student learning outcomes situated in the work of Verner, a pioneer in the field of adult education. Specifically, respondents were asked to evaluate the practices in terms of their effectiveness in aiding students in acquiring knowledge, in solving problems, and in performing tasks. Finally, the study sought to establish whether the propensity to use specific instructional practices was predicted by personal characteristics and situational factors.

Survey results indicate that technical college faculty lectured in the majority of class sessions; however, survey respondents rated this traditional teacher-centered practice as somewhat effective in aiding students in mastering the three learning outcomes. On the other hand, respondents ranked simulation activities and one-on-one discussions between instructors and individual students as two of the most effective instructional practices in accomplishing the three student learning outcomes. The data show that the survey respondents used these items in less than 50% of their class sessions. The employment status and academic discipline of survey respondents were the two factors that indicated significant differences in levels of use by subgroups of instructors.

INDEX WORDS: Community colleges, technical colleges, two-year colleges, teacher-center instructional practices, learner-centered instructional practices, active and collaborative learning, Cooley Verner, Technical College System of Georgia, lectures, instructional practices, use of institutional practices, perceived effectiveness of instructional practices, personal characteristics and use of instructional practices, situation factors and use of instructional practices, college characteristics and use of instructional practices

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DEDICATION

To Dad

You made sure we had the opportunities that were never available to you.

I wish you were here to celebrate.

ACKNOWLEDGEMENTS

I am the luckiest person on Earth. My parents were enthusiastic supporters of this dream to earn a doctorate. When I told my Dad that I had applied for the program, his first question was what did I need to go back to school and how could he help me. My father's parents died within a year of each other when he was approximately 13 years old. Dad dropped out of school immediately to support his younger siblings. He always made sure that his three sons took advantage of every opportunity afforded them to get a strong, quality education. Unfortunately, he passed away in the middle of this doctoral program, which means that he will not be physically present when I walk across the stage to earn my degree. I can guarantee you, however, that he will be looking on at this event and that tears will be streaming down his face as I walk across the stage to accept my diploma and to be hooded.

I am also lucky because I was guided through this entire process by the best dissertation committee that has ever existed. Doctoral students hear horror stories about in-fighting among committee members and about how difficult it is to schedule meetings and hearings with their committee members. That never happened to me, but that is not important. What I consider important are the people on the committee who have helped me through this process. Dr. Desna Wallin got stuck with me before I had even sat through the first class in my doctoral program. I met her in the parking lot on the first day of class and told her that she was going to be my committee chair. I often wonder what went through her mind at that time. I consider Dr. Wallin to be one of the important mentors in my life.

Dr. Tom Valentine should adopt me because of the amount of time I spent with him in developing the survey instrument, in determining the results, and in writing the third and fourth chapters of this document. I hope to someday master statistics and quantitative research to the degree that Dr. Valentine has. He is the inspiration for me to enroll in a one-year certificate program in institutional research and student learning outcomes at the conclusion of my doctoral program.

Dr. Lorilee Sandmann is amazing. I had the opportunity to take one class under her; I wish I had additional opportunities to enroll in classes taught by her. She draws students into the subject matter and quickly involves them in exploring the topic of the day. She truly exemplifies the learner-centered instructor. Finally, I had the opportunity to meet Dr. Karen Jones through a peer at Athens Technical College. She had asked Dr. Jones to speak to a group of high school counselors as part of an annual workshop we provided at the college. I found Dr. Jones to be funny, engaging, informative, and compassionate and passionate. When it came time to form my dissertation committee, I knew immediately who I wanted to serve as the “outside” member. I asked my colleague at work to contact Dr. Jones and beg her to work with me.

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Finally, I have to recognize James Mellichamp—my partner for 20 plus years. I am confident that he will be truly thankful when this dissertation is finished so that we can spend more time enjoying the little things in life that are special to both of us instead of spending weekends proofing my work. My life has been significantly enriched because of him.

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CHAPTER I

INTRODUCTION

Students turn to community and technical colleges because of the low cost of attendance, their convenient location, and their historical emphasis on open access. Two-year colleges now serve nearly one-half of all undergraduates in the United States (American Association of Community Colleges, 2009; Bailey, 2004a; Cohen & Brawer, 2003; McIntosh & Rouse, 2009). The American Association of Community Colleges reports that 6.7 million community and technical college students were classified as credit-seeking students in the data available in January 2009. Furthermore, the association notes that 60% of the 6.7 million students attended on a part-time basis, 39% received some form of financial aid, and the average age of the student population was 29 years old. Community and technical colleges also enrolled 43% of all African-Americans and 52% of all Hispanics pursuing a postsecondary education during the data reporting period (American Association of Community Colleges). The American Association of Community Colleges also points out that nearly 40% of the two-year college students were the first generation in their families to pursue a postsecondary credential.

Approximately 5 million adult students over the age of 24 were classified as undergraduates in all two- and four-year colleges nationally, and a majority of this population was studying at the nation’s public community and technical colleges (Denham, 2007). Denham documents that 34.4% of adult students between the ages of 25 and 29 attended two-year colleges and that percentage increased as the age of students increased. She reports that 41.8% of all students between the ages of 30 and 39 and 49.1% of those over the age of 40 enrolled in community and technical colleges rather than at four-year colleges and universities.

Though community and technical colleges enroll significant numbers of students each year, critics charge that these institutions are ineffective in moving students from matriculation to graduation. Data on the cohort of first-time, full-time students who began their studies during Fall 2004 show stark differences in the graduation rates recorded for four-year colleges and universities and those recorded for community and technical colleges. Nationally, 55% of the Fall 2004 freshmen cohort of students enrolled in public four-year colleges and universities graduated within six years, the standard measure used to determine graduation rates for these institutions (Marks & Diaz, 2009). Public four-year colleges in Georgia recorded an aggregate six-year graduation rate of 49% (Marks & Diaz). The Southern Regional Education Board (SREB) reports that only 20% of the Fall 2004 cohort of students enrolled in community and technical colleges nationally graduated within three years, the standard measure for this segment of higher education (Marks & Diaz). Only 11% of the 2004 cohort graduated from two-year liberal arts colleges in Georgia, while 33% graduated from technical colleges in Georgia (Marks & Diaz).

The graduation data for the Fall 2004 cohort of community and technical college students was lower than the rate recorded for the Fall 2002 cohort. The SREB reports that the national graduation rate for the 2002 cohort of first-time, full-time students at two-year colleges was 22%, while the graduation rate nationally for technical colleges was 55% (Marks, 2007). The Georgia rates were 15% for liberal arts institutions and 35% for technical colleges (Marks). This drop in graduation rates takes on added significance in light of the July 2009 announcement by President Barack Obama of the creation of the American Graduation Initiative. The goal of this $12 billion initiative is to produce an additional 5 million graduates of community and technical colleges by 2020 (Kellogg & Tomsho, 2009; The White House Office of the Press Secretary, 2009). While the specific goals may vary because of the nature of American politics, this initiative is significant because it emphasizes the role that community colleges play in the economic development of communities and the nation.

Improving Graduation Rates

At the time of this study, reports in the mainstream media and in higher education periodicals on the American Graduation Initiative indicated that $9 billion of the allocated money would "be used to award grants through an 'access and completion' fund. These grants are designed to spur community colleges and states to launch programs designed to raise graduation rates" (Kellogg & Tomsho, 2009, p. 1). This would create a daunting challenge for community and technical colleges considering the calculations produced by researchers at Teachers College at Columbia University. Those researchers determined that community and technical colleges would need to increase graduation rates by 33% *each year* through 2020 to meet the goal of the American Graduation Initiative (Fischer, 2009). Community and technical colleges will need to redouble efforts to reduce the number of students who drop out without earning a credential if this goal is to be accomplished.

The question of why students drop out of college without earning a credential has been the focus of much debate for more than 70 years (Raley, 2007; Reason, 2003). The two theories to receive significant attention from researchers interested in developing an understanding of why some students persist with their educational endeavors—Astin's theory of student involvement and Tinto's theory of student departure—minimize the role of instructional faculty in helping students to progress to graduation. Astin's (1989) theory of student involvement focuses on “the amount of physical and psychological energy that a student devotes to the academic experience” (p. 518). This theory is based on the assumption that students who invest significant time and energy in their collegiate endeavors are more likely to persist than are those who exert minimum effort (Astin; Berger & Lyon, 2005; Braxton & Hirschy, 2005).

According to the Tinto (1975) model, students enter the college environment in possession of a number of attributes that strongly influence whether they persist with their studies. These pre-enrollment attributes regulate the way students interact with and integrate into the academic environment and the social environment of colleges and universities. These interactions and the ability to integrate into at least one of these environments influence students' decisions to prematurely depart college. Tinto (1993) introduced a re-conceptualization of his theory of student departure in which he integrated the separate social environment and separate academic environment into a single element in recognition of the fact that students' experiences in one of these environments affect their actions and experiences in the other.

Shifting the Focus from Students to Faculty

Community and technical colleges face intense pressure to improve graduation rates partly in response to the effects of an increasingly globalized economy. Different economic forecasts released as far back as the late-1980s predicted that most new jobs to be created during the early part of the twenty-first century would require some form of postsecondary education below the baccalaureate level (Commission on the Future of Community Colleges, 1988; Shearon & Tollefson, 1989). The Spellings Commission on the Future of Higher Education (Spellings Commission) predicted that 90% of all new jobs created through 2015 will require applicants to have completed some postsecondary education (U. S. Department of Education, 2006).

U.S. Secretary of Education Margaret Spellings invited government, business, and education leaders in September 2005 to serve on the Commission on the Future of Higher Education. She charged the commission members with the responsibility for assessing the quality of the nation's higher education system and for issuing recommendations to address problems uncovered in this assessment (U.S. Department of Education, 2006). The Spellings Commission took the position that educators and policy makers were more focused on increasing enrollments, thus paying too little attention to retaining students. This emphasis on continued growth has resulted in outcomes in which "unacceptable numbers of students fail to complete their studies at all, while those that graduate don't learn enough" (U. S. Department of Education, p. 12).

The Spellings Commission placed the onus of responsibility for improving graduation rates and learning outcomes on college personnel (U. S. Department of Education, 2006), thus shifting the focus of retention and graduation away from students' involvement and integration into the academy, the central thrust of the two leading theories on why students leave higher education without earning a credential. The Spellings Commission charged college personnel to "embrace a culture of continuous innovation and quality improvement by developing new pedagogies, curricula, and technologies to improve learning" (U. S. Department of Education, p. 25). The Community College Challenge Fund included in the American Graduation Initiative includes provisions to fund innovative endeavors to improve instruction and student learning (The White House Office of the Press Secretary, 2009).

Thirty institutions of higher education throughout the nation, including three community colleges, participated in a project sponsored by the National Center for Academic Transformation to improve student learning outcomes by redesigning courses to incorporate re-conceptualized instructional practices such as active and collaborative learning (Twigg, 2005). Active and collaborative learning are classified as learner-centered strategies (Howell, 2002; Schuh, 2003; Thomas, 2008; Vega & Tayler, 2005; Wake Technical Community College, 2006). Hewett (2003) describes this instructional paradigm as "a philosophy of teaching that focuses on the experiences, backgrounds, talents, interests, capacities, and needs of the students and on the best practices for enhancing motivation, learning, and achievement for all students" (p. 1).

Faculty who subscribe to the learner-centered paradigm, the development of which is attributed to psychotherapist Carl Rogers (Knowles, Holton, & Swanson, 1998; Merriam & Caffarella, 1999), use a variety of teaching and learning strategies targeted to the abilities of individual students in order to achieve desired learning outcomes (Darden & Richardson-Jones, 2003; Feldon, 2005; Hewett, 2003; Krakauer, 2005; Miglietti & Strange, 1998; Moulton, 1992; Reynolds & Werner, 1993; Schaefer & Zygmont, 2003; Totin Meyer, 2002). Verner (1962, 1964) identifies three common learning outcomes associated with the education of adults. First, instructors provide learning opportunities that enable students to develop their understanding of subject-matter content (information acquisition). Second, instructors provide opportunities for students to apply newly acquired knowledge of subject-matter content in order to solve real-world problems (knowledge application/problem solving). Third, instructors provide students with opportunities to acquire and develop their proficiency in performing cognitive, verbal, or manipulative skills (skills performance). Verner (1962) adds that instructors vary their teaching practices depending on the type of learning outcome they are trying to affect.

Reynolds and Werner (1993) add to the dialogue on learner-centered instruction by pointing out that the diverse student population common to community and technical colleges indicate that faculty must vary their teaching practices to accommodate the diverse learning styles of their students; however, college faculty are still more apt to rely on the traditional lecture format to deliver course content (Community College Survey of Student Engagement, 2003a; Fink, 2003; Gardiner, n.d.; Leslie & Gappa, 2002; Mourtos & Allen, 2003; Palmer, 2002; Pascarella & Terenzini, 2005). In their seminal work on active learning, Bonwell and Eison (1991) address why college faculty continue to lecture rather than to embrace change. They write:

> It is necessary first to identify and understanding common barriers to instructional change, including the powerful influence of educational tradition; faculty self-perceptions and self-definition of roles; the discomfort and anxiety that change creates; and the limited incentives for faculty to change. . . .
>
> Perhaps the single greatest barrier of all, however, is the fact that faculty members' efforts to employ active learning involve risk—the risks that students will not participate, use higher-order thinking, or learn sufficient content, that faculty members will feel a loss of control, lack necessary skills, or be criticized for teaching in unorthodox ways. (p. 3)

Developing an understanding of what occurs in the college classroom and how college faculty view alternate instructional strategies represent the first steps that must be undertaken if change is to occur in the classroom. The Community College Leadership Program at the University of Texas at Austin administers the Community College Faculty Survey of Student Engagement (CCFSSE) each year to faculty at two-year colleges throughout the United States (Community College Survey of Student Engagement, 2006a). This instrument measures active and collaborative learning, student effort, and student-faculty interaction. These limited measures do not take into account the full scope of instructional practices that two-year faculty use on a consistent basis to engage students in their educational endeavors. Other instruments uncovered through an extensive search of the Internet and university library databases also fail to measure the scope of instructional practices used by college faculty on a regular basis thus the knowledge base about what actually occurs in the college classroom is incomplete.

Statement of the Problem

Community and technical colleges provide multitudes of students with access to higher education opportunities each year. Critics, however, cite dismal graduation rates—20% of the Fall 2004 cohort of first-time, full-time students graduated nationally within three years (Marks & Diaz, 2009)—to argue that two-year colleges are ineffective. They claim that administrators at these institutions are more interested in increasing enrollment by bringing in more and more new students; they give little, if any, attention to the retention of students (U.S. Department of Education, 2006).

The Spellings Commission on the Future of Higher Education (U.S. Department of Education, 2006) draws attention to the low graduation rates recorded at community and technical colleges and places the burden of responsibility for improving these rates on college personnel. This burden takes on added significance when one considers the pronouncement of researchers at Teachers College at Columbia University that two-year colleges must increase graduation rates by 33% each year in order to accomplish the American Graduation Initiative goal of graduating an additional 5 million students by 2020 (Fischer, 2009). Theories advanced by Tinto (1975, 1993) and Astin (1989) focus on uncovering the reasons students depart higher education without earning a credential. Both Tinto's theory of student departure and Astin's theory of student involvement focus on the actions and behaviors of students once they enroll at colleges and universities in order to identify reasons for early departure (Ibrahim, Rwegasira, &

Taher, 2007; Pascarella & Terenzini, 2005). Even though Tinto (1993) redefined his theory to place more emphasis on the academic environment, his model still focuses on the actions of students.

Studies by the Spellings Commission on the Future of Higher Education (U. S. Department of Education, 2006) and the initiatives guided by the National Center for Academic Transformation (Twigg, 2005) are shifting attention from student actions to the actions of college faculty. The Spellings Commission, for example, charges faculty to adopt innovative pedagogical practices such as those associated with a learner-centered instructional paradigm in order to engage students more effectively in achieving desired learning outcomes. Verner (1962, 1964) identifies three learning outcomes that are significant when educating adult students. He states that instructors should focus on aiding students in acquiring information about course content, in learning to solve problems, and in learning to perform tasks. Verner (1962) adds that instructors must vary their teaching practices in order to aid students in accomplishing each of the three learning outcomes.

Despite evidence that learner-centered practices lead to improved student outcomes (Cabrera, Amavry, Crissman, Terenzini, & Pascarella, 2002; Community College Survey of Student Engagement, 2003a; Hiltz, Coppola, Rotter, Turoff, & Benbunan-Fich, n.d.; Pascarella & Terenzini, 2005; Prince, 2004), faculty still tend to use traditional teacher-oriented instructional practices (Community College Survey of Student Engagement; Gardiner, n.d.; Leslie & Gappa, 2002; Mourtos & Allen, 2003; Palmer, 2002; Pascarella & Terenzini). The power of education tradition, the fear of change, the lack of incentives to change, and the other risks one must encounter when shifting to a new teaching style contribute to the continued reliance on lectures to engage students (Bonwell & Eison, 1991).

Efforts need to be initiated to identify the types of instructional practices community and technical college faculty use to engage students in course content and to accomplish desired learning outcomes. The Community College Faculty of Student Engagement, an instrument administered annually to study faculty initiatives, focuses on active and collaborative learning, student effort, and student-faculty interaction (Community College Survey of Student Engagement, 2004). It does not, however, address the full range of instructional practices that faculty use on a consistent basis. Other instruments identified in a search of the Internet and university library databases fail to explore the full range of instructional practices used by two-year college faculty.

Purpose of the Study

The purpose of this study was to explore the use of 18 instructional practices by technical college faculty to accomplish the three learning outcomes of aiding students in acquiring information, in solving problems, and in learning to perform tasks. Four research questions provided the foundation to accomplish the purpose of this study. The research questions included:

1. To what extent did technical college faculty use the instructional practices to aid students in acquiring information, in solving problems, and in learning to perform tasks?
2. How did technical college faculty rate the effectiveness of the instructional practices in aiding students in acquiring information, in solving problems, and in learning to perform tasks?

3. To what extent did technical college faculty employ instructional practices that are effective in aiding students in acquiring information, in solving problems, and in learning to perform tasks?

4. Was the propensity to use the instructional practices predicted by personal characteristics and situational factors?

Significance of the Study

This study focused on identifying the types of instructional practices technical college faculty used most often during a specific timeframe. It also identified whether faculty members viewed these techniques as being effective in accomplishing the three learning outcomes of aiding students to acquire information on course content, to learn to solve problems, and to learn to perform tasks. College administrators can use this information to develop professional development initiatives designed to familiarize instructors with a broad array of active and learning teaching practices. It may also provide the practitioners—the technical college faculty—with feedback on their preferred teaching practices in relation to the perceived effectiveness of those practices in accomplishing student learning outcomes. In turn, faculty can use the feedback to assess how their preferred practices assist or inhibit students in accomplishing desired learning outcomes.

From a theoretical perspective, the researcher returned to the roots of the scholarship of adult education by incorporating into the conceptual framework of the technical college research project the studies by Verner in the early 1960s of the instructional activities of adult education practitioners. The inclusion of Verner's seminal work into the current research project provided the opportunity to analyze whether his concepts are still relevant to the education of adults almost 50 years later. The researcher associated with the technical college study collapsed two conceptual roadmaps advanced by Verner into a single, more cohesive framework to study the methods, techniques, and devices technical college faculty use on a consistent basis to engage students in knowledge acquisition, skills development, and knowledge application. This adaptation of Verner's work provided the means to develop an instrument to record the extent to which survey participants used 18 instructional practices and to measure their perceptions of how effective the various instructional practices were in accomplishing the three student learning outcomes first introduced by Verner in 1962. This study determined that these student learning outcomes remain central to technical education in the twenty-first century.

Definitions

- *Active learning*—"anything that 'involves students in doing things and thinking about the things they are doing'" (Bonwell & Eison, 1991, p. 2).
- *Collaborative learning*—socially constructed learning actives in which adult students work in groups to explore solutions to problems.
- *Instructional practices*—The techniques and devices used on a consistent basis by instructors.
- *Learner-centered paradigm*—"a philosophy of teaching that focuses on the experiences, backgrounds, talents, interests, capacities, and needs of the students and on the best practices for enhancing motivation, learning, and achievement for all students" (Hewett, 2003, p. 1).
- *Retention*—"the ability of a particular college or university to successfully graduate the students that initially enroll at that institution" (Berger & Lyon, 2005, p. 3).

- *Student involvement*—“the amount of physical and psychological energy that a student devotes to the academic experience” (Astin, 1989, p. 518).
- *Two-year colleges*—postsecondary institutions that are accredited to award the associate degree as their highest degree (Cohen & Brawer, 2003); this term is used interchangeably with community and technical colleges in this document. The term *community college* is used to refer to institutions that award associate degrees and offer transfer courses. The term *technical college* is used in this document to refer to postsecondary institutions that mainly award occupational-technical certificates and offer some occupational-technical associated degrees that are not designed to transfer to four-year colleges and universities (Marks, 2007).

CHAPTER II

REVIEW OF THE LITERATURE

Community and technical colleges contribute significantly to the economic advancement of the United States and of the communities served by these two-year institutions. Community and technical colleges are responsible for:

- Certify[ing] nearly 80 percent of first responders in the United States (police officers, firefighters, and emergency medical technicians);
- Produc[ing] more than 50 percent of new nurses and other health-care workers;
- Account[ing] for nearly 40 percent of all foreign undergraduates on American campuses;
- Enroll[ing] 46 percent of all U.S. undergraduates, including 47 percent of undergraduates who are African American, 46 percent of those who are Asian or Pacific Islander, and 55 percent and 57 percent, respectively, of Hispanic and Native American undergraduates;
- Award[ing] more than 800,000 associate degrees and certificates annually; and
- Prepar[ing] significant numbers of students for transfer to four-year colleges and universities where they complete bachelor’s degrees. Nationally, half of all baccalaureate degree recipients have attended community colleges prior to earning their degrees. (The National Commission on Community Colleges, 2008, p. 5)

Despite these successes, community and technical colleges often draw criticism for not graduating more students. The national graduation rate for the cohort of first-time, full-time students entering two-year colleges hovers around 21% (Marks, 2007; Marks & Diaz, 2009). Critics consistently ask why students leave community and technical colleges without earning a credential.

The study of the retention and graduation of college students is not a new research topic. The first research projects on this issue were conducted in the 1930s (Raley, 2007; Reason, 2003). Two of the leading theories on why students depart higher education posit that students who integrate themselves into the academic and social environments of their colleges and universities are more likely to persist with their educational endeavors (Astin, 1989; Tinto, 1975, 1993). Both theories focus on the motivations, behaviors, and characteristics of students (Astin; Ibrahim, et al., 2007; Pascarella & Terenzini, 2005; Tinto). Emphasizing student actions and personal traits minimize the role faculty play in the retention process. Because community and technical colleges are open access institutions (Cohen & Brawer, 2003), two-year colleges cannot control for student pre-enrollment traits such as educational preparation and financial need. On the other hand, instructional personnel is one of the major areas that institutions can influence (Wallin, 2003) when identifying ways to improve retention and graduation rates; therefore, retention models need to focus more heavily on instructional activities that are effective in engaging students in their studies. Pedagogical practices grounded in a learner-centered paradigm provide an avenue for faculty to become more central to the study of student persistence to graduation.

The purpose of this study was to explore the use of 18 instructional practices by technical college faculty to accomplish the three learning outcomes of aiding students in acquiring information, in solving problems, and in learning to perform tasks. Four research questions provided the foundation to accomplish the purpose of this study. The research questions included:

1. To what extent did technical college faculty use the instructional practices to aid students in acquiring information, in solving problems, and in learning to perform tasks?
2. How did technical college faculty rate the effectiveness of the instructional practices in aiding students in acquiring information, in solving problems, and in learning to perform tasks?
3. To what extent did technical college faculty employ instructional practices that are effective in aiding students in acquiring information, in solving problems, and in learning to perform tasks?
4. Was the propensity to use the instructional practices predicted by personal characteristics and situational factors?

This chapter is divided into four sections. The first section introduces the characteristics and at-risk traits of the student population of community and technical colleges throughout the United States. This discussion provides a foundation to introduce the second section, which focuses on the different approaches undertaken to understand why some students are successful in earning a postsecondary credential while others depart the academy early. One approach focuses on institutional characteristics. The more prominent approach focuses on student characteristics and student actions. The Astin theory of student involvement and the Tinto theory of student departure often serve as the theoretical foundation for studies associated with the second approach. These theories conceptualize why students may or may not continue with their postsecondary educational endeavors.

The third section introduces four national surveys that are administered annually in order to study student engagement at two- and four-year colleges and universities. These surveys are based on the tenets of the Astin theory of student involvement and the Tinto theory of student departure in that they measure student involvement and student engagement. This section also introduces how pedagogical practices of college faculty can influence the level of student engagement in academic endeavors and the accomplishment of specific student learning outcomes. It specifically documents how active and collaborative instructional practices can contribute to the achievement of course competencies and learning outcomes at levels that are significantly higher than the levels recorded by students who are exposed to traditional pedagogical practices in which lectures serve as the foci of classroom instruction. The fourth section incorporates active and collaborative instructional practices into a broader learner-centered paradigm of instruction. This section contrasts that model with the traditional teacher-centered paradigm. It concludes with a review of previous research studies that evaluate how personal characteristics and situational factors affect the types of instructional practices most often used by two-year college faculty.

Characteristics and At-Risk Traits of Two-Year College Students

Statistics consistently show that nearly one-half of all undergraduates who enroll in the nation’s higher education system pursue their academic goals through the nation’s network of community and technical colleges (American Association of Community Colleges, 2007, 2008; Bailey, 2004a; Cohen & Brawer, 2003; McIntosh & Rouse, 2009). This student population includes newly minted high school graduates, as well as adults who use a community and technical college education to improve their work skills in order to remain gainfully employed in an increasingly competitive global economy. Students turn to two-year institutions to pursue their educational goals because of the institutions' low cost of attendance, their convenient locations, and their historical emphasis on open access.

The open access philosophy espoused by community and technical colleges often means that students are less likely to persist from matriculation to graduation. The Community College Survey of Student Engagement (2002) reports:

> Students entering community and technical colleges are three to four times more likely than their peers at baccalaureate institutions to reflect the factors that put students most at risk of not attaining a degree. These factors include delayed entry, part-time enrollment, full-time employment, financial independence, single parenthood, family dependents, and underpreparation for college. (p. 1)

Jalomo (2001) adds to this list of at-risk characteristics by including first-generation college students, non-native English speakers, ethnic minorities, students from middle- and lower-class backgrounds and working-class backgrounds, and high school dropouts who eventually earn the general equivalence diploma (GED). These characteristics define what is typically referred to as non-traditional students (Hamm, 2004; National Center for Educational Statistics, 2003).

The American Federation of Teachers (AFT Higher Education, 2003) finds that the likelihood that students will drop out of college increases substantially if they possess multiple characteristics associated with the definition of non-traditional students. The National Center for Educational Statistics (2003) provides clear-cut evidence to support the arguments posited by the American Federation of Teachers. Data obtained from the community and technical college students tracked in the 1996 Beginning Postsecondary Students Longitudinal Study show that nearly 55% of students with no risk factors earned a credential within five years, but that number dropped to 30% when students had at least one risk factor (National Center for Educational Statistics).

Data on the 6.7 million credit-seeking students enrolled in the nation's community and technical colleges reveal the pervasiveness of the at-risk factors that contribute to lower persistence and graduation rates: 60% enrolled on a part-time basis, 58% were female, 36% were minorities; 39% were the first generation to attend college; 17% were single parents; 27% of full-time students were also employed full time; 50% of full-time students were employed part time; 50% of part-time students were employed full time; and 33% of part-time students were employed part time (American Association of Community Colleges, 2009). The social-demographic characteristics of the 145,900 students who enrolled in the member institutions of the Technical College System of Georgia during the 2008-2009 academic year mirror that of the student population of the two-year colleges throughout the United States. The Technical College System of Georgia (2009) data show that 57.2% of the students attended on a part-time basis, 62.4% were female; 10.0% were single parents, and 48.4% were minorities.

Summary

Convenient locations, low tuition rates, and a history of open access admissions have contributed to the popularity of community and technical colleges. The student population includes recent high school graduates and adults returning to the educational arena in order to obtain the skills needed to function effectively in the global workplace. Students who enroll in community and technical colleges are less likely than students at four-year colleges and universities to earn a postsecondary credential. Two-year college students are more likely to possess one or more traits that inhibit their ability to remain in college long enough to earn a credential. These traits characterize what are now commonly known as non-traditional students. National and state data reveal the socioeconomic characteristics and attendance patterns of community and technical college students, which confirm the breadth and depth of at-risk patters in this segment of the higher education milieu.

Understanding Student Retention

State and federal executive officers and legislators are increasing their demands for two-year colleges to provide a public accounting of their effectiveness in serving those who turn to these institutions to improve their lives through education (Boggs, 2005). Effectiveness is often defined in terms of student retention (Roman, 2007). Berger and Lyon (2005) define student retention as "the ability of a particular college or university to successfully graduate the students that *initially enroll* (emphasis added) at that institution" (p. 3), which is reflective of the continued emphasis of "the traditional postsecondary student who enrolls continuously until degree completion" (Leinbach & Jenkins, 2008, p. 2). The definition of student retention advanced by Berger and Lyon casts a negative light on community and technical colleges when one takes into consideration the fact that only 27.1% of the first-time, full-time students—a common accountability measure at the local, state, and federal levels—who began their studies at public community and technical colleges during Fall 2007 had left those institutions prior to their sophomore year (ACT Inc., 2008a). Data provided by the Southern Regional Education Board (SREB) (Marks, 2007) show that 52% of the first-time, full-time students who entered two-year colleges located within the 16 SREB states during Fall 2002 and 50% of those who entered technical colleges that year in these 16 states had departed higher education within three years without earning their credentials. The SREB data further document that 42% of the first-time, full-time students who entered SREB two-year colleges in Fall 2004 and 47% of the first-time, full-time students who enrolled in technical colleges had left prior to the start of their sophomore year. The SREB calculates the first-year persistence rate as the number of students who remain enrolled at their original institution, as well as those who transfer to other institutions (Marks). ACT follows the definition advanced by Berger and Lyon when calculating persistence rates.

Institutional Characteristics

Previous research studies on why students leave college without earning a credential have focused somewhat on institutional characteristics and, more extensively, on student involvement in their educational endeavors and on student integration into the academic and social environments of colleges and universities. Hossler (2006), Bailey and Alfonso (2005a), and others point out that little is known about how institutional programs, policies, practices, and characteristics contribute to higher-than-expected persistence and graduation rates. Some researchers look at institutional characteristics such as size and location to determine which type of institution is more likely to engender student success (Astin & Oseguera, 2005; Bailey, 2004a; Bean, 2005; Berger & Lyon, 2005; Braxton & Hirschy, 2005). Braxton and Lee (2005) provide a meta-analytical review of various research conducted since the early 1980s to study the persistence and graduation of college students. Those studies mainly focused on four-year colleges and universities. This overemphasis on four-year colleges represents a serious problem because “polices designed to retain 18-year-old students living in dorms are not likely to be as effective for part-time, working students and especially for adults with families and full-time jobs” (Bailey & Alfonso, 2005b, p. 8). Furthermore, only 8% of the more than 2,000 articles on retention research conducted between 1990 and 2003 even referenced two-year institutions (Bailey & Alfonso).

Researchers at the Community College Research Center, an affiliate of Teachers College at Columbia University, developed a model to measure the success of students enrolling in community and technical colleges (Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005). This model provides an institutional-level analysis in which specific college characteristics such as size, location, the ratio of part-time to full-time faculty, and whether the college awards more certificates than associate degrees are used as explanatory variables to study persistence to graduation at community and technical colleges. The Columbia University scholars used data on institutional characteristics from the 2002-2003 Integrated Postsecondary Education Data System (IPEDS) Graduation Rate Survey to develop their model. They point out that "the interpretation of the variables represents the effect of institutional factors on the likelihood of the average first-time, full-time (FTFT) degree-seeking community college student to earn a credential (associate degree or certificate)" (Bailey, Calcagno, et al., p. 1).

Bailey, Calcagno, et al. (2005) found that large enrollment institutions located in urban areas are less likely to engender success in students than are small enrollment institutions located in suburban or rural areas. The data set also revealed that colleges in urban areas graduated students at a rate that was 3.5% lower than the national average, while rural colleges graduated students at a rate that was 4.0% higher than the national average. The researchers also reported that large enrollment colleges, which they defined as colleges with more than 2,500 full-time equivalent (FTE) students, were far more likely to graduate fewer students regardless of whether these institutions were located in urban, suburban, or rural areas. The large enrollment colleges typically reported graduation rates that were from 9.0% to 14.0% lower than the graduation rates of smaller institutions. Pascarella and Terenzini (2005) documented similar results in their review of studies that focused on four-year colleges and universities.

The research undertaken by the Columbia University faculty discovered that institutions serving a large minority population tend to graduate fewer students even after controlling for other institutional characteristics (Bailey, Calcagno, et al., 2005). They also documented that institutions that serve a higher number of part-time students tend to graduate fewer students. Furthermore, institutions with high proportions of female students “lowers the institutional completion rate primarily when the college also serves a large number of part-time students” (Bailey, Calcagno, et al., p. 3). Significantly, the Columbia study found that colleges that serve large numbers of students who are pursuing associate degrees usually record lower graduation rates if those institutions rely on significant numbers of part-time faculty to deliver instructional materials.

The 2002-2003 IPEDS data used to develop this model also indicated that colleges that expend significant amounts of funding on academic support activities tend to record lower graduation rates, which is directly correlated to the fact that these institutions attract significant numbers of academically under-prepared or ill-prepared students (Bailey, et al., 2005). The researchers also point out that students who are eligible for and receive Pell Grant benefits, which automatically classifies these students as being economically disadvantaged, are less likely to complete their educational endeavors and earn a credential; therefore, institutions serving significant numbers of economically disadvantaged students tend to report lower graduation rates than do those institutions that are located in more affluent areas and who serve more affluent students. Bailey, Calcagno, et al. also note that institutions that enroll higher numbers of students who seek certificates tend to record higher graduation rates than do institutions that serve higher numbers of students who are pursuing associate degrees.

While Bailey, Calcagno, et al. (2005) focused their research efforts on developing a model that takes into consideration institutional characteristics such as size and location to determine what type of college is more likely to engender student success, most scholars have focused instead on student involvement and integration in the academy in order to explain student persistence from matriculation to graduation. The research agenda that focuses on student involvement and integration is based on the logic that what happens to students as they engage with the collegiate community is more predictive of student persistence than is a singular focus on individual predispositions or institutional characteristics (Educational Policy Institute, 2006; Tinto, 1993). Sanford and associates pioneered research on student involvement in the 1960s with the publication of *The American College: A Psychological and Social Interpretation of the Higher Learning* (Hossler, 2006; Upcraft, Gardner, & Barefoot, 2005).

Retention models and theories grounded in the tenets espoused by Sanford and associates, including the works of Spady, Astin, Tinto, Bean and Mertzner, and Braxton, Hirschy, and McClendon (Bailey & Alfonso, 2005a; Ishler & Upcraft, 2005; Summers, 2003), hypothesize that success in college is directly related to students being "challenged (provided with educational experiences that foster learning and personal development) and supported (provided with a campus climate that helps students learn and develop)" (Upcraft, Gardner, et al., 2005, p. 11). The theories developed by Astin (1989) and Tinto (1975, 1993) have garnered significant attention by scholars interested in furthering the knowledge base about student persistence toward degree completion.

Astin's Theory of Student Involvement

Astin follows in the path of Sanford in that he uses a psychological lens to view student involvement (Milem, 1997). Astin (1989) maintains that student involvement represents behaviors that contribute to or detract from student success as characterized by persistence and degree completion. He defines student involvement as "the amount of physical and psychological energy that a student devotes to the academic experience" (Astin, p. 518). Astin's definition is based on the assumption that students who invest significant time and energy in their educational endeavors are more likely to persist than are those who exert minimum effort (Astin; Berger & Lyon, 2005; Braxton & Hirschy, 2005). Students who spend significant time on campus interacting with peers and faculty members, pursuing academic endeavors, and participating in extracurricular social activities are more likely to persist in their educational endeavors. The primary purpose of the Astin theory of student involvement is to study how institutional programs and policies influence whether students accomplish desired educational outcomes (Upcraft, Ishler, & Swing, 2005). Astin adds:

> Administrators and faculty members must recognize that virtually every institutional policy and practice (e.g., class schedules; regulations on class attendance, academic probation, and participation in honors courses; policies on office hours for faculty, student orientation, and advising) can affect the way students spend their time and the amount of effort devoted to academic pursuits. (p. 523)

Astin (1989) developed an input-environment-outcomes model to explain student involvement in the collegiate environment. This model combines students' pre-enrollment characteristics—those characteristics that may inhibit student progress toward degree completion—and their college activities to predict attrition. These pre-enrollment characteristics are the input aspects of the Astin model. The environmental aspects of the model look at the culture, policies, procedures, and practices of the institution and whether those environmental factors are effective in involving students in the academic and social life of the college (Astin;

Gumm, 2006; Ishler & Upcraft, 2005; Pascarella & Terenzini, 2005; Townsend, 2006). The outcomes component simply describes how students have changed when they leave the institution. This change is derived from the interaction of students with the college environment (Pascarella & Terenzini). Astin "started with the basic commonsense notion that student success is a function of who students were before they entered college and what happened to them after they enrolled" (Ishler & Upcraft, p. 30). Astin's model assesses change in college students by comparing their disposition, attitudes, and opinions upon matriculation to the college with their viewpoints at graduation (Ishler & Upcraft).

The Astin input-environment-outcomes model considers 146 inputs such as the students' socioeconomic characteristics and educational preparation (Gumm, 2006) and 192 environmental variables such as the size of the institution (Astin, 1989; Gumm; Ishler & Upcraft, 2005; Pascarella & Terenzini, 2005; Townsend, 2006) to predict student attrition. The model takes into consideration students' choices of majors, living arrangements during their college years, involvement in extracurricular activities, and participation in class activities (Ishler & Upcraft). While the environment is assigned a permanent role in this model, students must still decide whether they will become involved—and the extent to which they will become involved—in the social and academic aspects of the college (Myers, 2003; Pascarella & Terenzini). Astin's model is based on five hypotheses:

1. Involvement refers to the investment of physical and psychological energy in various objectives. The objectives may be highly generalized (the student experience) or highly specific (preparing for a chemistry examination).
2. Regardless of its objective, involvement occurs along a continuum; that is, different students manifest different degrees of involvement in a given objective,

and the same student manifests different degrees of involvement in different objectives at different times.

3. Involvement has both quantitative and qualitative features. The extent of a student's involvement in academic work, for instance, can be measured qualitatively (whether the student reviews and comprehends reading assignments or simply stares at the textbook and daydreams).

4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in the program.

5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement. (Astin, p. 519)

The underlying principle of the Astin model is that students will undergo greater levels of change if they partake of the various academic and social opportunities afforded them through their colleges or universities (Pascarella & Terenzini).

Tinto's Theory of Student Departure

Syracuse University's Vincent Tinto is widely recognized as the leading scholar on student involvement as it applies to attrition and persistence (Bailey & Alfonso, 2005b; Braxton & Hirschy, 2005; Braxton, Hirschy, et al., 2004; Hagedorn, 2005). Braxton, Hirschy, et al. assign "paradigmatic stature" (p. 7) to Tinto's theory of student departure because of the frequency with which this theory is cited by researchers interested in the phenomena of student departure. Tinto began studying college student retention in the early 1970s and introduced his theory to higher education scholars in 1975 (Braxton, Hirschy, et al.). The Tinto model is described as a middle range theory in that it addresses some but not all reasons for why students depart college early

(Braxton, Hirschy, et al.; McCubbin, 2003; Tinto, 1982). Scholars also use the term *interactionalist* to describe how Tinto's model focuses on students' interactions with the college community and environment in order to describe departure decisions (Berger & Lyon, 2005; Braxton, Hirschy, et al.; Braxton, Milem, & Sullivan, 2000; Pascarella & Terenzini, 1979). Researchers note that the Tinto model takes a longitudinal approach to the study of student persistence and departure (Braxton & Hirschy, 2005; McCubbin; Tinto, 1988). Finally, McCubbin points out that Tinto is the first researcher to differentiate between academic dismissal and voluntary withdrawal as forms of departure behavior and to define different levels of departure: temporary stopout, permanent dropout, or transfer.

Tinto's 1975 conceptualization. According to Tinto (1975), students' departure decisions are based on a longitudinal series of complex interactions with the academic and social environments of colleges and universities. He notes that academic integration is represented by the grades students earn in classes and their cognitive development. Tinto adds that grade performance is a form of structural integration into the academic environment of the institution. He defines structural integration as "the meeting of certain explicit standards of the academic system" (p. 104). The concept of intellectual development, on the other hand, represents students' normative integration into the college or university. Normative integration is defined as "an individual's identification with the beliefs, values, and norms inherent in the academic system" (Braxton, Hirschy, et al., 2004, p. 8). Students who earn high grades and identify with the beliefs, values, and norms of the academic system become integrated into that system, and academic integration contributes to higher levels of commitment to the goal of graduation (Tinto).

The social systems of colleges also have distinct beliefs, values, and norms, and the level of integration into those systems are determined by the level of students' acceptance of those beliefs, values, and norms (Braxton, Hirschy, et al., 2004; Tinto, 1975, 1993). Students who find that their values, beliefs, and norms are incongruent with those of the social environment are more apt to depart the institution. Isolation from the social system may also contribute to departure decisions. The concepts of incongruence and isolation are rooted in Durkheim's theory of suicide, which postulates that individuals who are inadequately integrated into society and thus living on the fringes are more likely to commit suicide (Christie & Dinham, 1991). McCubbin (2003) provides clarification of the linkage between Durkheim's theory of suicide and Tinto's theory of student departure by pointing out:

> Tinto asserted that the act of committing suicide was essentially the willful withdrawal of an individual from existence and was therefore analogous to dropout from higher education which was the willful withdrawal of an individual from one aspect of society. While in Durkheim's model of suicide, the individual is committing suicide because they are insufficiently integrated into society, Tinto asserts that dropout occurs because the individual is insufficiently integrated into different aspects of college or university life. (p. 2)

Tinto (1975, 1993) adds that students who find themselves as outcasts from the predominant culture of the college may still persist if they integrate themselves sufficiently into a subculture that is congruent with their own morals, beliefs, and values. Furthermore, integration into the social environment leads to a greater commitment to remain at a particular institution.

This theory of student departure also argues that students' individual attributes, backgrounds, and pre-college experiences influence initial involvement in the academic and social environments of the college (Tinto, 1975, 1993). Furthermore, these pre-enrollment traits influence students' initial commitment to the institution itself and to the goal of graduation (Pascarella, Duby, & Iverson, 1983); however, post-enrollment integration into the social and academic environments of the institution takes on a more influential role in student decisions to persist or voluntarily withdraw from their educational endeavors (Tinto, 1993). Students' initial commitment to the institution and to the goal of graduation influence initial decisions to persist with their educational endeavors (Braxton & Hirschy, 2005). As students become more integrated into the social and academic environments of the institution, their commitment to that institution and to the goal of graduation increases (Braxton, Hirschy, et al., 2004).

Tinto (1988) relies on Van Gennep's study of the rites of passage to explain how students become integrated into the academic and social systems of colleges and universities. In order to become integrated into one community, individuals resign their memberships in the communities and groups associated with their pre-college lives and enter new communities and groups as complete strangers (Tinto, 1993). Integration occurs in three stages: separation, transition, and incorporation (Christie & Dinham, 1991). Individuals begin to reduce the amount of time spent with members of the pre-college communities and groups during the separation phase. During this phase, students may experience feelings of isolation and loneliness because they have not had time to develop support mechanisms in the college environment (Tinto, 1993). Tinto (1993) adds, "For virtually all students, separation from the past is at least somewhat isolating and stressful, the pains of parting at least temporarily disorienting. For some it may be so difficult as to significantly interfere with persistence in college" (p. 96). It is during this phase that Durkheim's theory of suicide predicts that students are most likely to withdraw voluntarily from the institution.

The transition stage represents the time in which individuals begin to associate with members of the new communities and groups for which they seek membership. The transition stage provides students the opportunity to learn the norms and expectations of the new communities and groups (Tinto, 1988). Tinto (1993) uses the term “normlessness” (p. 93) to describe this transition because students have not fully discarded the values and beliefs of their old memberships nor have they fully adopted the norms and expectations of their new communities and groups. The length of the transition stage depends on the intensity of incongruence between the norms and expectations of the new communities and the beliefs and values of the pre-college associations.

The third stage—the incorporation stage—occurs when individuals fully integrate themselves into the new groups. They fully endorse the beliefs and values of the new groups, and they begin to interact in new ways with members of the new communities and groups. Tinto (1988) points out that individuals may still have contact with members of their old communities and groups, but they do so as members of the college community. The conclusion of the incorporation stage signifies that students have completed their movement from membership in pre-college communities and groups to those communities and groups associated with college life.

Testable propositions of the Tinto model of student departure. The Tinto model of student departure as it was originally conceptualized includes 13 testable propositions (Braxton, Hirschy, et al., 2004). Those propositions include:

1. Student entry characteristics affect the level of initial commitment to the institution.

2. Student entry characteristics affect the level of initial commitment to the goal of graduation from college.
3. Student entry characteristics directly affect the student's likelihood of persistence in college.
4. Initial commitment to the goal of graduation from college affects the level of academic integration.
5. Initial commitment to the goal of graduation from college affects the level of social integration.
6. Initial commitment to the institution affects the level of social integration.
7. Initial commitment to the institution affects the level of academic integration.
8. The greater the degree of academic integration, the greater the level of subsequent commitment to the goal of graduation from college.
9. The greater the degree of social integration, the greater the level of subsequent commitment to the institution.
10. The initial level of institutional commitment affects the subsequent level of institutional commitment.
11. The initial level of commitment to the goal of graduation from college affects the subsequent level of commitment to the goal of college graduation.
12. The greater the level of subsequent commitment to the goal of graduation from college, the greater the likelihood of student persistence in college.
13. The greater the level of subsequent commitment to the institution, the greater the likelihood of student persistence in college. (Braxton, Hirschy, et al., pp. 9-10)

Braxton, Hirschy, et al. (2004) conducted a meta-analysis of various research efforts undertaken to study Tinto's theory of student departure. Their analysis found that this theory was effective in explaining the departure of a traditional student population enrolled at residential colleges and universities. Empirical studies conducted at two-year colleges found strong support for proposition 3 (Braxton, Hirschy, et al.), which argues that the entry characteristics of students directly affect their persistence in college. Five of the 13 propositions—propositions 5, 9, 10, 11, and 13—explained student departure at residential institutions.

Pascarella et al. (1983) initiated research at a commuter institution to determine whether "the patterns of influence found in the validation of Tinto's model at a residential institution would generalize to a non-residential/commuter setting" (p. 80). Their study found that the entering background characteristics of students enrolling in commuter institutions affected initial levels of commitment to the commuter institution (proposition 1) more than the actual experiences of these students once enrolled in the institutions did (propositions 8 and 9). They attribute this finding to the fact that commuter institutions provided minimal opportunities for interaction with faculty and peers. They also found support for proposition 10, which proposes that initial levels of commitment subsequently influence further commitment to that same institution. This analysis represents one of the key criticisms directed at the Tinto theory as originally conceptualized: his theory does not effectively describe departure decisions at commuter institutions and at community and technical colleges (McCubbin, 2003).

The lack of opportunities for interaction at commuter institutions is a direct result of the fact that students spend only enough time on campus to attend classes (Borglum & Kubala, 2000). (Only 303 of the 1,177 community and technical colleges in the United States are classified as residential institutions (American Association of Community Colleges, 2008).)

Instead of spending time on campus participating in extracurricular social activities, commuter students must attend to the other demands associated with their lives (Braxton & Hirschy, 2005). Braxton, Hirschy, et al. (2004) provide a colorful, but accurate description of life at a commuter institution. They write:

> Students hurry to meet their classes and hurry to leave the campus to go to work or to go home. Thus, many students come and go throughout the day. In urban settings, busses, trains, and cars come and go from the campus. All forms of comings and goings create a "buzzing confusion." The order that exists comes from the daily schedule of classes meeting at their appointed times. … Thus, the hurried nature of their campus experiences reflects well-worn paths between the parking lot and the classroom. (Braxton, Hirschy, et al., p. 45)

Leaving the institution as soon as classes are over represents commuter students' need to balance their academic careers with their responsibilities associated with families and jobs (Miller, 2005). Often, these students neglect their college obligations when factors external to the academy take precedence. Furthermore, the overriding need to give external factors priority over academic endeavors contributes significantly to the probability that students will stop out temporarily or drop out permanently from college (Bean, 2005). Tinto (1993) describes external influences as having a pulling effect on students' abilities to participate in higher education communities.

Tinto's 1993 reconceptualization. Tinto (1993) addressed the criticism that his theory overemphasizes traditional college students attending residential colleges and universities by introducing an updated version of his theory of student departure. His revised model assigns a greater role to external influences (family, work, and community) that affect persistence and recognizes that the social and academic systems of colleges and universities are, by necessity, interwoven and come together in the classroom setting (Braxton, Hirschy, et al., 2004; McCubbin, 2003; Tinto). The academic system and the social system of colleges and universities are no longer conceptualized as separated, distinct processes in the updated version of Tinto's theory (McCubbin). Instead, these systems are interwoven because events and activities experienced in one system affect students' interactions and experiences in the other system (Tinto); however, the redesigned theory emphasizes the academic environment as represented by the classroom over the social setting as characterized by extracurricular activities (Braxton, Hirschy, et al.; McCubbin; Tinto). Furthermore, Tinto notes that the classroom plays a central role in integrating the social and academic aspects of the institutions.

Summary

Colleges and universities are judged to be effective if they can retain students from matriculation until graduation. Community and technical colleges are criticized for their low retention and graduation rates. Student involvement and its relationship to persistence and graduation has been the topic of scholarly research efforts dating back to the 1960s. Researchers at the Community College Research Center at Columbia University in New York City developed a model to predict which institutional characteristics most often are detrimental to achieving higher retention and graduation rates.

A second, more popular avenue of research focuses on student traits and levels of student involvement in the academic and social environments of colleges and universities. Astin's theory of student involvement and Tinto's theory of student departure often serve as the foundation for students linked to this second avenue of research. Astin developed his input-environment-outcomes model through a psychological lens. The input component of the Astin model represents the pre-enrollment characteristics and traits of students. The environmental factors focus on institutional characteristics and policies and procedures. The outcomes component of the Astin model documents how students change as a result of their interactions with the college environment. While the Astin theory of student involvement accounts for the actions and practices of instructional faculty within the environmental component of the model, student actions remain the central focus of this model.

Tinto originally constructed his theory of student departure by viewing the academic environment and the social environment of colleges and universities as two distinctly separate entities. The original theory posited that students who successfully integrate themselves into at least one of these environments are more likely to continue with their educational endeavors. Tinto used Van Gennep's study of the rites of passage to explain the integration process and Durkheim's theory of suicide to conceptualize the departure process.

Critics of the original version of the Tinto theory charge that it was only effective in explaining the departure patterns of traditional students who attend predominantly residential four-year colleges and universities. Tinto introduced a revised model in 1993 that acknowledges students' responsibilities external to the academy and combines the academic environment and the social environment into a cohesive unit. Furthermore, Tinto assigned the classroom a central role in the integration process in his revised model of student departure.

National Surveys of Student Engagement

Scholars who focus their research on commuter institutions and community and technical colleges support the notion that the classroom should be the central focus for involving students in the academic and social systems of these institutions. Tinto (1993) cites 10 research studies that confirmed that student departure from commuter colleges and universities occurred because of academic-related issues rather than because of social issues. Other studies report that up to 90% of all community and technical college students do not participate in any type of campus social activity (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Miller & Bender, 2005), thus all engagement activities for these students occur within the academic environment. Kuh, Kinzie, Buckley, et al. point out that students are more likely to persist with their educational endeavors if they establish relationships within the college environment; therefore, institutions must implement mechanisms that will enable students to make connections with others on campus. They provide three recommendations to accomplish this mandate: "make the classroom the locus of community, structure ways for more commuter students to spend time with classmates, and involve every student in a meaningful way in some activity or with a positive role model in the college environment" (Kuh, Kinzie, Buckley, et al., p. 4). These recommendations serve as the cornerstone for two annual efforts to assess effective educational practices at colleges and universities throughout the United States.

George Kuh's work at the Indiana University Center for Postsecondary Research represents a growing body of research on how student involvement and integration into the academy affect persistence and student retention. This work is grounded mainly in the works of Astin and Tinto (Kuh, Kinzie, Schuh, & Whitt, 2005b). Kuh and his associates developed the National Survey of Student Engagement (NSSE) in 1999 in order to measure the educational experiences of students within and outside the classroom (Indiana University for Postsecondary Research, 2004). They administer the survey each spring to freshmen and seniors at more than 500 four-year colleges and universities. The NSSE provides college administrators with information on the levels of student engagement in learning-related activities which, in turn, leads "to the identification of empirically confirmed good practices in undergraduate education

[that] reflect behaviors by students and institutions that are associated with desired outcomes of college" (Indiana University for Postsecondary Research, p. 1).

Recognizing that the experiences encountered by students at four-year, predominantly residential colleges and universities are vastly different from those encountered at two-year colleges, Kay McClenney and staff at the Community College Leadership Program at The University of Texas at Austin created the Community College Survey of Student Engagement (CCSSE) in 2003 (Community College Survey of Student Engagement, 2006c). A total of 316 community and technical colleges participated in the 2008 administration of the CCSSE (Community College Survey of Student Engagement, 2008c). Included in this number are fourteen institutions located in Georgia, only one of which is a member of the Technical College System of Georgia (Community College Survey of Student Engagement).

The NSSE and CCSSE are similar in that they both rely on self-reports by students to measure those practices and associated student behaviors that contribute to student success. Both surveys provide national benchmarks for institutions to develop comparisons. The NSSE includes five benchmarks: level of academic challenge, student interactions with faculty members, supportive campus environments, active and collaborative learning, and enriching educational experiences (National Survey of Student Engagement, 2007a).

Because of the differences between community and technical colleges and four-year colleges and universities, McClenney and staff omitted inappropriate items such as the notion that the typical community and technical college student is a recent high school graduate who resides on or near campus, and they added items not found on the NSSE (Community College Survey of Student Engagement, 2006b). The major additions focus on "items pertinent to technical education, student and academic support services, and student retention" (Community

College Survey of Student Engagement, 2006b, p. 1). The final benchmarks covered by the two-year college survey include active and collaborative learning, support for learners, student-faculty interaction, student effort, and academic challenge (Community College Survey of Student Engagement, 2006e; McClenney, 2004b).

Kuh and staff piloted a companion faculty survey to the NSSE in 2003 and officially launched the companion survey the following year (Faculty Survey of Student Engagement, 2007). The Community College Faculty Survey of Student Engagement (CCFSSE), the companion survey to the CCSSE, debuted during the spring of 2005 after undergoing pilot testing the preceding year (Community College Survey of Student Engagement, 2006d). Community and technical colleges that elect to administer the CCSSE in any given year are invited to participate in the faculty survey as well. The most recent CCFSSE report shows that 130 of the 376 CCSSE institutions in 2008 also administered the faculty survey (Community College Survey of Student Engagement, 2008b). Only one two-year college in Georgia—a unit of the University System of Georgia—participated in the CCFSSE administration in 2008.

Active and Collaborative Learning

Active and collaborative learning serves as the predominant benchmark for both the National Survey of Student Engagement and the Community College Survey of Student Engagement. Colleges and universities that are highly effective in retaining students focus on improving the learning environment by adopting pedagogical practices that engage students actively in constructing knowledge (Kuh, Kinzie, Schuh, et al., 2005a). Though both national surveys treat active and collaborative learning as a single construct, they are actually two separate, but highly integrated constructs. Students studying active and collaborative learning for the first time benefit from analyzing them as two distinctly different pedagogical approaches.

Bonwell and Eison (1991) provide the classic definition of active learning. They describe this pedagogical approach "as anything that 'involves students in doing things and thinking about the things they are doing'" (Bonwell & Eison, p. 2). Active learning strategies involve students in the learning process by engaging them in activities to develop their skills and abilities to analyze, synthesize, and evaluate new information against preconceived attitudes and values (Bonwell & Eison). Examples of active learning strategies include demonstrations, questioning, discussions, visual-based instruction, writing in class, problem solving, technology enhanced instruction, learning journals, modeling activities, think-pair-share, learning contracts, active self assessment, and active observation and feedback (Bonwell & Eison; Darden & Richardson-Jones, 2003; Silberman, 1996).

In their handbook on collaborative learning techniques, Barkley, Cross, and Major (2005) point out that this pedagogical approach is based on the idea that "learners must be *actively engaged* in learning" (p. 10, emphasis in original). Furthermore, advocates of collaborative learning practices argue that learning is inherently social in nature and that students experience deeper learning when they work in groups to explore solutions to problems (Chickering & Gamson, 1987; Goodsell, Maher, Tinto, Smith, & MacGregor, 1992; Kuh, Kinzie, Buckley, et al., 2006; Love & Love, 2003; Pascarella & Terenzini, 2005). Cross (2005) notes that college professors who subscribe to a collaborative learning approach often assign groups of students a problem. Their task is to research various ways to resolve the problem and then to come to a consensus on which solution will be the most appropriate. There are no right answers. Examples of collaborative learning techniques include note-taking pairs, role playing, critical debates, group investigations, analytical teams, test-taking teams, debates, round robin brainstorming sessions, think-aloud pair problem solving, structured problems, peer editing, writing in groups, peer teaching, supplemental instruction, learning communities, and collaborative writing (Barkley et al.; Goodsell et al.; Howell, 2002; Nonkukhetkhong, Baldauf, & Moni, 2006; Schaefer & Zygmont, 2003; Vega & Tayler, 2005).

Bruffee (1995) adds to the knowledge base by pointing out that collaborative learning strategies are designed for adult learners rather than children and adolescents. He uses the term *collective learning* to define socially oriented learning strategies applicable to younger learners. Bruffee adds that the principle concepts of collective learning and collaborative learning are identical, but the goals of the learning activities change as students move from adolescence into adulthood. Both pedagogical approaches view knowledge construction as a social process in which students work together to actively search for answers to a problem. Adolescent learning focuses on foundational knowledge—mathematics, reading and writing, and historical facts—and collective learning strategies provide non-competitive, efficient, and effective avenues to allow students to "join some of the established learning communities available to them and the encompassing culture we hold in common" (Bruffee, p. 3). Teachers retain their locus of control in cooperative learning activities and maintain their positions as subject-matter experts (Barkley et al., 2005).

Bruffee (1995) also postulates that "collaborative learning is designed to pick up where cooperative learning leaves off" (p. 5). Collaborative learning activities aim to develop higher learning skills, including critical thinking and listening skills. This instructional approach also emphasizes working constructively and productively as a group (Barkley et al., 2005). Furthermore, teachers serve as facilitators and coaches who focus on developing meaningful learning experiences through group learning activities (Barkley et al.; Barr & Tagg, 1995; Fried, 2006; Goodsell et al., 1992; Pascarella & Terenzini, 2005).

Increasing Student Achievement

Proponents of active and collaborative learning strategies spotlight the benefits afforded to students who are exposed to these instructional techniques. The University of Texas researchers who are responsible for the annual administration of the Community College Survey of Student Engagement and the Community College Faculty Survey of Student Engagement write:

> Students learn more when they are actively involved in their education and have opportunities to think about and apply what they are learning in different settings. Through collaborating with others to solve problems or to master challenging content, students develop valuable skills that prepare them to deal with the kinds of situations and problems they will encounter in the workplace, the community, and their personal lives. (Community College Survey of Student Engagement, 2003a, p. 1)

The Internet provides students with access to a wealth of information to substantiate or dispute the endorsement of active and collaborative learning issued by the Texas researchers. Prince (2004) warns, however, about comparing the results of one study with the findings of another research project because of the extensive variety of active and collaborative learning strategies available to instructional faculty. To illustrate, Barkley et al. (2005) include 22 strategies in their handbook on collaborative learning strategies, while Silberman (1996) provides information on 101 active learning strategies in his book on this topic. Because of this diverseness, Prince urges readers of the different research reports to evaluate the results independently of one another.

Despite his warning, Prince (2004) acknowledges that the different research projects undertaken to study active and collaborative learning return remarkably similar outcomes. He reports that two different meta-analyses by Johnson, Johnson, and Smith covering 25 research studies over a span of 90 years and another meta-analysis by Spring and associates covering 43 studies “support the premise that collaboration ‘works’ for promoting a broad range of student learning outcomes. In particular, collaboration enhances academic achievement, student attitudes, and student retention” (Prince, p. 5). Likewise, his review of the research on the affects of active learning on student outcomes underscores the consistency with which active learning strategies lead to improved performances by students.

The authoritative resource on how college affects students confirms Prince’s findings. Pascarella and Terenzini (2005) report in *How College Affects Students: A Third Decade of Research* that “a substantial amount of both experimental and correlational evidence suggests that active student involvement in learning has a positive impact on the acquisition of course content” (p. 101). As to collaborative learning, Pascarella and Terenzini point out that the results of numerous studies consistently show that instructional techniques associated with this concept significantly enhance numerous student outcomes.

Three studies illustrate the impact of active and collaborative learning strategies on student learning outcomes. In a study of 2,050 second-year students randomly selected from the group of students who participated as incoming freshmen in 1992 in the National Study of Student Learning, Cabrera et al. (2002) discovered that collaborative learning tactics were the most important predictors of student gains in the cognitive areas of understanding science and technology and in the acquisition of advanced analytical skills. They report that collaborative learning was highly correlated to higher student outcomes associated with the affective measures of personal development, an appreciation of the arts, and openness to diversity. Cabrera et al. summarize their finding by writing:

> Collectively, the findings make a compelling case for using cooperative learning practices both inside and outside the classroom. These techniques harness the ability and motivation of students towards their personal development, understanding of science and technology, appreciation for art, analytical skills gain, and openness to diversity. Across the five cognitive and affective outcomes, cooperative learning practices had the highest effect, well beyond those attributable to precollege academic ability, gender, ethnicity, parental education, and academic effort. Hence, collaborative learning is a direct tool that institutions can implement to bring about critical student development outcomes. (p. 6)

A study of asynchronous learning networks (ALNs) associated with the virtual classroom project at the New Jersey Institute of Technology revealed similar results as the Cabrera et al. study. The New Jersey study covered a three-year period, and it compared outcomes of undergraduate students enrolled in information systems courses or sections of courses taught in an online environment with the learning outcomes of students who took those same courses in a traditional face-to-face format (Hiltz, et al., n.d.). Hiltz et al. found that the outcomes recorded by the students enrolled in online courses were as good or better as the outcomes achieved by the students in the face-to-face environment *provided* the online students engaged in collaborative learning activities. If the online students simply read materials posted online by the instructors and other students and if they completed assignments by themselves, the online students achieved learning outcomes at a lower level than their peers in the traditional classroom setting. For this reason, the New Jersey study has practical applications for those community and technical colleges that are investing significantly in human and physical capital in order to expand the availability of online courses. This study also illustrates how faculty who are well versed in collaborative learning strategies are assisting online students in achieving their educational objectives at a rate that is consistently higher than what students in more traditional environments accomplish.

Active learning strategies were the focus of a study involving 141 students enrolled in a human physiology course at a small university in western Texas (Wilke, 2003). A portion of the students were enrolled in sections of the course in which the professors used active learning strategies throughout the semester. The remaining students were enrolled in sections in which instructors relied on lectures to cover course materials. Students who were enrolled in the active learning sections "acquired significantly more content knowledge and were significantly more self-efficacious than students" (Wilke, p. 207) who were enrolled in the traditional lecture-oriented sections.

Despite the substantial volume of evidence from a century of research, the majority of college instructors do not use active and collaborative learning activities in their classes. Instead, they use lectures as their chief instructional technique (Community College Survey of Student Engagement, 2003a; Gardiner, n.d.; Leslie & Gappa, 2002; Mourtos & Allen, 2003; Palmer, 2002; Pascarella & Terenzini, 2005). Gardiner cites five different studies conducted in the 1980s and early 1990s that documented the heavy reliance of college instructors on the use of lectures to communicate course materials. He reports that the researchers of one of those studies documented that up to 83% of 1,800 faculty members employed at five different types of institutions used lectures as their primary instructional technique. Furthermore, the researchers discovered that the dependency on lectures as the principal approach to classroom management ranged from 73% to 83% when segregating the outcomes by type of institution (Gardiner, n.d.). A more recent study conducted in 2007 revealed that 70% of the faculty members in the College of Engineering at San Jose State University in California lecture for most of the time in each class session (Mourtos & Allen, 2003, February).

Research focusing on the instructional strategies of community and technical college faculty documents the pervasiveness of lecture-dominated classes in that segment of higher education. A review of data collected in the 1999 administration of the National Survey of Postsecondary Faculty found that 88% of the 89,000 full-time, two-year college faculty who completed the questionnaire indicated that they lectured for the majority of time in some or all of their classes (Palmer, 2002). Schuetz’s (2002) review of data collected from more than 1,500 instructors at over 100 community and technical colleges who participated in a 2000 survey by the Center for the Study of Community Colleges and Cox’s (2003) discussion of a 1999 study by Grubbs and Associates involving 243 instructors at 32 different two-year institutions validate the conclusions submitted by Palmer after his analysis of the 1999 data collected from postsecondary faculty nationally: community and technical college faculty most often use lectures to deliver course content.

The Community College Faculty Survey of Student Engagement (CCFSSE) paints a somewhat different picture than that of Palmer (2002), Schuetz (2002), and Cox (2003). Since its inception, the CCFSSE has consistently shown that only one-third of faculty at two-year colleges lecture for 50% or more of each class session (Community College Survey of Student Engagement, 2003a, 2006d, 2007c). Data collected during the pilot administration of this instrument show that only 30% of the respondents used lectures for 50% or more of the time; the response rate remained consistent at 31% for the next three administrations of the CCFSSE. Only 35% of the faculty at participating institutions responded to the 2007 questionnaire despite the fact that community and technical colleges elect to participate in the CCFSSE and its companion instrument for students. Many of the institutions elect to participate in the surveys as part of regional accreditation efforts. In fact, the designers of the two instruments actively promote the use of the questionnaires by noting in the CCSSE marketing materials that "regional accrediting associations already are making their institutional members aware of the value of the survey[s] as part of institutional self-study and quality improvement" (Community College Survey of Student Engagement, 2008a, p. 1). One could question whether respondents subconsciously select answers that support institutional efforts to document effective educational practices.

Differentiating By Personal Characteristics and Situational Factors

Simply looking at the aggregate results of surveys on instructional techniques does not give a complete picture of what occurs in college classrooms. Many research reports differentiate faculty practices based on personal characteristics and situational factors. The personal characteristics studied previously include gender (Brawner, Felder, Allen, & Brent, 2001; Indiana University-Purdue University Indianapolis, 2001; Lammers & Murphy, 2002; Lindholm, Szeleny, Hurtado, & Korn, 2005; Singer, 1996; Starbuck, 2003), ethnicity (Bower, 2002; Indiana University-Purdue University Indianapolis), academic credentials (Bowles, 1982; Cohen & Outcalt, 2001; Lei, 2007), employment status (Benjamin, 1998; Bowles; Cohen & Outcalt; Indiana University-Purdue University Indianapolis; Jacoby, 2006; Keim & Biletzky, 1999; Lei; Leslie & Gappa, 2002; Outcalt, 2002; Schuetz, 2002), length of teaching experience (Bowles; Community College Survey of Student Engagement, 2006d, 2007b; Indiana University-Purdue University Indianapolis; Lei; Lindholm et al.; Liu et al.2006; Palmer, 2002), and faculty rank (Brawner, Felder, et al.2001; Indiana University-Purdue University Indianapolis; Singer).

The situational factors that have attracted the attention of researchers in the past include academic discipline (Battersby, 2005; Bowles, 1982; Brawner, Felder, et al.2002; Cohen &

Outcalt, 2001; Crosling, 2008; Flynn, 2005; Galbraith, 2004; Halpern & Hakel, 2003; Huber, 1999; Indiana University-Purdue University Indianapolis, 2001; McCollin, 2000; Mourtos & Allen, 2003; Neumann, 2001; Palmer, 2000, 2002; Portmann & Stick, 2003; Singer, 1996), institutional type/selectivity of institutions (Brawner, Felder, et al.; Community College Survey of Student Engagement, 2007b; Gardiner, n.d.; National Survey of Student Engagement, 2006; Singer), level of courses (Schibik & Harrington, 2004; Singer), class size (Keim & Biletzky, 1999; Lammers & Murphy, 2002; Singer), and teaching loads (Keim & Biletzky; Singer). The studies that delve into institutional types and the admissions selectivity of colleges and universities have little application to the current study except when previous research addresses the instructional practices of faculty at community and technical colleges. Furthermore, the studies by Singer and Schibik and Harrington on class levels, which compare and contrast the practices of lower-division faculty (i.e., those who teach freshmen- and sophomore-level classes) with the strategies most often used by upper division faculty (i.e., instructors of junior- and senior-level courses), are not germane to the current study.

Gender. Research conducted by Starbuck (2003), Brawner, Felder, et al. (2001), Indiana University-Purdue University Indianapolis (IUPUI) (2001), Singer (1996), and Lindholm et al. (2005), Lammers and Murphy (2002), and Nelson Laird, Garver, and Niskode (2007) found that male instructors typically lecture for the majority of each class session while female faculty members are more likely to engage students with active and collaborative learning approaches, which are classified as learner-centered instructional practices. These findings are consistent with the scholarly literature that explores how the gender of instructors shapes pedagogical practices (Starbuck). Starbuck, Brawner et al., IUPUI, Singer, Lammers and Murphy, Nelson Laird et al., and Lindholm et al. focus their research efforts on faculty employed at four-year colleges and universities. Though the University of Texas researchers responsible for the administration of the Community College Faculty of Student Engagement report the gender distribution of each year's participants, they do not provide information on the differences in instructional practices based on gender in the annual overview of national results (Community College Survey of Student Engagement, 2003b, 2006d, 2007c). Furthermore, the Summer 2002 edition of *New Directions for Community Colleges*, which focuses on the characteristics, practices, and challenges of community college faculty, omits any discussion about the influence of gender on pedagogical practices. Instead, the authors emphasize disciplinary variations (Palmer, 2002), employment status (Schuetz, 2002), and ethnicity (Bower, 2002). Finally, an extensive Google search, as well as a search of various university accessible library databases, failed to uncover scholarly articles on how gender affects the instructional practices used on a consistent basis by community and technical college faculty.

Ethnicity. Information on how ethnicity influences classroom practices of faculty at two-year and four-year colleges is rather limited. Bower (2002) reports on the results of a questionnaire administered to approximately 2,300 faculty at 156 community and technical colleges by the Center for the Study of Community Colleges at the Graduate School of Education and Information Studies at the University of California at Los Angeles. She points out that 10% of the 1,540 instructors who returned the survey instrument identified themselves as minorities. She adds, "An analysis of the responses using statistical methods shows that in most respects minority faculty respond to the survey questions similarly to the way nonminority do.… However, some differences do emerge" (Bower, p. 80). With regard to instructional practices, Bower shows that minority faculty are more apt to participate in interdisciplinary team teaching, which is a feature associated with learning communities. These communities are classified as collaborative learning initiatives by Tinto (2003), O'Banion (1997), and others.

The Office of Information Management and Institutional Research at Indiana University-Purdue University Indianapolis (2001) issued the results of the 2000 faculty survey in which over 800 professors returned completed questionnaires, Like Bower (2002), the IUPUI research staff documented that minority faculty members responded similarly to that of nonminority instructors. They attribute the findings to the fact that the university employed a "relatively small number of minority faculty" (Indiana University-Purdue University Indianapolis, p. 1). That small number and the "large differences in faculty opinions by school [made] it difficult to identify any systematic differences" (Indiana University-Purdue University Indianapolis, p. 1).

Whereas 10% of the 1,540 instructors who completed the Center for the Study of Community Colleges Survey were minorities , Bower (2002) reports that minority faculty constituted 14.1% of the total instructor population at all community and technical colleges in the United States in 1998. By the 2005-2006 academic year, that percentage had dropped to 12% (Marks, 2007). Minority faculty, however, accounted for 14.6% of the faculty employed during the 2005-2006 academic year at two-year colleges located in the 16 states associated with the Southern Regional Education Board. In Georgia, minority faculty accounted for 16.8% of the faculty employed that year in the state's community and technical colleges (Marks, 2007).

Educational attainment. Studies conducted by Lei (2007) and Cohen and Outcalt (2001) provide insight into whether the level of educational attainment of community and technical college faculty influences the teaching practices they use for the majority of their courses and/or class sessions. Lei administered a survey to 400 randomly selected instructors at two community colleges located in a western state and obtained a response rate of 45.8%. The survey results indicate a significant difference ($p < 0.05$) in the approaches to classroom instruction taken by those faculty members who had earned doctoral degrees as opposed to those instructors who had not earned doctoral degrees. Instructors who had earned doctoral degrees used active and collaborative learning strategies significantly more than did the other instructors surveyed. Conversely, instructors who had not earned doctoral degrees relied more heavily on lectures than did their colleagues who held doctoral degrees.

Lei (2007) reports that the results of his study mirror the results reported by Bowles (1982), which were derived from data collected in two national surveys administered in 1977 and 1978 by the Center for the Study of Community Colleges. The center administered the two surveys randomly to faculty at 15 two-year postsecondary institutions throughout the United States. Center-based researchers issued one of the surveys to 756 faculty members who taught humanities courses at 175 colleges and the other survey to 1,275 science and social science instructors at those same institutions. The results uncovered a predisposition of instructors from the three disciplines who held doctoral degrees to engage students actively and collaborative in the construction of knowledge. On the other hand, instructors from these academic disciplines who had not earned a doctoral degree favored lectures, thus assigning students to a passive role in the learning environment.

The findings reported by Lei (2007) and Bowles (1982) contrast sharply with the results of a survey administered in 2000 by Cohen and Outcalt (2001) to approximately 2,300 instructors employed at 156 community and technical colleges nationally. Cohen and Outcalt report that 43.3% of the respondents who held doctoral degrees lectured for the majority of the time. Only 35.4% of the faculty who held degrees below the doctoral level used lectures predominately. The authors further point out that faculty members who were seeking their doctoral degrees were slightly less likely to lecture for the majority of the time than were those instructors who were working on degrees below the doctoral level. According to the survey results, 36.1% of the doctoral candidates and 36.7% of the instructors seeking degrees below the doctoral level said they rely predominately on lectures to deliver course content (Cohen & Outcalt).

The results obtained from faculty members who were pursuing graduate degrees is important because of the arguments that graduate programs do not include enough opportunities for students to prepare for the teaching profession (Gaff & Pruitt-Logan, 1998; Kozeracki, 2005). Gaff and Pruitt-Logan summarize these arguments by writing:

> We have never really prepared graduate students to become college professors. Traditional doctoral study is designed to give graduate students the capacity to conduct original research. This is a necessary but insufficient condition for faculty success.… Many graduate students, however, acquire no experience in the complex tasks of teaching: determining proper goals for student learning; designing courses; selecting learning materials, making assignments, and assessing the achievement of those goals; understanding and working effectively with diverse students; giving academic and career advice; and constructing and assessing curricula in the department. Too many of those who do serve as teaching assistants are given only minor assignments and receive little or no orientation and mentoring to master these tasks. (p. 77)

Fayne and Ortquist-Ahrens (2006) point out that graduate education prepares students to be experts in the field, but novices in the classroom.

Employment status. The employment status of community and technical college faculty is a topic that receives significant attention from researchers interested in identifying the instructional strategies used by instructors. Much of this attention is rooted in the continuing dialog on whether part-time faculty members are as effective as their full-time colleagues. As late as 1982, it was noted that "no empirical evidence yet exists to support the content that part-time faculty provide less effective instruction than do full-time staff" (Bowles, 1982, p. 130). More recent literature presents conflicting information as to how the employment of part-time faculty members influences student outcomes (Schuetz, 2002). Some authors report that studies have proven that part-time faculty are just as effective as full-time instructors (Cohen & Brawer, 2003; Schuetz, 2002; Wallin, 2005). Bowles underscores this point by writing, "While the literature reports a popular perception that part-timers are less committed to teaching than their full-time colleagues, and teach less well than full-timers, repeated studies … have found no differences in teaching quality between full-timers and part-timers" (p. 28).

Critics of the trend to rely more heavily on part-time faculty to fulfill scheduling demands cite studies that have documented that increased attrition of students directly correlates to the increased employment of part-time faculty (Benjamin, 1998; Jacoby, 2006; Schibik & Harrington, 2004). Jacoby notes that the graduation rate at four-year colleges and universities dropped by an average of 2.7% for each 10.0% increase in the number of part-time faculty used to teach classes. Schibik and Harrington add that an inverse relationship exists between one-semester retention rates and the use of part-time faculty to teach developmental, general education, and introductory discipline-based courses. Jacoby attributes this phenomenon to the fact that the "part-time or 'permatemp' system provides for few incentives to foster rich interactions between faculty and students, and thus undermines the campus-learning climate" (p. 1085).

Critics of the “permatemp” system mentioned by Jacoby (2006) also acknowledge that part-time faculty are less likely to use innovative active and collaborative instructional strategies (Jacoby; Lei, 2007; Outcalt, 2002); however, studies to document this assertion return mixed results. An analysis of data collected from 2,000 community and technical college instructors from 114 institutions who responded to a survey administered by the Center for the Study of Community Colleges uncovered the fact that faculty members spend nearly two-thirds of their class time lecturing to students (Leslie & Gappa, 2002). This finding applied regardless of the employment status of instructors.

A 2000 study involving more than 1,500 faculty members at over 100 community colleges documented that instructors spent an average of 43% of class time lecturing (Schuetz, 2002). Again, this result applied equally to full-time and part-time instructors. Additional studies by Cohen and Outcalt (2001), Keim and Biletzky (1999), and Lei (2007) also conclude that lecturing remained the predominate strategy used by full- and part-time faculty employed at community and technical colleges throughout the United States. Schuetz (2002) reports, however, that full-time faculty who responded to the survey she reviewed were more likely to engage students through the use of active and collaborative instructional strategies. She documented that 27% of the full-time faculty members and only 10% of part-time instructors used collaborative strategies, group activities, and team projects to engage students during class sessions. These results are in contrast to the outcomes of the 1993 National Survey of Postsecondary Faculty in which it was noted that full-time faculty members at two-year colleges were less likely than their part-time counterparts to use active and collaborative learning strategies (Palmer, 2000).

Length of teaching experience. Studies that focus on the length of teaching experience are based on the underlying assumption that instructors will alter their instructional approaches as they gain experience. Kugel (1993) provides a five-stage conceptualization of how faculty members move from novice lecturers to experts who alter their strategies to accommodate multiple learning styles. During the first stage, new instructors focus on themselves and their roles in classrooms. They teach the way they were taught during the time they were students (Darden & Richardson-Jones, 2003; Flott, 2005; Halpern & Hakel, 2003; Kugel; Michael, 2007; Portmann & Stick, 2003; Vega & Tayler, 2005). Faculty members operating in the first phase consider themselves to be subject-matter experts (Kugel) who are responsible for exposing students to the subject itself (Barr & Fear, 2005; Flynn, 2005; Howell, 2002; Iran-Nejad, 1995; University of Connecticut, n.d.). They accomplish this objective by spending the majority of classroom time lecturing to students.

The lecture remains the centerpiece of the instructional strategies used by instructors operating in the second phase of the Kugel (1993) conceptualization. During this stage, lectures become crisp, which leads to an increase in the quality and quantity of information communicated to students. Interestingly, Kugel points out that the quantity and quality of information retained by students tends to decrease as the quantity and quality of the lecture increases.

Instructors begin to use a variety of instructional techniques, including active and collaborative learning strategies, during the third phase (Kugel, 1993). This transition is undertaken after faculty members realize that students do not learn materials in the same way. Instead, multiple learning styles exist, which dictates how students sort, process, and use information they obtain in various learning situations (Cano, Garton, & Raven, 1993).

Furthermore, students' learning styles affect the way they respond to specific teaching methods (D. M. Brown, 2003; Weston & Cranton, 1986). It is during this third stage that instructors began to realize that students' role in the knowledge-construction process is more than simply being a passive recipient of the content transmitted by the lecturer (Kugel). By the fourth stage, instructors realize that students who actively construct knowledge demonstrate greater levels of academic achievement. As such, they use active and collaborative learning strategies for the majority of the time in order to engage students in course content.

The final stage occurs when faculty begin emphasizing strategies that assist students in becoming independent learners (Kugel, 1993). The terms "self-directed learners" (Candy, 1991; Merriam & Caffarella, 1999; Weimer, 2002), "autonomous learners" (Candy; Weimer), and "self-regulated learners" (Weimer) are used interchangeably with the term "independent learners." Independent learners take responsibility for their learning (Dantec & Jowers, 2007). Candy defines independent learning "as a process, a method, and a philosophy of education whereby a learner acquires knowledge by his or her own efforts and develops the ability for enquiry and critical evaluation" (p. 1). The objective of independent learning is to develop lifelong learners (Government of Saskatchewan, n.d.; Schaefer & Zygmont, 2003), transferable skills (Candy), critical reflection and critical thinking skills (Schaefer & Zygmont; Weimer), and problem-solving skills (Schaefer & Zygmont).

A study of graduate teaching assistants at a research-based university provides support for Kugel's (1993) five-stage conceptualization of how teachers alter their practices over the course of their careers. Researchers documented that the longer instructors teach the more likely they are to use innovative instructional strategies associated with active and collaborative learning (Liu, et al., 2006). Furthermore, the 1993 National Study of Postsecondary Faculty documented that new community and technical college faculty approached their responsibilities differently from their older, more experienced colleagues (Palmer, 2000); however, the 1993 national study returned results that contrast sharply with the findings reported by Liu et al. Palmer states, “Full-time teachers who were in the same job for 20 or more years were … less likely to have required student presentations, to have used computer-assisted instruction, or to have required students to evaluate each other’s work” (p. 4). The activities cited by Palmer are examples of active and collaborative learning strategies.

Researchers at the Higher Education Research Institution (HERI) at the University of California at Los Angeles recorded similar results on the 2004-2005 HERI Faculty Survey to that of the 1993 National Survey of Postsecondary Faculty. Results from the HERI study show that early-career instructors were more likely to use active and collaborative learning strategies, while professors who were in the later stages of their teaching careers were more likely to lecture extensively for most or all of their classes (University of California at Los Angeles Higher Education Research Institute, 2005). According to the 2004-2005 study, 62% of the advanced-career faculty lectured for most or all of their classes as compared to 55% of mid-career faculty and 51% of early-career faculty. Conversely, 57% of the early-career instructors reported that they used small group exercises in most or all of their classes. Only 47% of mid-career faculty and 36% of advanced-career professors indicated that they incorporated these types of activities into their approaches to classroom instructional practices. The 2004-2005 study also shows that 48% of early-career, 44% of mid-career, and 40% of advanced-career faculty required students to make presentations.

The first three non-pilot administrations of the Community College Faculty Survey of Student Engagement returned consistent results with regard to whether the length of teaching experience affects how community and technical college faculty approach classroom instruction (Community College Survey of Student Engagement, 2005, 2006d, 2007b). The discussion about the length of teaching experience and classroom practices in the 2006 overview is, with two minor exceptions, the same as the information presented in the 2005 and 2007 overviews:

> The percent of class time spent on various activities fluctuates quite a bit depending upon the number of years faculty members have taught.… Instructors in their first year of teaching most closely parallel instructors who have been in the profession 30-39 years in terms of how much time is devoted to varying classroom activities. However, those who have been teaching 1-4 years more closely parallel those who have been teaching *5-19 years* [emphasis added] in most instructional categories.
>
> Teachers who have taught 10-19 years were more likely to spend their class time on teacher-led discussion and small group activities than were teachers in any other category. In fact, over a third of the teachers in this category reported that they devoted a minimum of 75% of their class time to small group activities; similarly, *a third* [emphasis added] of the instructors in this category reported devoting at least half of their class time to in-class writing. (Community College Survey of Student Engagement, 2006d, p. 7)

The two italicized sections in the preceding passage indicate where the 2006 discussion differs from the 2005 and 2007 CCFSSE overviews. After using the 5-19 years breakdown—the first emphasized point—in both the 2005 and 2006 overviews, the writers of the 2007 report changed the category to 5-9 years (Community College Survey of Student Engagement, 2005, 2006d, 2007b). The second emphasized point highlights the survey results in 2005 that found that nearly 50% of the respondents assigned in-class writing activities. By the 2007 administration, that percentage had dropped to approximately 25%. Table 2.1 averages the

CCFSSE results from the first three administrations in order to show how community and technical college faculty with varying years of teaching experience allocate class time for specific instructional activities.

Table 2.1

Percentage of Class Time Spent on Various Activities Based on Years of Teaching Experience: CCFSSE Results

	First Year	1-4 Years	5-9 Years	10-19 Years	20-29 Years	30-39 Years
Lecture						
30-39%	6.0%	20.7%	23.0%	42.5%	14.3%	7.0%
40-49%	5.3%	20.3%	23.3%	29.0%	14.7%	7.3%
50-74%	6.0%	25.7%	24.0%	27.7%	15.3%	7.0%
75-100%	6.3%	21.7%	21.0%	24.3%	16.0%	9.3%
Teacher-Led Discussion						
30-39%	5.7%	21.7%	23.7%	28.0%	15.7%	5.7%
40-49%	6.0%	21.3%	24.3%	26.7%	14.7%	6.7%
50-74%	5.3%	21.7%	23.3%	30.3%	13.7%	9.3%
75-100%	7.3%	21.3%	25.3%	24.7%	13.7%	6.0%
Small-Group Activities						
30-39%	6.7%	25.0%	24.7%	26.3%	12.0%	4.3%
40-49%	5.7%	24.7%	23.7%	26.3%	12.0%	7.3%
50-74%	7.0%	24.3%	26.7%	25.7%	11.3%	4.7%
75-100%	10.0%	11.7%	19.7%	39.0%	16.3%	3.7%
In-Class Writing						
30-39%	5.0%	20.7%	24.0%	28.3%	16.7%	3.7%
40-49%	4.0%	19.7%	24.3%	32.0%	13.0%	6.7%
50-74%	7.3%	15.0%	22.7%	32.7%	14.3%	5.7%
75-100%	3.7%	20.3%	21.7%	20.3%	13.7%	17.0%

Source. Adapted from Community College Survey of Student Engagement (2005, 2006d, 2007b)

Situational Factors

In addition to studying personal characteristics, higher education researchers are also interested in measuring the effects of situational factors on the teaching practices of faculty members. Previous research studies have compared the teaching practices of faculty employed at different types of institutions and, by extension, institutions with different admissions selectivity levels (Brawner, et al., 2001; Gardiner, n.d.; Lutzer, Maxwell, & Rodi, 2002; National Survey of Student Engagement, 2006, 2007b). Other scholars have conducted studies designed to identify differences in approaches to classroom instruction by faculty who teach introductory courses and those instructors who teach advanced courses (Schibik & Harrington, 2004; Singer, 1996). Others delve into how class size (Keim & Biletzky, 1999; Lammers & Murphy, 2002; Singer) and teaching loads (Keim & Biletzky; Singer) affect classrooms; however, the topic of academic disciplines attracts the most attention of higher education researchers interested in studying the effects of institutionally controlled characteristics on instructional practices.

Academic discipline. The level of scholarly interest in the influence of academic disciplines on teaching practices can be gauged by the number of articles uncovered in Internet and university library database searches using the phrase "college teaching practices." Some of these articles emphasize single disciplines (Brawner, et al., 2001, 2002; Mourtos & Allen, 2003; Schaefer & Zygmont, 2003), while others compare practices in multiple academic disciplines (Bowles, 1982; Palmer, 2002; Singer, 1996). The central hypothesis of many of these studies is that exposure to academic disciplines enculturates students—i.e., future faculty members—to what is important in the field (Crosling, 2008; Portmann & Stick, 2003; Singer, 1996; Verner, 1964). The traditions surrounding academic disciplines not only dictate what is taught, but how that information is taught (Battersby, 2005; Crosling; Huber, 1999; Neumann, 2001; Singer).

Huber (1999) describes the traditions associated with academic disciplines as providing "scholars a ready-made way to imagine and present their work, but also by giving shape to the problems they choose and the methods they use" (p. 4). This viewpoint often leads to the conclusion that faculty members mimic the way they were taught during their tenure as college students (Flott, 2005; Kiely, Sandmann, & Truluck, 2004; Peer & Martin, 2005; Schaefer & Zygmont, 2003; Weston & Cranton, 1986), a point also brought out in the discussion on how the educational levels of faculty members affect approaches to classroom instruction. The cumulative effect of academic disciplines and their associated traditions is to formatively influence scholars' philosophical orientation and conceptualization of their role in instilling those traditions to the next generation of college students (Singer, 1996). Faculty members' philosophical orientation represents their "underlying values, beliefs, and theories" (Kiely, et al., p. 27) that guide practice. Portmann and Stick (2003) expound on this point by noting that "faculty members from different disciplinary backgrounds place different emphases on research and course preparation, focus on unique course objectives and learning outcomes, and most importantly emphasize different types of learning and subsequently use different types of teaching and assessment techniques" (p. 520). Clydesdale (2009), a sociology instructor at the College of New Jersey, presents an interesting angle to this discussion. In writing about the emergence of a new epistemology, he states:

> Back when students held us in awe, sat willingly for lectures, and assigned us the work of deciding what knowledge was worth knowing, we organized our classes around our disciplines. We chose what knowledge needed to be conveyed to students in what order. Now that our students assign us no more authority than anyone else, show no patience for lectures, and decide what's worth knowing themselves, we need to reorganize our classes. We need to teach as if our students were colleagues from another department. That means determining what our colleagues may already know, building from that shared knowledge, adapting pre-existing analytic skills, then connecting those fledgling skills and knowledge to a deeper understanding of the discipline we love. In other words,

> we need to approach our classrooms as public intellectuals eager to share our insights graciously with a wide audience of fellow citizens. (Clydesdale, p. B8)

Teaching load. Many faculty members opine that large class sizes prevent them from incorporating active and collaborative learning strategies into their instructional practices (Barkley, et al., 2005). Massey (2009) reports that colleges and universities have had to increase class sizes and increase the reliance on adjunct faculty in response to the current economic crises facing the United States. He reports that one department at a campus he had visited had witnessed a 33% decline in full-time faculty members over a 10-year period. As a result, "The department continues to use the same teaching paradigms, so what has had to give is small class sizes, … the number of writing assignments (which require grading by faculty members), … and other key drivers of quality" (Massey, p. A26).

Research undertaken prior to the onset of the current economic situation consistently found that faculty who teach larger classes or who teach multiple classes each term tend to use traditional lecture practices over those practices that are active and collaborative in nature (Keim & Biletzky, 1999; Lammers & Murphy, 2002; Nelson Laird, et al., 2007; Rust & Peluchette, 2003; Schibik & Harrington, 2004; Singer, 1996). Lammers and Murphy employed students to observe the teaching practices of instructors in 58 separate classes at an American university. They found that the amount of class time devoted to lecturing was significantly correlated to the size of the class. Rust and Peluchette sent surveys to 500 faculty members who were employed on a full-time basis at colleges and universities throughout the United States. They also report that instructors who teach larger classes are less likely to engage students in discussion of course materials.

Nelson Laird et al. (2007)used data from the 2006 administration of the Faculty Survey of Student Engagement at 107 four-year colleges and universities to study the effect of class size on instructional practices. They “estimate that increasing one’s course size by 10 students would result in 1.3 percent more time being devoted to lecturing (B = .13, $p < 0.001$)” (Nelson Laird, et al., p. 12). In this same study, Nelson Laird et al. found that instructors tend to increasingly rely on lecture the more times they teach a course. They also discovered that large teaching loads—i.e., teaching large numbers of sections each term—reduces the likelihood that instructors will use active and collaborative instructional strategies. Keim and Biletzky (1999) uncovered similar results in their study of part-time community college faculty. As Alan Rogers (1986) points out, instructors who are short on time due to heavy teaching responsibilities “frequently revert to those teaching methods by which they were themselves taught” (p. 142).

Summary

The theories advanced by Astin and Tinto provide the framework to study college student retention using the National Survey of Student Engagement (NSSE) at four-year colleges and universities and the Community College Survey of Student Engagement (CCSSE) at two-year colleges. The researchers also offer companion faculty surveys; however, participating institutions may opt out of collecting data from faculty, thus reducing the voice of instructional faculty on what constitutes effective educational practices.

Though based on the four-year versions, the surveys targeted to students and faculty at community and technical colleges take into consideration the unique characteristics of these institutions, while ignoring or eliminating those factors that are only applicable to four-year colleges and universities. The two-year college surveys recognize that responsibilities outside the academy compete for the time and energies of students, thus students at community and technical colleges are less likely to participate in the social activities associated with college life. The surveys assess the extent to which faculty members utilize and students engage in active and collaborative learning strategies, which are separate but closely related constructs. Action-oriented instructional strategies involve students in the learning process, while collaborative instructional strategies recognize that effective learning occurs in a social environment. Bruffee (1995) situates collaborative learning within adult education. He uses the term collective learning to describe socially-oriented learning activities targeted to and involving adolescents.

An analysis of research to demonstrate the value of active and collaborative learning consistently documents that students exposed to these instructional strategies achieve higher levels of academic gains. Research efforts that center on active and collaborative learning often evaluate teaching practices based on personal characteristics such as gender, ethnicity, academic credentials, employment status, length of teaching experience, and faculty rank. Also of interest to researchers is how situational factors shape instructional practices. Included in these types of studies are academic disciplines, institutional type and selectivity of institutions, level of courses, class size, and teaching loads. Studies that focus on personal characteristics and situational factors return mixed results thus limiting scholars' understanding of what contributes to faculty decisions to use active and collaborative learning strategies as opposed to the more traditional lecture format.

A Shift in Instructional Paradigms

Active and collaborative learning are components of an instructional paradigm that focuses on the needs and abilities of the students (Barr & Fear, 2005; Crabtree & Sapp, 2003; Darden & Richardson-Jones, 2003; Henson, 2003; Schaefer & Zygmont, 2003; Thomas, 2008; Totin Meyer, 2002; Weston & Cranton, 1986). This learner-centered philosophy is the polar opposite of the teacher-centered paradigm historically associated with the typical college classroom (Barr & Fear; Barr & Tagg, 1995; Fried, 2006; Kuh, Kinzie, Schuh, et al. 2005b; Weimer, 2002). The traditional approach emphasizes the transference of course content and knowledge (Crosling, 2008; Iran-Nejad, 1995; Knowles, et al., 1998; Schaefer & Zygmont).

Flynn (2005) classifies the traditional instructional paradigm as a German model in which faculty members remain loyal to the academic discipline; the academic discipline dictates what information is essential for students to learn. Liu et al. (2006) and K. L. Brown (2003) are less flattering in their descriptions of this traditional approach to classroom instruction. Liu et al. view this approach as autocratic and controlling because all power is assigned solely to the faculty member. Students have no voice in what course content is taught, how the course content is taught, and when the course content is taught (K. L. Brown; Flott, 2005; Knowles, et al., 1998; Liu, et al.; Peer & Martin, 2005; Schuh, 2004; Thomas, 2008).

K. L. Brown (2003) likens the teacher-centered paradigm to a factory. Factories develop routine processes so that identical products are manufactured at the lowest possible cost. Delaney (1999) writes, “In the ‘factory’ school, all students [are] grouped chronologically, [are] taught the same material from the same textbook. … This system [is] designed to prepare all students in the same way” (p. 1). Economies of scale are achieved in the factory model of classroom instruction through the “mass transmission of information” (Paris & Combs, 2000, p. 2), which is based on the assumption that all students process information at the same rate and in the same manner (Thomas, 2008). As such, lectures, which Crosling (2008) characterizes as the “one-way transmission of information” (p. 123), are the predominant mode of delivery of course content and knowledge of the academic discipline (Barkley, et al., 2005; Darden & Richardson-Jones, 2003; Weston, 1986).

Instructors assume the active role in the traditional classroom paradigm because of their responsibility for providing or transmitting content and knowledge (Flynn, 2005; Hewett, 2003; Howell, 2002; Miglietti & Strange, 1998; Thomas, 2008; Totin Meyer, 2002). In the historical approach to classroom instruction, faculty members are known as "sage[s] on the stage" (Krakauer, 2005, p. 186) or "dispenser[s] of knowledge" (Howell, p. 1) who engage in "chalk and talk" (Nonkukhetkhong, Baldauf, & Moni, 2006, p. 2) and "instruct[ing] and profess[ing]" (Barr & Fear, 2005, p. 17). Conversely, students are portrayed as empty vessels (Howell; Thomas), who passively engage in the learning process (Barr & Fear; Knowles et al.1998; Miglietti & Strange; Nonkukhetkhong et al.; Pascarella & Terenzini, 1979; Thomas). The student-faculty relationship is classified as a "hierarchical model in which those who know teach those who do not know" (Cross, 2005, p. 5). Astin (1989) describes the historical paradigm as an orientation in which "the 'knowledgeable' professor lectures to the 'ignorant' student so that the student can acquire the same knowledge" (p. 520).

Student success in this environment is based on the ability of students to recall information presented by the instructor throughout the duration of the academic term (Howell, 2002; Iran-Nejad, 1995; Knowles, et al., 1998; Weston & Cranton, 1986). Assessment practices provide students the opportunity to demonstrate that they have received and retained the information presented to them (Weston & Cranton). Rather than engaging in deep learning activities, students memorize information for the length of time needed to pass an examination or course; they engage in surface learning (Callahan & Switzer, 2001; Howell; Kuh, Chen, & Nelson Laird, 2007).

The Learner-Centered Paradigm

Critics of teacher-centered instructional practices argue that they ignore the individual differences and unique learning needs and learning styles of each student (Darden & Richardson-Jones, 2003; Miglietti & Strange, 1998; Wake Technical Community College, 2006). The passive role assigned to students in the traditional classroom ignores the central tenet of Astin's (1989) theory of student involvement: students who actively engage in learning activities are more likely to persist with their educational endeavors. Furthermore, critics of the traditional classroom also note that deep learning rather than surface learning—the rote memorization of information simply to pass a test—occurs when students are actively engaged in learning endeavors (Battersby, 2005; Howell, 2002; Schaefer & Zygmont, 2003; Totin Meyer, 2002). Finally, the traditional paradigm also overlooks the assertion that learning is a social, collaborative activity (Crabtree & Sapp, 2003; Henson, 2003; Kiely, et al., 2004; Maypole & Davies, 2001; Wilson, 1993), an important construct of Tinto's (1975, 1993) theory of student departure.

Many faculty at both two-year and four-year colleges are adopting a learner-centered instructional paradigm in response to these criticisms and shortcomings and in response to the call by higher education leaders to adopt new, powerful practices to improve learner outcomes (Clydesdale, 2009; Flynn, 2005; Hewett, 2003; Massey, 2009; Moulton, 1992; Selingo, 2008). College faculty who adopt a learner-centered philosophy undergo a profound paradigm shift (Barr & Tagg, 1995), an educational transformation (Showdon, 2005). McPhail (2005) uses the term "learning revolution" (p. ix) to describe this change. As the name implies, the focus shifts from the instructor to the learner in a learner-centered approach to classroom instruction (Henson, 2003; Schaefer & Zygmont, 2003).

A search of the scholarly literature on this alternative to the teacher-centered paradigm reveals a number of definitions of learner centeredness. Delaney (1999), Henson (2003), Paris and Combs (2000), and others cite the learner-centeredness definition advanced by McCombs and Whisler (1997). This all-encompassing definition describes the learner-centered paradigm as:

> The perspective that couples a focus on individual learners (their heredity, experiences, perspectives, backgrounds, talents, interests, capacities, and needs) with a focus on learning (the best available knowledge about learning and how it occurs and about teaching practices that are most effective in promoting the highest levels of motivation, learning, and achievement for all learners.) This dual focus then informs and drives educational decision making. (McCombs & Whisler, p. 9)

Other authors and researchers often define this concept simply by paraphrasing the McCombs-Whisler definition. For instance, Hewett (2003) describes the learner-centered paradigm as “a philosophy of teaching that focuses on the experiences, backgrounds, talents, interests, capacities, and needs of the students and on the best practices for enhancing motivation, learning, and achievement for all students” (p. 1).

Scholars attribute the development of the learner-centered instructional philosophy to psychotherapist Carl Rogers and his successful experiences with client-centered therapy practices (Knowles, et al., 1998; Merriam & Caffarella, 1999). Adult education scholars have situated the learner-centered paradigm in a variety of adult education lenses, including andragogy (Knowles, 1984; Knowles, et al.; McCollin, 2000; Moulton, 1992; Totin Meyer, 2002), pedagogy, (McCollin), cognitivism (Krakauer, 2005), collaboration (Conti, 1985, 2004), and constructivism (Barr & Fear, 2005; D. M. Brown, 2003; Feldon, 2005; Iran-Nejad, 1995;

Kuh, Chen, et al., 2007; Liu, et al., 2006; Maypole & Davies, 2001; Nonkukhetkhong et al., 2006; Schaefer & Zygmont, 2003; Schuh, 2003; Wake Technical Community College, 2006; Weston & Cranton, 1986). Others have studied this paradigm from the perspective of continuous learning (Miglietti & Strange, 1998), deep learning (Battersby, 2005; Kuh, Chen, et al.), experiential learning (Howell, 2002; Miglietti & Strange), lifelong learning (Darden & Richardson-Jones, 2003; Leskes, 2003; Miglietti & Strange; Nonkukhetkhong, et al.; Wake Technical Community College), and learning how to learn (Crabtree & Sapp, 2003; Darden & Richardson-Jones; Howell; Nonkukhetkhong, et al.; Schaefer & Zygmont; Totin Meyer). Feminism (Crabtree & Sapp), philosophy (Henson, 2003), humanistic education philosophy (Conti, 1985, 2004; Knowles, et al.; Merriam & Caffarella, 1999; Nuckles, 2000), progressivism (Conti, 1985, 2004), and psychology (D. M. Brown; Feldon; Henson; Schuh) have also provided a foundation to explore the tenets of the learner-centered paradigm.

Adult students bring a lifetime of real-world experiences to the classroom setting, and these experiences shape their worldview. Adult students enroll in postsecondary educational activities "to learn advanced knowledge in relation to their own meaning structures, their world, and their future" (Kasworm, Sandmann, & Sissel, 2000, pp. 456-457). Active learning approaches and collaborative learning strategies emphasize the need for students to construct meaning by incorporating new information with existing knowledge and beliefs (Bonwell & Eison, 1991; Goodsell, et al., 1992; Pascarella & Terenzini, 2005; Verner, 1964). Fried (2006) describes this method as a constructivist epistemology of adult learning. A constructivist approach to learning "maintains that learning is a process of constructing meaning; it is how people make sense of their experience" (Merriam & Caffarella, 1999, p. 261).

Learning is cumulative in nature from a constructivist prospective (Krakauer, 2005) and interpretation of new knowledge is based on one's culture, background, and meaning structures (Halpern & Hakel, 2003; Kasworm, et al., 2000; Weimer, 2002). The meaning ascribed to new information is based on life experiences and real-life situations and problems (Imel, 2000). R. M. Smith (1982) writes that the unique experiences of adults determine how they confront and interpret new information. Adult learners process new information more effectively when the new information relates to existing frames of reference (Advanced Technology Environmental and Education Center, n.d.), and their levels of learning increase significantly when students connect new information and experiences "with other knowledge they have already mastered" (Texas Collaborative for Teaching Excellence, 2003, p. 1).

The creation of new knowledge based on life experiences and real-life situations and problems also highlights another important aspect of active and collaborative learning. Effective learning "is fundamentally influenced by the context and activity in which it is embedded" (Goodsell, et al., 1992, p. 10). Merriam and Caffarella (1999) document that the role of the learning environment—the context within which learning takes place—gained prominence among adult educators during the decade of the 1990s. They identify two key dimensions of contextual learning: the structural dimension and the interactive dimension. The structural dimension focuses on the demographic and cultural backgrounds of students, whereas the interactive dimension emphasizes the value of social interaction in the learning process (Caffarella & Merriam, 2000; Hansman, 2001). Bierema and Kiely (2004) use terms and phrasing such as "social activity" and "relationships among people in shared context" (p. 27) to describe the situational aspect of learning. Others describe learning as an applied process (Bond, 2005), as being organized around real-world experiences (National Conference of State

Legislatures, 2002), as fundamentally situated (Wilson, 1993), and as occurring at home, work, and in a variety of other settings (Blanchard, 2001).

The situational aspect of learning—the situated cognition construct—forever links what is learned with the context in which the learning activity occurred (Merriam & Caffarella, 1999). Situated cognition emphasizes the setting in which learning takes place as opposed to other theories that focus on how adults internally construct meaning (Merriam & Caffarella). For adult educators, situated cognition is an important concept to remember when designing active and collaborative learning activities because "knowledge is dynamically co-constructed by adult examination of ideas within a cultural and group context of knowledge-making, applications, and actions" (Kasworm, et al., 2000, p. 456).

Balancing power. Flott (2005) provides his readers with an overview of how Creighton University "is striving to optimize learning" (p. 31) by implementing learner-centered practices across the entire university. The Creighton approach emphasizes a balancing of power between faculty members and their students. This balancing of power refers to the fact that faculty relinquish sole control over the learning process when they adopt a learner-centered philosophy. Whereas faculty members control what will be taught and how and when it will be taught in the traditional teacher-centered instructional paradigm, students and professors share responsibility for developing meaningful learning objectives, learning activities, and assessment measures in a learner-centered environment (Delaney, 1999; Krakauer, 2005; McCombs & Vakili, 2005; Miglietti & Strange, 1998; Paris & Combs, 2000; Reynolds, 2000). Earlier in this chapter, the term *collaborative learning* was defined as students working together to solve problems and to develop a knowledge base of subject-matter content. Scholars of the learner-centered paradigm expand the definition of collaborative learning to incorporate the shared responsibility between students and faculty for co-creating learning endeavors (Conti, 2004; McCollin, 2000; Moulton, 1992; Schuh, 2003; Totin Meyer, 2002).

Sharing power or collaborating to co-create learning endeavors underscores the importance of student-faculty interactions inside and outside the formal classroom boundaries regardless of whether the classes meet face to face or through electronic means. Tinto (1993) recognizes the importance of faculty-student collaboration and interaction when he writes about the applicability of his theory of student departure to the study of why some students leave college without earning a credential. He points out:

> The absence or presence of interactions between faculty and students also serves as a predictor of institutional rates of departure. That is, it may typify the experience of most students who go there. Rather than mirror only the experience and perhaps personality of any one person, it may reflect a wide ethos which influences interactions generally. Thus it is of little surprise to discover that institutions with low rates of student retention are those in which students generally report low rates of student-faculty contact. Conversely, institutions with high rates of retention are most frequently those which are marked by relatively high incidence (sic) of such interactions. They foster such interactions as a means of involving students in their intellectual life. (Tinto, pp. 57-58)

The Community College Faculty Survey of Student Engagement (CCFSSE) and the Faculty Survey of Student Engagement (FSSE) introduced earlier in this chapter provide a large-scale picture of faculty perceptions of the level of interaction they have with students (Community College Survey of Student Engagement, 2008d; Faculty Survey of Student Engagement, 2008). Both surveys include five common items to measure this concept; however, the survey instruments use different measurement scales. Community and technical college faculty responding to the CCFSSE provide the frequency with which they engage in a specific activity with students. On the other hand, FSSE respondents from four-year colleges and universities estimate the percentage of students with whom they interact during an academic term by performing a specific activity.

Data from the 2008 survey administrations show that 61% of the CCFSSE respondents said that students often or very often used email to communicate with them (Community College Survey of Student Engagement, 2008d); 59% of the FSSE respondents reported that fewer than 50% of their students used email occasionally to communicate with them (Faculty Survey of Student Engagement, 2008). Table 2.2 presents the 2008 results of the items used to assess the levels of faculty-student interactions at community and technical colleges and at four-year colleges and universities. The CCFSSE data represent the percentage of two-year faculty who said that their students often or very often engaged in that specific activity, while the FSSE data show the percentage of faculty at four-year institutions who indicated that fewer than 50% of students engaged in that activity.

Comparisons between the CCFSSE and its counterpart targeted to faculty at four-year colleges and universities are difficult to make because of the different measurement scales used to study levels of faculty-student interactions. Faculty members at four-year colleges were asked to estimate the percentage of students who engaged in a specific activity at least once or occasionally. One cannot deduce from the community and technical college data whether faculty based their responses on the actions of a few students who performed a specific activity multiple times or on the actions of many students who only performed that activity one or two times.

Comparing the faculty responses on the CCFSSE with their students' responses on the Community College Survey of Student Engagement (CCSSE), the companion survey to the

Table 2.2

2008 CCFSSE and FSSE Results for Items Measuring Student-Faculty Interactions

Item	CCFSSE[a]	FSSE[b]
Used email to communicate with faculty members	61%	60%
Discussed grades or assignments with faculty members	71%	71%
Talked about career plans with faculty members	39%	78%
Discussed ideas from readings or class with faculty members outside of class	30%	85%
Received prompt feedback (written and oral) from faculty members about their performance	93%	89%[c]

[a]CCFSSE results show the percentage of faculty who said that students often or very often engaged in that activity.
[b]FSSE results indicate the percentage of faculty who indicated that 50% or fewer of their students engaged in this activity.
[c]The designers of the FSSE used a frequency scale to measure this item. The data shown indicate the percentage of faculty who responded by selecting often or very often.
CCFSSE data (Community College Survey of Student Engagement, 2008d)
FSSE data (Faculty Survey of Student Engagement, 2008)

CCFSSE, may provide insight into the faculty mindset with regard to the student-faculty interaction measures. For example, 61% of the faculty who responded to the 2008 survey reported that their students often or very often used email to communicate with faculty members (Community College Survey of Student Engagement, 2008d). On the other hand, only 48% of the students who completed the CCSSE in 2008 reported that they often or very often used email to communicate with their instructors. These findings suggest that fewer students used email significantly to communicate with their instructors, which led faculty members to overestimate the number of students who took advantage of this mechanism to interact with their instructors. Table 2.3, which compares the responses of community and technical college faculty with that of their students, clearly suggests that faculty overestimated the number of students who often or very often performed an action classified as a method of student-faculty interaction.

Critics of community and technical colleges point out that these institutions are less successful in engaging students in effective educational activities which, in turn, leads to lower

Table 2.3

A Comparison of Faculty and Student Responses of Often or Very Often to Student-Faculty Interaction Measures Included on the 2008 Editions of the CCFSSE and CCSSE

Item	Faculty	Students
Used email to communicate with faculty members	61%	48%
Discussed grades or assignments with faculty members	71%	46%
Talked about career plans with faculty members	39%	24%
Discussed ideas from readings or class with faculty members outside of class	30%	15%
Received prompt feedback (written and oral) from faculty members about their performance	93%	55%

Source: (Community College Survey of Student Engagement, 2008d, p. 8)

rates of persistence and graduation (Goldrick-Rab, 2007; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Miller & Bender, 2005). The CCSSE and the National Survey of Student Engagement (NSSE), the companion student survey to the Faculty Survey of Student Engagement, provide scholars the opportunity to compare the responses of community and technical college students with responses of their peers enrolled at four-year colleges and universities to see the extent to which differences do exist. It should be noted that the Indiana research team responsible for the annual administration of the NSSE used two separate questionnaires during 2008 (National Survey of Student Engagement, 2008). One of the NSSE questionnaires—the BCSSE for beginning students—went to first-year students at participating four-year colleges and universities, while the other version went to seniors at those same institutions. Table 2.4 provides readers with the percentage of community and technical college students, first-year students at four-year colleges and universities, and senior students at those same four-year institutions who indicated that they often or very often performed a specific student-faculty interaction activity.

Table 2.4

A Comparison of Often or Very Often Responses to Student-Faculty Interaction Measures Included on the 2007 Editions of the CCSSE, BCSSE, and NSSE

Item	CCSSE[a]	BCSSE[b]	NSSE[c]
Used email to communicate with faculty members	48%	NA[d]	NA
Discussed grades or assignments with faculty members	46%	50%	59%
Talked about career plans with faculty members	24%	31%	42%
Discussed ideas from readings or class with faculty members outside of class	15%	22%	29%
Received prompt feedback (written and oral) from faculty members about their performance	55%	56%	64%

[a]The CCSSE was administered to students at two-year colleges
[b]The BCSSE was administered to first-year students at four-year colleges and universities
[c]The NSSE was administered to fourth-year students at four-year colleges and universities
[d]The questionnaires targeted to students at four-year colleges and universities did not include this item
Source: CCSSE data (Community College Survey of Student Engagement, 2008d); BCSSE and NSSE data (National Survey of Student Engagement, 2008)

One would expect fourth-year students at four-year colleges and universities to score higher in each of the items designed to measure student-faculty interaction than students in the other groups because of the central tenet of Tinto's (1975, 1993) theory of student departure: first-year students are only beginning the integration process, whereas fourth-year students have had ample opportunities to become fully integrated into the academic and social environments of their colleges and universities. Greater integration leads to the likelihood that students will engage in the types of educationally effective practices associated with the learner-centered paradigm. Furthermore, the lower scores recorded for the students enrolled in two-year colleges are consistent with the findings of community and technical college-based research projects reported on by Astin (1989), Godrick-Rab (2007), Kuh, Kinzie, Buckley, et al. (2006), Chang (2005), Hagedorn, Rodriquez, Fillpot, Maxwell, and Hovecas (2000), Cotten and Wilson (2004).

Lower levels of interaction between students and faculty at two-year colleges are most often the result of the fact that these students face competing demands external to their roles as students, and these external demands limit the time students can spend interacting with faculty (Goldrick-Rab, 2007).

The information on student-faculty interactions derived from the Community College Faculty Survey of Student Engagement and the Faculty Survey of Student Engagement, as well as the companion student questionnaires linked to the faculty survey instruments, document the mechanisms and methods students employ to interact with their professors. The data from the instruments do not provide any suggestions on how interactions with faculty affect students. An Internet search using the phrase “student faculty interaction” indentified multiple studies that delve into how students are affected by their interactions with their instructors.

The overall consensus of these articles is that collaboration and frequent interaction with faculty lead to greater involvement and academic development of students (Astin, 1989; Belcheir, 2003; Gardiner, n.d.; Pascarella & Terenzini, 2005; Tinto, 1975, 1993; Umbach & Wawrzynski, 2005). Students who interact with faculty inside and outside the classroom are more likely to express higher levels of satisfaction with their college experiences (Astin; Kuh, Kinzie, Buckley, et al., 2006), are more motivated (Chickering & Gamson, 1987; Kuh, Kinzie, Buckley, et al.), and are more likely to go beyond meeting the minimum standards set forth by their instructors (Kuh, Kinzie, Schuh, et al., 2005b). Student-faculty interactions also influence students’ educational aspirations (Kuh, Kinzie, Buckley, et al.). Students devote more time and energy to educationally purposeful activities and focus more seriously on their academic progress. Belcheir reports that students earn higher grade point averages in their first academic term of enrollment if they interact formally and informally with their instructors.

In a qualitative study involving 106 female and 70 male students at a midsize university in Southern California, Woodson, Wong, and Wiest (1999) found that students' academic related self-concept was significantly related to the amount and quality of their interactions with faculty. A study involving 1,500 students enrolled in an entry-level engineering design course taught at the 19 campuses of the Pennsylvania State University system discovered that feedback from faculty and interaction with instructors increased students' self-reported gains in a number of key areas (Bjorklund, Parente, & Sathianathan, 2004). Students participating in the Penn State system study self-reported higher levels of occupational awareness and engineering design competencies. They also reported higher gains in their problem solving abilities and communication skills.

Another study, which involved over 4,500 undergraduate students who completed the College Student Experience Questionnaire between 1998 and 2001, found that students who engaged in activities commonly defined as student-faculty interactions reported higher learning gains (Lundberg & Schreiner, 2004). The researchers determined that the satisfaction and frequency of interactions with faculty were stronger predictors of learning gains than were background characteristics such as gender, academic major, first-generation status, and financial need. This finding was true for all ethnic groups, but was the strongest for African-Americans, Latinos, and other minority students. This study has significant implications for community and technical colleges since approximately 50% of all African-Americans and Latinos begin their postsecondary educational endeavors at two-year institutions (American Association of Community Colleges, 2007).

A national longitudinal study of undergraduates who entered college in 1994 evaluated how interactions affected male and female students (Sax, Bryant, & Harper, 2005). Contact with faculty outside the classroom led “to better grades, a greater sense of competitiveness, increased ‘status’ orientation, and higher levels of interest in science and the arts for all students, but each of these associations was significantly stronger among men than women” (Sax, et al., p. 5). Sax et al. also reinforce the findings of Woodson et al. (1999), Bjorklund et al. (2004), and Lundberg and Schreiner (2004) in that high quality contact with faculty led to higher levels of academic gain.

These studies document how the establishment of relationships with faculty benefits students and, in turn, provide them with the integrative support they need in order to persist with their educational endeavors. Cross (2005) places the onus of responsibility for encouraging student-faculty contact squarely within the purview of faculty. She writes:

> What we actually know through combining research with experience is that when faculty show an interest in students, get to know them through informal as well as formal exchanges, engage in conversations with them, and show interest in their intellectual development, then students respond with enthusiasm and engagement. We also know that when faculty take learning seriously, the attitudes of warmth and intellectual engagement are contagious; they are caught by students and colleagues and the result is a caring campus that is seriously engaged in learning. (Cross, p. 9)

Centering responsibility. As faculty relinquished sole control over the learning process during the Creighton University transition to the learner centered paradigm, Flott (2005) points out that students assumed new responsibilities. As was noted in the *Balancing Power* section, students are full partners in the learning process and share in the decision-making process to decide when learning occurs (Krakauer, 2005; Liu, et al., 2006; Miglietti & Strange, 1998). Their involvement in the instructional process changes from passive recipients of knowledge transmission to active creators of knowledge and understanding (Crosling, 2008; Darden & Richardson-Jones, 2003; Howell, 2002; Liu, et al., 2006; Schaefer & Zygmont, 2003; Thomas, 2008). Students take responsibility for learning (Crabtree & Sapp, 2003; Feldon, 2005; Howell; Maypole & Davies, 2001; Merriam & Caffarella, 1999; Miglietti & Strange; Totin Meyer, 2002; Wake Technical Community College, 2006).

A learner-centered philosophy of instruction empowers students and encourages them to take risks (Miglietti & Strange, 1998; Schaefer & Zygmont, 2003). Students focus on understanding the underlying principles of phenomena rather than on the rote memorization of facts (Crosling, 2008; Henson, 2003; Kuh, Chen, et al., 2007). Students also participate in evaluation activities to determine the level of change that has occurred as a result of participating in learner-centered instructional activities (D. M. Brown, 2003; Merriam & Caffarella, 1999). Students who participate in learner-centered activities develop “independence in learning, creative problem-solving skills, a commitment to life-long learning, and critical thinking” (Schaefer & Zygmont, p. 238).

Facilitating learning. In relinquishing control of the instructional process, faculty members also undertake new responsibilities. They must continue to transmit facts as appropriate, but they must go further by providing opportunities for students to engage actively in knowledge construction. They must facilitate or promote learning (Flott, 2005). Furthermore, college faculty who adhere to the learner-centered philosophy address the unique needs of individual students (Darden & Richardson-Jones, 2003; Feldon, 2005; Henson, 2003; Miglietti & Strange, 1998; Moulton, 1992). They acknowledge that these unique needs influence students’ approach to learning. As a result, learner-centered practitioners understand that they cannot use a cookie-cutter approach to classroom instruction (Barr & Fear, 2005). Instead, they rely on a variety of instructional activities to accommodate the various ways students approach learning activities (D. M. Brown, 2003; Galbraith, 2004; Nuckles, 2000); they accommodate the abilities of all students (Heagney, 2008). The ability to accommodate the unique needs of students by using a variety of instructional approaches underscores the new role of faculty in a learner-centered paradigm. Krakauer (2005) writes:

> Some instructors may think this new role reduces their importance in the teaching-learning relationship. In fact, in their new role, they are even more important, because it takes far greater skill and broad-based knowledge to be a coach and mentor than it does to be a traditional instructor lecturing to students. In addition to the essential disciplinary expertise, the learning facilitator must have excellent interpersonal skills to relate to individual learners, design curricula to maximize learning, understand the learning process, and evaluate to what degree a student's learning outcomes have been achieved. (p. 189)

Rogers (1989, p. 327) uses the terms "facilitative teacher" and "facilitator" to describe how faculty function in a learner-centered paradigm. Facilitators shift their focus from providing instruction to producing learning (Henson, 2003; Linck, Mince, & Ebersole, 2005; Totin Meyer, 2002). Facilitative teachers "guide and help students discover the meaning of concepts they are studying" (D. M. Brown, p. 3).

Verner (1964), a pioneer in the field of adult education, devoted significant attention to the study of instructional practices of adult education practitioners. He eventually developed two distinct conceptual frameworks to describe how these practitioners use various instructional practices to achieve specific learning outcomes. His frameworks are situated within the learner-centered instructional paradigm. Verner writes:

1. Learning is an active process and adults prefer to participate actively; therefore, those techniques which make provisions for active participation will achieve more learning faster than those that do not.
2. Group learning is more effective than individual learning; therefore, those techniques based on group participation are more effective that those which handle individuals as isolated units.
3. Learning that is applied immediately is retained longer and is more subject to immediate use than that which is not; therefore, techniques must be employed that encourage the immediate application of new material in a practical way.
4. Learning must be reinforced; therefore, techniques must be used that insure reinforcement.
5. Learning new materials is facilitated when it is related to what is already known; therefore, the techniques used should help the adult establish this relationship and integration of material.
6. The existence of periodic plateaus in the rate of learning necessitates frequent changes in the nature of the learning task to insure continuous progress; therefore, techniques should be changed frequently in any given session.
7. Learning is facilitated when the learner is aware of his (sic) progress; therefore, techniques should be used that provide opportunities for self-appraisal. (pp. 89-90)

Summary

The traditional approach to classroom instruction centers on the faculty members. They have complete control of the learning environment. They decide the structure of the course and what and when information will be covered throughout the academic term. Faculty members have the sole responsibility for determining how student knowledge will be assessed. Students are passive recipients of knowledge transmission, a one-way process from teacher to student, in this traditional teacher-centered model. Success is measured by students' ability to recall the information transmitted.

Faculty who shift to a learner-centered paradigm entrust students with power to share in decision-making. Students and faculty collaborate to develop meaningful learning objectives, learning activities, and assessment measures. Student-centered faculty also acknowledge the diverse backgrounds and abilities that students bring to the learning environment. They utilize a variety of instructional methods to accommodate this diversity. Faculty responsibility in a learner-centered paradigm is greatly expanded because of the need to facilitate and guide students at varying levels of ability. Faculty realize that all students have the ability to learn, include active and collaborative learning activities to involve students in the learning process, and take into consideration students' prior knowledge when structuring the course. Taking into consideration students' prior knowledge situates the learner-centered paradigm in a constructivist lens of adult education theory. Student-centered faculty allow students to decide how they will involve themselves in accomplishing learning objectives and actively involve students in assessing learning outcomes and achievements. Students develop their critical thinking and problem solving skills. They also develop the skills needed to be lifelong learners in an ever-changing environment.

Chapter Summary

Higher education scholars have spent nearly 80 years trying to understand why some students never earn a credential. Some of these researchers look at institutional characteristics such as location and curriculum mix to identify those factors that contribute to low graduation rates. Other scholars focus on student traits and whether students become involved in the academic communities to identify reasons that inhibit persistence to graduation. Community and technical college students often possess multiple traits that hinder student persistence in higher education. Furthermore, two-year college students' responsibilities outside the academy impeded their ability to become deeply engaged in college.

Two leading theorists on student retention introduced the theory of student involvement (Astin, 1989) and the theory of student departure (Tinto, 1975, 1993) to explain how traits and involvement affect college attendance. Astin's model takes into account a multitude of factors in an effort to sort out the persistence issue. The Tinto theory, which has garnered a significant amount of attention by subsequent researchers, analyzes the extent to which students become involved in the academic environment and social environment of an institution. Critics charge that the Tinto theory is only effective in explaining departure decisions of the typical college student—a recent high school graduate who attends classes full-time and lives on or near campus. Tinto introduced a revision of his theory in the 1990s by combining the previously separate academic environment and social environment. In this revised model, the classroom becomes the center of activity.

Scholars at Indiana University and the University of Texas developed national surveys based on the Tinto and Astin theories. The Indiana effort resulted in the National Survey of Student Engagement (NSSE) and its companion Faculty Survey of Student Engagement. These survey instruments collect data from students and faculty at four-year colleges and universities. The Texas surveys—the Community College Survey of Student Engagement and the Community College Faculty Survey of Student Engagement— are an outgrowth of the Indiana studies; however, they are adapted to the community and technical college faculty. All four surveys measure the use of active and collaborative learning strategies, as well as the level of faculty and student interaction. Additional studies from a variety of sources highlight the extent to which active and collaborative learning and faculty-student interaction positively influence student learning.

Active and collaborative learning is a component of a learner-centered instructional paradigm that is grounded in the constructivist lens of adult education. This instructional paradigm contrasts sharply with the traditional teacher-centered paradigm in which lecturing is the primary method for delivering information. Despite overwhelming evidence showing that the learner-centered instructional paradigm is more effective in developing students' critical thinking and problem solving skills, faculty at both the two-year and four-year level are more apt to lecture than to use strategies associated with learner centeredness.

CHAPTER III

METHODOLOGY

The purpose of this study was to explore the use of 18 instructional practices by technical college faculty to accomplish the three learning outcomes of aiding students in acquiring information, in solving problems, and in learning to perform tasks. Four research questions provided the foundation to accomplish the purpose of this study. The research questions included:

1. To what extent did technical college faculty use the instructional practices to aid students in acquiring information, in solving problems, and in learning to perform tasks?
2. How did technical college faculty rate the effectiveness of the instructional practices in aiding students in acquiring information, in solving problems, and in learning to perform tasks?
3. To what extent did technical college faculty employ instructional practices that are effective in aiding students in acquiring information, in solving problems, and in learning to perform tasks?
4. Was the propensity to use the instructional practices predicted by personal characteristics and situational factors?

This chapter focuses on the methodological details that were used to answer these questions. It is divided into six sections. The first section establishes the conceptual framework and provides an operational definition of the constructs that were central to this study. The second section on instrumentation focuses on the steps that were taken to develop the web-based questionnaire used to collect data from faculty at eight member institutions of the Technical College System of Georgia. The third section of this chapter identifies the study population, while the fourth section provides details on the data collection and data preparation procedures. Data analysis is the focus of the fifth section. The final section of this chapter discusses the limitations of the technical college study.

Conceptual Framework

Community and technical colleges are often referred to as teaching institutions (Barr & Fear, 2005; A. B. Smith, 1994; Van Ast, 1999; Wallin, 2003). Few research efforts, however, have explored the types of instructional practices commonly used by faculty who teach at two-year postsecondary institutions in general and technical colleges specifically. This study focused on identifying the instructional practices used most often by faculty employed at eight associate degree-granting institutions within the Technical College System of Georgia. For the purposes of this study, the term *instructional practices* referred to the *techniques and devices used on a consistent basis by instructors*. This study also explored instructor perceptions of the effectiveness of 18 specific instructional techniques in aiding students in acquiring information, in solving problems, and in learning to perform tasks.

The conceptual framework for this study was derived directly from the work of Verner (1962, 1964), a pioneer in the study of the instructional practices of adult education practitioners. He devoted significant attention to identifying the variety of techniques and devices adult educators used to accomplish specific learning objectives. His interest in this avenue of research centered on the fact that “adult education is not bound by any traditional methodological concept, nor does it attach value to any single process beyond its utility in achieving a learning objective efficiently, effectively, and appropriately for the group being educated" (Verner, 1964, p. 68). Verner developed a schema to classify the methods instructors use to manage the learning experiences of their students. His conceptualization incorporated three elements, each playing a distinct role in the educational process. Table 3.1 describes these three elements.

Table 3.1

Elements of Verner's Instructional Management Process

Element	Description
Methods	The way students are organized (individually or in groups) while participating in adult education activities
Techniques	The mechanisms faculty use to engage students in learning activities
Devices	The variety of instructional props available to instructors to enhance learning activities

Source: *Verner (1964)*

Embedded within Verner's framework was another conceptual roadmap that focuses on the techniques employed by adult education practitioners to deliver classroom instruction. Verner (1964) stipulated that the type of technique used "depends on its appropriateness for the particular learning task" (p. 75). He identified three types of learning tasks and the techniques commonly used to accomplish those tasks (see Table 3.2). For the purposes of the technical college research project, Verner's two approaches to study instructional practices were synthesized into one overriding conceptual structure. This synthesis provided a means to study the combination of methods, techniques, and devices faculty members at the eight technical colleges used on a regular basis to engender information acquisition, skills development, and knowledge application among their students. Table 3.3 provides readers with definitions of the constructs developed by combining Verner's two distinct, different conceptual frameworks.

Table 3.2

Purposes of Learning Tasks and the Techniques Commonly Used to Accomplish Those Tasks

Type	Description
To acquire information	Techniques designed to assist students in acquiring facts, data, and information expediently and with minimum effort on the part of the student
To acquire a skill	Techniques which actively involve students in acquiring and developing their proficiency in performing cognitive, verbal, or manipulative skills and abilities
To apply knowledge	Techniques which actively involve students in applying newly acquired knowledge to solve problems

Source: *Verner (1964)*

Table 3.3

Definitions of Practices Guiding the Technical College Study

Construct	Description
Information acquisition	Techniques and devices utilized by instructors to discuss or cover facts, data, and information with students either individually or in groups
Knowledge application	Techniques and devices utilized by instructors to engage students individually or in group settings to use intellectual processes in order to integrate newly acquired knowledge into existing frameworks in order to solve problems
Skills development	Techniques and devices utilized by instructors individually and in groups to develop students' competencies and proficiencies in performing tasks

Learner-Centered Instructional Practices

Educational scholars have identified a number of instructional paradigms and associated practices. This study of technical college faculty specifically focused on indentifying whether faculty at the eight institutions used instructional practices associated with the learner-centered paradigm. Instructors who adhere to this paradigm recognize that knowledge is socially constructed; therefore, they incorporate active and collaborative instructional activities to involve students more fully in exploring course content and materials. Learner-centered practitioners also recognize that personal experience and prior knowledge uniquely shape the way individuals process new information in relation to existing cognitive frameworks. As such, they develop learning tasks that are meaningful and relevant to students. The goal of learner-centered instruction is to develop in students the essential skills associated with lifelong learning in an ever-changing world: problem solving, critical thinking, and cognitive reasoning. The learner-centered instructional practices studied in this research project include full-group discussions, hands-on activities, practical exercises, small-group discussions, one-on-one discussions between instructors and students, online supplemental instructional materials, simulation activities, student-led discussions, debates, independent research, case studies, peer tutoring, portfolios, and capstone projects.

The learner-centered instructional paradigm differs significantly from the teacher-centered paradigm, which is the pedagogical approach historically associated with college classrooms (Barr & Tagg, 1995; Fried, 2006; Kuh, Kinzie, Schuh, et al., 2005b; Weimer, 2002). Instructional techniques and devices associated with the traditional approach to instruction emphasize the standardized or uniform delivery of information and knowledge transmission; instructors rely on lectures as the primary method to convey course content to students (Barkley, et al., 2005). Followers of the teacher-centered paradigm relegate students to a passive role in the learning process (Pascarella & Terenzini, 1979). The goal of teacher-centered instruction is to develop students' knowledge base of subject-matter content; therefore, learning tasks most often require students to memorize facts, figures, and theories. In addition to lectures, the following teacher-centered practices were studied as part of this research project: course textbooks, multimedia devices, and guest lecturers.

Measuring Instructional Practices

Previous research reports by the Community College Survey of Student Engagement (2003b), Gardiner (n.d.), Leslie and Gappa (2002), Mourtos and Allen (2003), Palmer (2002), Pascarella and Terenzini (2005), and others document that college faculty as a generic entity tend to adhere to the tenets associated with the teacher-centered paradigm despite the mounting evidence showing that students are more successful in their academic endeavors when faculty members approach their instructional responsibilities from a learner-centered perspective. These findings could be used as the rational to hypothesize that technical college faculty subscribe to the teacher-centered paradigm, and the instructional practices they use on a consistent basis reflect their adherence to this traditional approach to teaching. On the other hand, research by Battersby (2005), Crosling (2008), Lammers and Murphy (2002), Cohen and Outcalt (2001), Lei (2007), and others document that the use of learner-centered instructional practices becomes more prominent when college faculty are no longer viewed as a generic entity, but are, instead, aggregated by a variety of personal characteristics and situational factors. This research project sought to isolate attributes that predict the types of instructional practices technical college faculty use on a consistent basis. Figure 3.1 provides a conceptual model to visualize the phenomena that were explored in this research project.

Instrumentation

The survey instrument used for this research study of full-time and part-time faculty at eight technical colleges is included as Appendix A of this document. Table 3.4 describes the steps taken to develop this questionnaire.

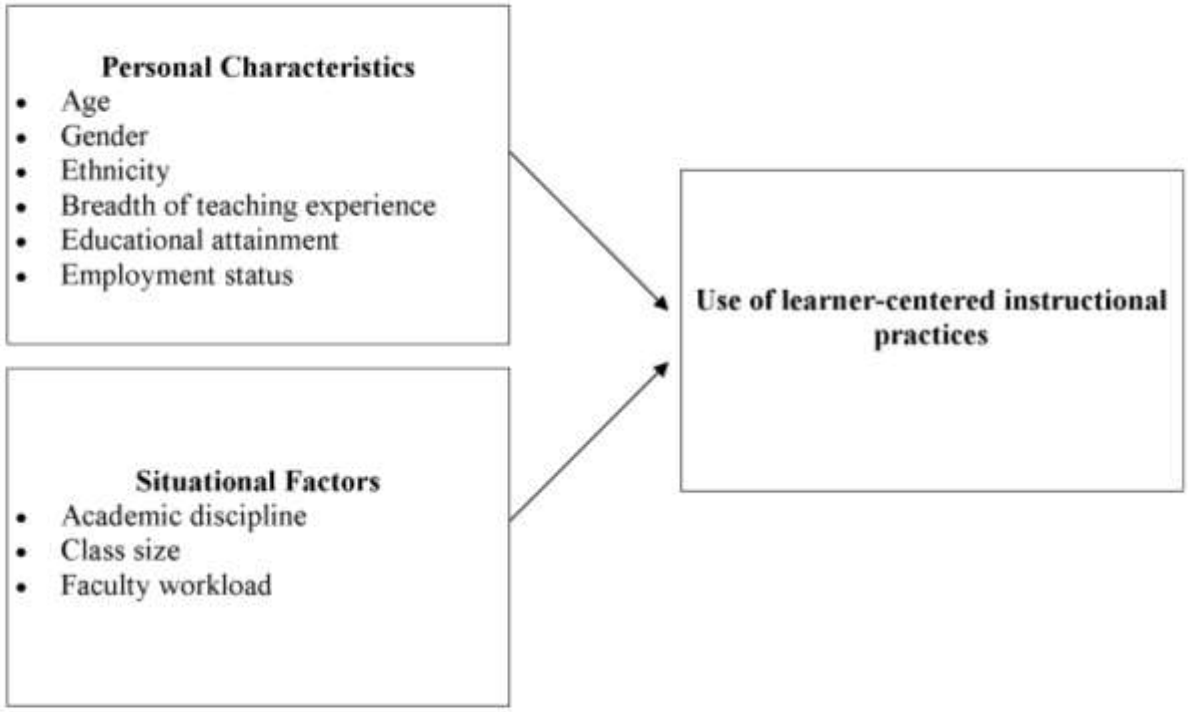

Figure 3.1: *A Conceptualization of the Influence of Personal Characteristics and Situational Factors on the Propensity of Technical College Faculty to Use Learner-Centered Instructional Practices*

Clarifying the Construct

The most difficult task of the entire dissertation process was the steps taken to identify and define the constructs that were at the heart of this study. It took several months to accomplish this task. The initial attempt at clarifying the constructs centered on identifying an

Table 3.4

Survey Instrument Development Process

Clarifying the Construct
Identifying Items to Measure the Construct
Revising the Survey Following the Prospectus Defense
Submitting the IRB Application
Administering the Pilot Survey
Revising the Survey Following the Pilot Administration
Administering the Revised Pilot Survey

existing survey instrument that could be used without alteration. The goal of this strategy was to find an instrument that had been proven already to be reliable and valid. This strategy soon superseded the need to establish a definitive construct for the study.

An extensive search of the Internet and university library databases uncovered several instruments that potentially could be used to collect data from technical college faculty. After careful consideration of these instruments, the researcher rejected them because they did not fit the needs of this research project. While the instruments often included questions to identify the frequency with which survey respondents used instructional practices, they did not seek to obtain feedback from respondents on how effective the practices were in accomplishing specific objectives. The decision to reject the existing survey led the researcher reread the literature review included as the second chapter of this document. This activity led him to establish learner centeredness and teacher centeredness as the constructs for the technical college study. The researcher used qualitative research techniques to code the literature review in order to identify the chief characteristics of both constructs. He then wove these characteristics together to create definitions for both learner centeredness and teacher centeredness.

In a follow-up meeting, the methodologist and the researcher engaged in a critique of the constructs and their definitions. This critique session uncovered the strengths and weaknesses of these constructs. It also provided the opportunity for the two individuals to discuss the types of items that would best measure the proposed constructs. This activity led the researcher to conclude that work was still needed in order to identify a more appropriate construct to guide this study.

After a three-week hiatus from working on this document, the researcher returned to the task of identifying and defining the constructs by writing out an earlier version of the purpose statement and questions associated with this study. This simple act of copying in longhand a statement that originally had been drafted more than one year earlier crystallized in the mind of the researcher that instructional practices was the construct at the core of this study. Another search of the Internet found two definitions of instructional practices that were merged together and summarized to create a description of instructional practices (see Appendix B). This description focused on the three chief components of instructional practices (see Appendix B). Using the questionnaires uncovered in the first attempt at defining the constructs, the researcher initiated the task of identifying items to measure the constructs. (A more detailed discussion on item identification follows in this chapter.) This process eventually led to the creation of the item pool included as Appendix C of this document. The researcher then developed a preliminary survey instrument (see Appendix D).

Problems with the constructs and item pool. Problems with the proposed constructs and item pool were uncovered when the researcher and methodologist met with a panel of doctoral students from the Department of Lifelong Education, Administration, and Policy in the College of Education at the University of Georgia. This panel was asked to critique the item pool and preliminary survey instrument. The four panel members were asked to sort the individual items into the construct categories they felt best described the items. The researcher and methodologist also participated in this sorting exercise. As the data in Appendix E show, the six participants unanimously agreed on the categorization of 26 of the 47 items identified to measure the constructs. Furthermore, they placed each of the 26 items in the same categories that the researcher had selected prior to the critique session.

On 11 of the items in the original item pool, five of the six panel members were in agreement about which of the categories best described the items. In all but one instance, the five members placed the items in the same categories selected by the researcher prior to the critique session. For the “homework on textbook activities” item, five of the panel members—including the researcher—classified this item as a learning task. The one dissenting panel member placed the item in the assessment method category, which is the category selected by the researcher in his original appraisal of the item pool. At least two of the panel members disagreed with the other four members on the remaining 10 items in the item pool. One person could not identify which category best described the “class participation” item, while another panel member was undecided on which category to place the “case studies” item.

Following the sorting exercise, panel members provided feedback on the constructs and item pool. They pointed out that the definition provided for the “presentation techniques and strategies” construct was not clear. They felt that the word “presentation” suggested actions taken by instructors; therefore, they found it difficult to place items in which students took an active role in explaining information in this category. Panel members suggested that the construct name be changed to “instructional techniques and strategies” in order to clear up some of the ambiguity.

The doctoral students who participated in the critique session also indicated that the way the items were written made it difficult to properly categorize them. They also said that some of the items appeared to focus on two different actions. For example, they said that they could not decide whether the “demonstrate a concept using a marker board” item was designed to measure whether instructors demonstrated concepts to students or whether instructors used technology while teaching. The panel members agreed that the use of media was overshadowing the cognitive activities that take place in the classroom.

Redefining the construct. The researcher met with the methodologist a week later to analyze the feedback received from the panel members who participated in the critique session and sorting exercise. Both individuals agreed that the conceptual framework proposed for the technical college study was still weakly defined. The methodologist suggested that the researcher look at the early work of Knowles as a means to improve and refine the proposed framework. In his writings, Knowles (1980) referenced the work of Verner when describing the instructional practices of adult education practitioners. In studying the writings of Verner (1964), the researcher identified Verner's two conceptual roadmaps that were discussed in the conceptual framework section of this chapter. This examination of Verner's work ultimately led to the synthesized schema proposed for the technical college study.

Identifying Items to Measure the Construct

The researcher began the process of identifying items to measure the original constructs as described in Appendix B of this document by compiling a list of elements from survey instruments located by searching the Internet and university library databases. Six questionnaires were the source of 595 items. Those six surveys included the Community College Faculty Survey of Student Engagement (Community College Survey of Student Engagement, 2007a), Faculty Survey of Student Engagement (National Survey of Student Engagement, 2006), Teacher Orientation Questionnaire (Gow & Kember, 1993; Kember & Gow, 1994; Kember & Kwan, 2000), Approaches to Teaching Inventory (Trigwell & Prosser, 2004; Trigwell, Prosser, & Waterhouse, 1999), Principles of Adult Learning Scale (Conti, 2004), and Survey of College Faculty (University of California at Los Angeles Higher Education Research Institute, 2007). The literature review presented in the second chapter of this document became the focus in the next activity undertaken to identify potential items for inclusion on an instrument to collect data from technical college faculty. The researcher reread that chapter and then added 15 items to the list being compiled. He identified 52 additional items from textbooks on active learning (Bonwell & Eison, 1991) and collaborative learning techniques (Barkley, et al., 2005), which are classified as learner-centered practices.

As Table 3.5 indicates, the researcher had identified 662 potential items for inclusion on the survey being developed for this research project. In generating this list of items, he entered the various activities onto a computerized spreadsheet without taking the time to determine whether new entries were duplicates of items already on the list. The researcher, therefore, began the process of reducing the item pool by eliminating duplicates, semantic equivalents, and entries that were not pertinent to higher education. This process of elimination reduced the total item pool to 267 individual, unduplicated items.

The researcher then eliminated all items that could not be classified as either a teacher-centered or learner-centered practice. Some items could not be placed within either instructional paradigm unless detailed information was obtained from the technical college faculty during the data collection process. For example, a writing exercise may require students to repeat facts as a means to demonstrate content mastery—a decidedly teacher-centered activity. Conversely, writing assignments in which students must apply newly acquired knowledge to solve real-world problems are learner centered by definition. Simply asking whether faculty members assign writing exercises for students to complete does not adequately measure the teacher centeredness or the learner centeredness of this particular instructional practice. As Table 3.5 indicates, the researcher removed 28 items through this process of elimination.

In the next step of the elimination process, the researcher focused on determining whether the remaining items could be categorized as being either a presentation strategy/technique,

Table 3.5

Item Pool Development and Refinement Process

Activity	Number of Items
Items taken from existing survey instruments	+ 595
Items from literature review	+ 15
Items from textbooks	+ 52
Total Duplicated Items	662
Removal of duplicates, semantic equivalents, and items not applicable to higher education	- 395
Removal of items not associated with learner centeredness or teacher centeredness	- 28
Removal of items not associated with one of the chief components of instructional practices	- 126
Removal of items after consultation with methodologist	- 66
Final item pool submitted to original critique panel	47
Addition of items after the development of the Verner-based conceptual framework	+ 10
Final item pool submitted to second critique panel	57
Removal of items based on feedback of second critique panel	- 22
Final Item pool included on survey instrument included in prospectus document	35
Removal of items following the prospectus defense	17
Final Item Pool for Pilot Survey	18

learning task, or assessment method, which were the constructs being considered at that time. He was able to reduce the item pool by an additional 126 items. Once this sorting and elimination process was completed, the researcher shared the list with the methodologist. After discussing the 126 items, they were able to eliminate 66 additional items, thus leaving 47 items sorted into categories (see Appendix C). This is the item pool the researcher submitted to the panel of doctoral students for their review. As has been noted in this chapter, this critique session led to the re-evaluation of the conceptual framework to incorporate the work of Verner. Having established the Verner-based schema, the researcher began reworking the item pool to incorporate the feedback of the panel. As Table 3.5 indicates, he added 10 more items to the pool as a result of the development of the Verner-based conceptual framework. The original Verner-based item pool is included as Appendix F of this document.

The researcher developed a prototype survey using the Verner-based item pool. He began the development process by consecutively numbering the items as they are listed in Appendix F. He then used a random numbers table located by searching the Internet to establish the order the items would appear on the Verner prototype instrument. He created the prototype instrument using SurveyMonkey®, a survey development and administration website. In addition to including the item pool, the researcher added questions to collect demographic information and situational attributes from survey participants.

Critiquing the Verner prototype survey. The researcher and methodologist met to review the resulting prototype instrument. They decided the next step in the instrumentation process would focus on critiquing the prototype survey instrument itself. They also agreed to accomplish this task electronically through SurveyMonkey® using faculty in the School of Education at a private, specialist degree granting, liberal arts college in the northern part of Georgia. In order to prepare for this electronic critique session, the researcher inserted an introductory section at the beginning of the electronic version of the second prototype instrument. He explained what he needed from the participants of the critique session, the purpose of the dissertation, and the questions guiding the research project. A prototype of the email invitation the researcher planned to use for the actual technical college study followed the introductory material. The researcher also inserted several questions at the end of the instrument in order to obtain feedback from the education faculty. The second prototype instrument, introductory material, email invitation prototype, and follow-up questions for the members of the second critique panel are included in Appendix G of this document.

Prior to sending the survey to the faculty at the private college, the researcher contacted two members of his cohort of doctoral program students at the University of Georgia and asked them to go through the electronic version of the prototype survey and associated information. Both cohort members teach in the nursing program of a two-year college governed by the Board of Regents of the University System of Georgia. The researcher specifically selected the nursing instructors because they are employed at a college outside the technical college system and because they teach in a program that is similar to many of the life sciences programs offered in the various technical colleges across the state.

One of the nursing instructors uncovered a problem with the way the researcher coded the electronic survey to record responses for the different questions. She reported that clicking a response on one item would remove the check mark of another item if the response to the second question was in the same column as the response checked for the previous question. The researcher connected to SurveyMonkey® to determine the problem. He had selected the "Matrix of Choices (Only One Answer Per Row)" formatting option when creating the prototype instrument. Having confirmed that there was a problem, the researcher experimented with a variety of response formats before discovering that the "Rating Scale" format was the one he needed to use to accomplish the objectives of this study. He changed the response format throughout the survey.

After correcting the response format problem, the researcher asked the vice president of academic affairs at the private college to contact faculty members in the School of Education in order to obtain their agreement to critique the instrument. The vice president provided the researcher with the names and email addresses of 10 individuals who volunteered to assist with this task. The researcher sent an email containing the link to the electronic version of the prototype questionnaire to the 10 volunteers. They all completed the survey within 24 hours of receiving the email.

The overwhelming majority of the education faculty stated that the instrument was too long and that redundancy existed throughout. Both nursing instructors who previewed the prototype instrument expressed the same concerns. Some of the faculty from the School of Education also said that the random listing of the items was confusing. Others commented that the email invitation proposed for the actual study needed to be rewritten to include more persuasive reasoning for why technical college faculty should take the time to respond to the invitation to participate in the research project. One professor added that the confidentiality issue needed to be addressed in the email invitation rather than on the first screen of the electronic survey.

Through a series of email exchanges and telephone conversations with various panel members, the researcher slowly revised the prototype questionnaire. A professor with a strong background in educational methods provided valuable guidance in identifying redundant items and in helping to reorder the times as a means to reduce the confusion reported by some of the respondents. The feedback received from these follow-up emails and telephone calls led to the elimination of 22 items from the survey. Tables 3.6 through 3.8 show the final item pool sorted by the Verner-based concepts. The feedback received allowed the researcher to develop a proposed survey instrument to include with the materials submitted as the dissertation prospectus to the faculty guiding the researcher through the dissertation process. This instrument is included as Appendix H of this document.

Table 3.6

Final Survey Items Based on Critique of Verner-Based Prototype Questionnaire: Information Acquisition

In how many sessions did you do the following to assist students in acquiring facts, data, or information:

- Use multimedia devices (PowerPoint, smart boards, flip charts, computerized simulators, etc.)
- Led guided discussions on course concepts
- Lectured with little or no student participation
- Lectured with moderate student participation
- Lectured with extensive student participation
- Assisted students individually during class
- Had guest speakers present course materials
- Discussed course concepts with small groups of students during class
- Had students explain course materials to each other in class
- Had students memorize information
- Assigned homework that required students to discuss course materials with each other online.

For the following items, please indicate the number of courses in which you have done the following during this term:

- Identified all reading materials students needed for the course
- Provided supplemental instructional materials through an online course management system
- Required students to complete independent research on a topic I assigned them
- Required students to complete independent research on topics of their choice
- Required students to give oral presentations
- Required students to seek additional material on course topics
- Required students to prepare projects in which they had to integrate information from various sources

Revising the Survey after the Prospectus Defense

The prospectus defense uncovered several problems with the prototype questionnaire. The committee members pointed out that the structure of the first three questions was problematic because the purposes of the instructional activities were listed in the question stems. For example, the first question asked respondents to indicate the number of times during the last 10 class sessions across all courses that they had used 11 instructional activities *for the purpose*

Table 3.7

Final Survey Items Based on Critique of Verner-Based Prototype Questionnaire: Knowledge Application

In how many sessions did you have students do the following to solve problems:

- Work in small groups
- Work on problems where there were several appropriate answers
- Use internet-based resources
- Use computer applications
- Use models
- Use case studies
- Use supplemental instructional materials

Table 3.8

Final Survey Items Based on Critique of Verner-Based Prototype Questionnaire: Skills Development

In how many sessions did you have students do the following in order to develop their proficiency in performing skills or tasks:

- Complete hands-on activities
- Perform laboratory experiments
- Have students teach each other
- Compete clinical-based activities
- Complete practical exercises
- Use computerized simulators
- Use computer applications
- Other experiential activities

For the following items, please indicate the number of courses in which you have done the following during this term:

- Assigned a capstone project
- Assigned portfolio projects

of assisting students in acquiring facts, data, or information. One committee member pointed out that including the purpose in the question stem assumes that respondents will remember the purpose for which they are to base their answers. The committee members recommended that the first three questions be restructured by linking the purpose to each of the instructional practices.

While the first three questions asked researchers to indicate how often they had used a list of instructional practices during the last 10 class sessions across all the courses they were teaching that term, the fourth question asked respondents to indicate the number of courses in which they had used nine instructional practices during the academic term. The members of the dissertation committee were concerned about whether this question would add any value to the technical college study. They also questioned whether survey respondents would read the fourth question closely and respond as desired or would they simply scan the question before continuing to base their responses on the instructions given in the first three sections of the questionnaire.

The researcher and methodologist met every other week for three months following the prospectus defense in order to address the issues identified in the defense session. They decided to use a series of triplets to determine whether technical college faculty used an instructional practice to assist students in acquiring information, in solving problems, or in learning to perform tasks. Table 3.9 provides two examples of the triplets developed by the researcher and methodologist. The process of writing the triplets led to the reduction of the number of instructional practices in the final survey instrument. The prototype questionnaire submitted as part of the prospectus document included 35 instructional practices. The researcher reduced the item pool to 18 instructional practices by eliminating duplicate items; combining similar items into broader, more encompassing categories; deleting activities that occur outside the classroom, laboratory, or clinical setting; and eliminating items idiosyncratic to a single field. The 18 sets of triplets—one set for each instructional activity—and a set of questions designed to obtain data about the situational factors and personal characteristics of the survey respondents formed the questionnaire used in the pilot study associated with this study (Appendix I).

Table 3.9

Triplet Examples from the Pilot Survey Instrument

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:
1a. Students **acquired information** on course topics and concepts by engaging in *independent research (Internet-based and library-based)* during class time.
1b. Students learned to **solve problems** by engaging in *independent research (Internet-based and library-based)* during class time.
1c. Students learned to **perform tasks** by engaging in *independent research (Internet-based and library-based)* during class time.
2a. Students **acquired information** on course topics and concepts by working on *capstone projects* during class time.
2b. Students learned to **solve problems** by working on *capstone projects* during class time.
2c. Students learning to **perform tasks** by working on capstone projects during class time.

Submitting the IRB Application

Having developed a pilot instrument, the researcher submitted an Institutional Review Board (IRB) application (Appendix J) to the Human Subjects Office at the University of Georgia. The researcher sought permission through the IRB application to administer the survey to faculty at a technical college in northern Georgia that was not identified as one of the eight institutions to be included in the actual study. The researcher also included in the IRB application a request for permission to administer the final survey at those eight institutions. He provided assurances that he would submit an amended IRB application if the pilot administration uncovered the need to alter the survey instrument.

In a follow-up email (Appendix K), the Institutional Review Board instructed the researcher to make revisions to the introductory letter that respondents would first access when logging into SurveyMonkey® to begin filling out the survey. The board requested that the researcher make the following changes and then to submit a revised copy of the introductory letter showing the revisions in red ink:

- Include a statement that the study involves research.
- Include the following language—*Please note that Internet communications are insecure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once we receive the completed surveys, we will store them in a locked cabinet in my office and destroy any contact information we have by <give date>. If you are not comfortable with the level of confidentiality provided by the Internet, please feel free to print out a copy of the survey, fill it out by hand, and mail it to me at the address given below, with no return address on the envelope.*
- Describe any benefits to the subject or to others which may reasonably be expected from the research.
- Include the following language at the end of the last sentence in the first paragraph—*without penalty or loss of benefits to which you are otherwise entitled.*
- Include the following language in the second paragraph—*No individually identifiable information about me, or provide by me during the research, will be shared with others without my written permission.*

Upon submitting a revised cover letter (Appendix L), the researcher received IRB approval to administer the pilot survey.

Administering the Pilot Survey

Upon receiving approval from the Institutional Review Board, the researcher worked with the vice president for academic affairs at a technical college in northern Georgia to administer the pilot test of the instructional practices questionnaire. The vice president provided the researcher with a list of 118 names and email addresses of the full-time and part-time faculty who were teaching courses during Summer Quarter 2009 at that college. The vice president sent an email to her faculty on Monday, July 20, 2009, encouraging them to participate in the pilot survey (see Appendix M). Two days later on Wednesday, July 22, 2009, the researcher sent his first email to invite the faculty to participate in the study (see Appendix N). This email also provided the potential participants with a link to the pilot survey questionnaire. A total of 42 faculty members responded to the first survey invitation. This translated to a response rate of 35.6%. One week later on Wednesday, July 29, 2009, the researcher sent a follow-up reminder to the faculty who had not responded to the original email invitation (see Appendix O). Thirty-four faculty members responded to this invitation. The response rate thus stood at 64.4%. On Wednesday, August 5, 2009, the researcher sent a final reminder to the last 32 non-respondents (see Appendix P). In the end, 86 faculty members attempted to complete the pilot instrument, and one email address was returned as being invalid, which reduced the total potential population to 117 individuals. The overall response rate for the pilot administration was 73.5% at this point.

The researcher and methodologist met in August 2009 to generate data on the responses collected during the pilot administration of the survey instrument. They focused on establishing a response rate of usable surveys. They eliminated the two individuals who opted out of participating after answering only one question. The researcher and methodologist also eliminated the individuals who responded that they were not teaching academic program/ learning support courses during summer quarter and those who responded that they were not teaching at least one class that met in a face-to-face format. This step resulted in the elimination of 24 respondents, resulting in 60 usable surveys. Since these 24 individuals did not meet the criteria established for the study, the researcher and methodologist removed their information from the list of eligible participants, thus reducing the survey population from 117 to 93 individuals. The adjusted response rate was 65.9%.

Upon eliminating the unusable survey responses, the methodologist taught the researcher how to use PASW Statistics®, formerly SPSS®, a statistical software package, to generate frequency statistics (mean and mode) for each of the instructional techniques. The results are shown in Table 3.10. In evaluating the data, they determined that the instrument was useful in identifying how often the faculty used the different types of instructional techniques included on the survey. However, the survey did not uncover the purposes for which faculty used the different techniques—i.e., to assist students in acquiring knowledge, in learning to solve problems, or in learning to perform tasks. Respondents provided very similar ratings when asked to indicate how many times they used a specific instructional technique to accomplish a specific purpose. These similar ratings were caused either by the response set or by the fact that whether or not instructors used a particular technique overpowered their ability to discriminate among purposes—i.e., I used it; therefore, it accomplished all three purposes.

Revising the Survey Instrument Following the Pilot Administration

Based on the survey results, the researcher and methodologist agreed that the pilot instrument was flawed and thus needed to be redesigned. They redesigned the survey into five distinct parts. They designed the first part to collect information on how many times instructors used the 18 different instructional practices during the last 10 class sessions of all courses that they had taught for the term. The researcher and methodologist designed the second, third, and fourth sections to collect data on the perceived value of each instructional technique in aiding students in acquiring information (section 2), solving problems (section 3), and performing tasks

Table 3.10

Results of Pilot Survey Administration #1

Instructional Technique	Purpose	Mean	Median
Independent Research (including internet-based and library-based)	Information Acquisition	3.18	2.00
	Problem Solving	3.10	2.00
	Task Performance	3.19	2.00
Capstone Projects	Information Acquisition	1.95	.00
	Problem Solving	2.03	.00
	Task Performance	2.16	.00
Case Studies	Information Acquisition	4.17	3.00
	Problem Solving	3.95	3.00
	Task Performance	3.71	3.00
Full Class/Group Discussion	Information Acquisition	7.05	8.50
	Problem Solving	6.82	7.50
	Task Performance	6.77	7.00
Small Group Discussion	Information Acquisition	4.97	5.00
	Problem Solving	5.08	5.00
	Task Performance	5.12	5.00
Simulation Activities (including computer simulations)	Information Acquisition	4.37	3.00
	Problem Solving	4.35	3.00
	Task Performance	4.45	3.50
Course Texts	Information Acquisition	7.43	8.50
	Problem Solving	7.15	9.00
	Task Performance	6.87	8.00
Debates	Information Acquisition	1.90	0.00
	Problem Solving	1.90	0.00
	Task Performance	1.72	0.00
Lectures	Information Acquisition	7.70	9.00
	Problem Solving	7.18	8.00
	Task Performance	7.02	8.00
Quest Lecturers	Information Acquisition	2.07	0.00
	Problem Solving	2.02	0.00
	Task Performance	2.05	0.00
Hands-on Activities	Information Acquisition	6.83	8.00
	Problem Solving	7.00	8.00
	Task Performance	6.98	8.50
Online Supplemental Course Materials	Information Acquisition	3.33	2.00
	Problem Solving	3.08	2.00
	Task Performance	2.95	1.00
Portfolios	Information Acquisition	2.22	0.00
	Problem Solving	2.17	0.00
	Task Performance	2.16	0.00

Table 3.10 (Continued)

Results of Pilot Survey Administration #1

Instructional Technique	**Purpose**	**Mean**	**Median**
Student-led Discussions	Information Acquisition	3.00	2.00
	Problem Solving	2.86	2.00
	Task Performance	2.58	2.00
Multimedia Devices (including PowerPoint, smart boards, flip charts, etc).	Information Acquisition	5.49	6.00
	Problem Solving	5.00	5.00
	Task Performance	5.10	6.00
Individual Discussions	Information Acquisition	5.56	5.00
	Problem Solving	5.56	5.00
	Task Performance	5.73	6.00
Practical Exercises (including those performed in clinical, laboratory, experiential, and classroom settings	Information Acquisition	6.69	8.00
	Problem Solving	6.81	8.00
	Task Performance	6.78	8.00
Tutoring Each Other	Information Acquisition	3.69	3.00
	Problem Solving	3.75	3.00
	Task Performance	3.78	3.00

(section 5). They designed the fifth section to collect the personal characteristics and situational factors that were needed to answer the fifth research question guiding this study.

Establishing the Validity of the Technical College Study

Borden and Owens (2001) stress that researchers must document the validity of their survey instruments; otherwise, reviewers will question the conclusions drawn from the data. Researchers can use content-related evidence, criterion-related evidence, or construct-related evidence to establish the validity of a quantitative research instrument (Fraenkel & Wallen, 2003). Fraenkel and Wallen describe the process for establishing content-related evidence as one in which researchers write definitions of what they want to measure. They provide these definitions and the proposed survey items to a panel of experts so that these experts can determine whether those items relate to the definitions. The experts must reject items that do not relate to any of the definitions. They are also responsible for identifying subject-related areas that are not adequately covered in the definitions or in the item pool.

As was noted earlier in this chapter, the researcher and methodologist met with a panel of four doctoral students from the Department of Lifelong Education, Administration, and Policy at the College of Education at the University of Georgia to critique the item pool (see Appendix C) and preliminary survey instrument (see Appendix D). The activities undertaken during this meeting followed the format described by Fraenkel and Wallen (2003) for using content-related evidence to establish the validity of the initial survey instrument. The faculty in the School of Education at the private, specialist degree granting, liberal arts college in the northern part of Georgia who critiqued the Verner-prototype survey (see Appendix G) also contributed to the establishment of the validity of the items ultimately included on the technical college survey of instructional practices. Finally, the researcher obtained feedback about the questionnaire used in the first pilot study from the doctoral students who served on the original critique panel. Their input provided additional evidence that the 18 items were valid measures of the instructional practices typically used by technical college faculty.

Before moving to a discussion on selecting response formats for each of the questions included on the survey instrument, attention must be given to the concept of survey reliability. The questionnaire used in this study employs single-item measures. None of the items were designed to be combined into a summative scale. Consequently, internal consistency reliability does not pertain to these data; therefore, no coefficients were calculated or reported.

Selecting Response Formats

The selection of the response formats evolved as the researcher developed the original item pool that was eventually submitted to the four doctoral students who volunteered to critique the items (see Appendix B). The researcher originally considered using three different four-point Likert scales on the survey instrument. One scale would be used for each of the chief

Table 3.11

Suggested Response Format by Chief Component of Instructional Practices

Category (Question)	Response Format
Presentation Strategies and Techniques (How often do you use each of the following presentation strategies and techniques?)	In all class sessions In most class sessions In some class sessions Never
Learning Tasks (Indicate the frequency with which you have students perform the following learning tasks.)	In all courses In most courses In some courses Never
Assessment Methods (Indicate the frequency with which you use each of the following assessment methods to evaluate student performance.)	Always Often Seldom Never

components of instructional practices. Table 3.11 provides readers with the three suggested scales originally proposed for this study.

The methodologist for this study pointed out that the use of multiple scales eliminates the possibility of moving an item from one category to another in an effort to improve the strength of relationships within a component of instructional practices. His reasoning focused on the fact that a researcher cannot interpret accurately whether a person's response of "in most class sessions" from the presentation strategies and techniques scale would translate to "in most courses" or "often" if the respondent had been asked to use one of the other scales instead in order to rate the frequency of use. The researcher and methodologist discussed each scale to determine which one would work best on the instructional practices questionnaire. They quickly eliminated the scale suggested for the assessment methods component because the measures are rather nebulous as compared to the two remaining scales. They then pulled items randomly from the entire pool and looked at whether a college instructor is more likely to use the activity in all class sessions or in all courses. They agreed that the response format proposed for the learning tasks items would provide more flexibility in that it would allow faculty from the eight technical colleges to determine their responses based on all courses they teach rather than on the class sessions of a particular course.

The researcher and methodologist also decided to expand the response format from a four-point to a six-point Likert scale in order to expand the range of scores that can be achieved on the instructional practices survey instrument. The researcher did not want to use an odd-numbered scale because it would allow respondents to use the midpoint as a neutral response. The response format selected for the preliminary survey instrument developed for the first critique session is shown in Table 3.12.

Table 3.12

Response Scale for Instructional Practices Survey Instrument

Response	Value
In all of my courses	5
In most of my courses	4
In many of my courses	3
In some of my courses	2
In few of my courses	1
In none of my courses	0

The panel of doctoral students who critiqued the item pool for the first iteration of the instructional practices survey instrument completed a mock version of the preliminary survey instrument after they critiqued the item pool (see Appendix D). This exercise provided the researcher with feedback on the survey instrument itself, as well as on the response scale selected. The panel members stated that the scale was confusing. They could not decide whether the response scale referenced class sessions or variety of courses. It was noted that some faculty may teach five sessions of one course during an academic term, while others may teach one session of five courses. After further discussion, one panel member recommended that the response scale focus on a specific number of class sessions over a specific period of time. In a follow-up meeting to discuss the feedback received during the critique session, the researcher and methodologist settled on the response format included in Table 3.13. This format was used on the prototype questionnaire (Appendix G) submitted to the School of Education faculty for review and comments.

Table 3.13

Revised Response Scale Format Based on Feedback from First Critique Session

Think of the last 10 class sessions that you taught. How many sessions did you use each of the following instructional techniques and strategies:

Session	1	2	3	4	5	6	7	8	9	All 10 No class Class Sessions

Several of the faculty members in the College of Education still found the wording of the response scale confusing. Follow-up telephone conversations and emails uncovered that some of the confusion was a result of the fact that some of the faculty members were only teaching one course one night a week over an eight-week period during the semester in which they critiqued the prototype instrument. Some of the panel members also brought up the "class verses course" issue that was the focus of much debate in the first critique session. Eventually, the research and panel members from the College of Education developed the following wording to eliminate the confusion: *Think of the last 10 class sessions across all courses that you have taught this term. In how many sessions did you ….* The "No Class Session—All 10 Class Sessions" scale was not changed.

When the researcher and methodologist determined that the survey instrument used in the first pilot study was not sufficient for the technical college study, they elected to divide the instrument into segments. As was noted earlier, they designed the first section of the instrument to collect information on usage. Table 3.14 shows the response format selected for that section. The researcher and methodologist designed the next three sections to collect data on the perceived effectiveness of the instructional practices in aiding students in achieving the learning outcomes. Table 3.15 shows the response format selected for those sections.

Table 3.14

Response Scale Format Used on the Second Pilot Survey and Final Survey Instruments to Measure Faculty Usage of Instructional Techniques

Think of the *last 10 class sections across all courses* that you have taught during Fall Quarter 2009. In how many sessions did you use the following instructional techniques:

No class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions

Identifying and Formatting Predictor Variables

The researcher included a number of predictor variables on the prototype questionnaire submitted to the faculty at the private institution. Several panel members questioned why the demographic information, especially as related to age, was needed. The researcher responded to those concerns by citing some of the studies uncovered while developing the literature review for this document. He pointed out how those studies sought to determine whether demographic factors predict the way individuals approach their instructional responsibilities.

The predictor variables selected for the technical college study are divided into personal characteristics and situational factors. The researcher consulted the literature review included in this document in order to identify the types of situational factors and personal characteristics that

Table 3.15

Response Scale Format Used on the Second Pilot Survey and Final Survey Instruments to Measure Effectiveness of Instructional Techniques

How effective are the following instructional techniques in providing students with opportunities to acquire information on course topics and concepts?			
Not Effective	Somewhat Effective	Quite Effective	Very Effective
How effective are the following instructional techniques in providing students with opportunities to learning to solve problems?			
Not Effective	Somewhat Effective	Quite Effective	Very Effective
How effective are the following instructional techniques in providing students with opportunities to learn to perform tasks?			
Not Effective	Somewhat Effective	Quite Effective	Very Effective

scholars analyzed in previous studies on college teaching. He also reviewed reports and journal articles about those previous studies to ascertain the rational for why those scholars were interested in determining how a particular variable influenced instructional practices. Table 3.16 indicates the predictor variables and the rationale for including those variables on the prototype pilot survey instruments and, ultimately, the final questionnaire prepared for this study. Respondents were asked to enter free-form data for four of the predictor variables (age, gender, ethnicity, and academic discipline). For example, they were asked to enter the year they were born as a means to indicate their age. With regard to the remaining variables, respondents were asked to select the most appropriate response provided. For instance, they were asked to select either full-time or part-time/adjunct when asked about their employment status at the technical college.

Table 3.16

Predictor Variables by Type and Rationale for Their Use

Predictor Variable	Type	Rationale
Academic Discipline	Situational	Academic disciplines have unique cultures, which shape instructors' view on learning and teaching (Portmann & Stick, 2003; Verner, 1964).
Age	Personal	Older instructors are more likely to collaborate with students through the use of learner-centered instructional strategies (Davis, 2006).
Class Size	Situational	Instructors believe that larger class sizes limit their ability to use learner-centered instructional practices (Bonwell & Eison, 1991).
Educational Attainment	Personal	Graduate programs emphasize the acquisition of subject knowledge and research skills rather than skills needed to be effective in the classroom as instructors (Mertz & McNeely, 1990).
Employment Status	Personal	Part-time faculty spend little time on campus and have limited access to instructional resources; therefore, they are less likely to use challenging, engaging instructional practices (Jacoby, 2006).
Ethnicity	Personal	Cultural differences affect teaching styles. Minorities are more apt to engage in learner-centered practices (Bower, 2002).
Faculty Workload	Situational	As the number of courses or sections of courses taught by an instructors increases, the use of learner-centered teaching practices decreases.
Gender	Personal	Sex-role stereotypes found in society predict types of practices commonly used; female instructors are more likely to use learner-centered practices (Singer, 1996)

Administering the Revised Pilot Survey

After completing the redesign of the pilot instrument, the researcher submitted an amended IRB application (Appendix Q) to the Human Subjects Office at the University of Georgia in order to receive approval to use the revised instrument. In this submission, he also asked for permission to conduct a second, modified pilot study using the new instrument. Upon receiving approval from the Human Subjects Office (Appendix R), the researcher administered the revised instructional practices survey instrument to the faculty of a small technical college in east central Georgia. Like the institution used for the first pilot study, the technical college in east central Georgia was not one of the eight colleges identified for the actual dissertation research.

The vice president of academic affairs at this technical college sent out an email (Appendix S) on Tuesday, September 8, 2009, in order to encourage the instructional faculty to complete the survey. Two hours later, the researcher sent an email invitation (Appendix T) asking the 46 full-time and part-time instructors who were teaching classes at that institution during Summer Quarter 2009 to complete the revised survey instrument. This invitation included a link to the revised survey instrument. The goal of the second pilot study was to obtain as much feedback as possible in a very short period of time; therefore, the researcher left the online survey open for only four days. He did not send follow-up emails to non-respondents. Eight faculty members returned usable surveys. Though the researcher and methodologist could not conduct a formal analysis of the data or draw firm conclusions, they did record better variations in the responses than what was obtained in the first pilot study. Table 3.17 provides frequency statistics (mean and median) for the results of the second pilot study.

Study Population

All full-time and part-time instructors who taught at least one face-to-face course during Fall Quarter 2009 at the eight technical colleges selected for this study were invited to complete the instructional practices questionnaire. By definition, the potential participants included any instructor who taught at least one face-to-face course that is applicable to one or more of the

Table 3.17

Results of Pilot Survey Administration #2

Technique	Frequency of Use		Effectiveness in Aiding with Knowledge Acquisition		Effectiveness in Aiding with Problem Solving		Effectiveness in Aiding with Skills Development	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Independent Research	4.75	4.00	2.63	3.00	2.63	3.00	2.13	2.00
Capstone Projects	3.75	2.50	2.88	3.00	2.88	3.00	2.63	2.50
Case Studies	4.38	4.50	2.75	3.00	2.88	3.00	2.63	3.00
Full-Group Discussion	7.38	8.00	3.13	3.00	2.75	3.00	2.25	2.00
Small Group Discussion	4.38	3.00	2.71	2.00	2.50	2.00	2.00	2.00
Simulation Activities	5.50	6.00	3.38	3.50	3.25	3.00	3.25	3.00
Course Texts	8.25	10.00	2.88	2.55	2.25	2.00	2.50	2.00
Debates	1.71	0.00	2.13	2.00	2.13	2.50	1.63	2.00
Lectures	8.25	9.50	2.50	2.00	2.25	2.00	2.63	2.50
Guest Lecturers	0.50	.00	2.63	2.50	2.00	2.00	2.00	2.00
Hands-On Activities	8.75	10.00	3.50	4.00	3.38	3.50	3.63	4.00
Online Supplemental Course Materials	4.25	3.50	2.63	3.00	2.63	3.00	2.50	2.50
Course/Program Portfolios	5.50	6.50	2.25	2.00	2.50	3.00	2.13	2.00
Student-Led Discussions	3.00	0.00	2.00	2.00	1.88	2.00	2.13	2.00
Multimedia Devises	7.25	9.00	3.25	3.50	3.14	3.00	2.71	3.00
One-on-One Discussions	4.38	2.50	3.00	3.00	2.57	3.00	2.88	3.50
Practical Exercises	7.50	8.50	3.75	4.00	3.50	3.50	3.88	4.00
Peer Tutors	1.88	1.50	2.29	2.00	2.00	2.00	2.00	2.00

technical certificate, diploma, and associate degree programs of study available at these eight institutions. Instructors who only taught learning support courses were included in the study population as well because these courses in English, reading, and mathematics assist underprepared students in developing the competencies they will need in order to be successful in college-level courses. Because of the nature of online course delivery, instructors who taught online courses only were excluded from the research project. Furthermore, those employees who taught only adult literacy, continuing education, economic development, and any other form of non-credit courses were excluded from the population considered for this study. The researcher included two questions at the beginning of the survey to identify ineligible participants. Individuals who answered no to either question were diverted to the end of the survey instrument.

The decision to include both part-time and full-time faculty in the research project was based on the fact that community and technical colleges rely extensively on part-time faculty to provide the number of class sections needed to serve students efficiently. Various research reports show that part-time faculty account for approximately 65% of the instructional staff at most public two-year colleges nationally (Outcalt, 2002; Phillippe & Patton, 2000; Wallin, 2005). The average percentage of part-time faculty employed at all institutions within the Technical College System of Georgia for Fall Quarter 2007 was 67.84% (National Center for Educational Statistics, 2008). For the eight institutions selected for the study, the average percentage of part-time faculty for Fall Quarter 2007 was 73.9%, with one institution reporting that 80.7% of the instructional faculty were employed on a part-time basis (National Center for Educational Statistics).

Since the traditional definition of a two-year college includes only those institutions that hold regional accreditation to award associate degrees (Cohen & Brawer, 2003), the institutions included in this study have been regionally accredited for more than 15 years to award associate degrees by the Commission on Colleges of the Southern Association of Colleges and Schools. (It should be noted that these institutions were the only technical colleges in Georgia to have achieved regional accreditation for a number of years.) In order to further narrow the institutions, the researcher only surveyed faculty at the technical colleges that awarded at least 200 associate degrees during the 2007-2008 academic year. The institutions not included in this study awarded significantly fewer associate degrees during the 2007-2008 academic year.

Data obtained from the system's internal data center were used to select the eight institutions. Table 3.18 shows the number of credentials awarded during the 2007-2008 academic year at these institutions.

Table 3.18

Credentials Awarded During the 2007-2008 Academic Year By Institution

Institution	Technical Certificates	Diplomas	Associate Degrees
Institution #1	582	246	265
Institution #2	822	666	286
Institution #3	1,023	452	212
Institution #4	1,078	301	320
Institution #5	527	275	226
Institution #6	1,021	241	237
Institution #7	921	360	221
Institution #8	1,907	249	329

Source: Technical College System of Georgia (2008)

Data Collection Procedures

Data were collected through the use of an online survey created with SurveyMonkey®, an online survey administration website. Dillman (2007) notes in the *2007 Appendix* to his textbook on survey design and administration that using web-based instruments is no longer considered a unique approach to data collection. Web-based methods eliminate the need to print and mail paper copies of the survey instrument, thus reducing costs and speeding up the data collection process (U.S. Department of Health and Human Services, 2008). The reduced costs associated with online survey administrations influenced the researcher's decision to invite all full-time and part-time faculty members at the eight technical colleges to participate in the web-based survey. Using a paper instrument would have necessitated the use of random sampling techniques to select a portion of the total population for inclusion in the project because the costs would have been too prohibitive to seek feedback from all instructors. Finally, data entry and data preparation requirements are greatly reduced because web-based surveys electronically record data automatically in the format specified by the researcher (U.S. Department of Health and Human Services).

Obtaining lower response rates is the chief disadvantage associated with using web-based survey instruments. Acceptable response rates for surveys sent through the U.S. Postal Service range from 50% to 70%, with a response rate of 70% being defined as very good and a response rate of 50% being defined as adequate (The University of Texas, 2007). The Texas website describes a response rate of 30% as being adequate for web-based questionnaires. The results of two research projects published in 2008 suggest that response rates obtained from web-based survey administrations may be increasing. The 2008 Nursing Home Survey on Patient Safety Culture administered by the Agency for Healthcare Research and Quality achieved a 44% response rate for the web-administered version (U.S. Department of Health and Human Services, 2008). A web-based survey of FFA advisors in Georgia administered as part of a doctoral dissertation returned a response rate of 67.2% (Davis, 2006).

Survey Administration

The researcher sent emails to the presidents of the eight technical colleges chosen for this study in July 2009 to seek approval to survey the full-time and part-time faculty employed for Fall Quarter 2009 at these institutions (see sample email in Appendix U). Each president agreed to the request and also provided a contact person to obtain names and email addresses of the full-time and part-time faculty members who were teaching at least one academic course in a face-to-face format during the quarter. The researcher sent emails to the contacts after the start of the Fall Quarter 2009 in order to obtain the needed names and addresses. The college contacts provided the researcher with 2,407 names and email addresses.

The vice presidents of academic affairs at seven of the participating institutions sent emails to their faculty on Monday, October 26, 2009, in order to announce the study and to encourage them to participate in this research effort (see sample emails in Appendix V). (The researcher sent out a similar announcement to the faculty at the institution where he is employed.) The researcher used SurveyMonkey® to send survey invitations (Appendix W) to the 2,407 names and email addresses in the survey database on Wednesday, October 28, 2009. SurveyMonkey® automatically inserted a unique code on each email. This code provided a mechanism to track who had and who had not completed the survey.

It should be noted again that the study was designed to collect data from technical college faculty who were teaching at least one face-to-face academic course during Fall Quarter 2009. The first two questions on the survey instrument were designed to filter out those faculty members who did not meet this criteria. For the purposes of this study, academic courses were defined as learning support, general education, and program-specific courses that are included in the technical certificate, diploma, and associate degree programs of study available at the eight institutions. Shortly after the researcher sent out his initial email invitation, he received several emails from instructors of traditional vocational programs asking why their opinions were not needed for the study. Further investigation revealed that the vocational instructors interpreted academic courses as referring to general education and certain associate degree-level courses. The researcher altered the first question on the survey to reduce the potential that other instructors would misinterpret the question. The original statement was worded as follows:

- Did you teach any learning support, general education, [or] academic program courses during Fall Quarter?

The revised sentence was as follows:

- Did you teach any learning support, general education, [or] program-specific courses (such as ACC, AUT, RAD, etc.) during Fall Quarter?

Shortly after issuing the initial email invitation, the researcher received an email from the vice president of instructional technology at the researcher's college announcing that technical colleges throughout the state were experiencing Internet connectivity problems. Emails from faculty at the researcher's home college indicated that they had not been able to complete the survey because of these connectivity problems. The researcher contacted the SurveyMonkey® Help Desk to determine whether instructors who had started the survey could re-access the instrument to continue from the point where they were booted out of the system because of the connectivity problems. After making the adjustments recommended by the Help Desk staff, the researcher sent out a follow-up email (Appendix X) to all instructors who had attempted to complete the survey. The purpose of this follow-up message was to provide instructions on how to re-access the survey instrument so that they could complete the questionnaire.

A total of 502 individuals completed the survey by the end of the first week of the data collection period. This total translated to a response rate of 20.7%. The researcher used SurveyMonkey® to send out the first follow-up email (Appendix Y) on Wednesday, November 4, 2009, to all those who had not completed the questionnaire by this time. Immediately after sending out the first follow-up email, the researcher began receiving emails from individuals indicating that they were either no longer teaching or had never taught before. The researcher removed the names and email addresses of these individuals so that they would not receive the final follow-up email. This elimination process reduced the survey database to 2,389 instructors.

The researcher collected responses from 1,062 individuals by the conclusion of the second week of the data collection period. The response rate thus stood at 44.5%. He sent out the final email reminder (Appendix Z) to 1,345 non-respondents on Wednesday, November 11, 2009. Included in the final reminder was a notation that the data collection period would end on Wednesday, November 18, 2009. A total of 1,199 people had submitted surveys by the conclusion of the data collection period. The unadjusted response rate was 50.2%.

Adjusting the Response Rate

With the data collection period now concluded, the researcher began the process of establishing the final adjusted response rate. He first reduced the size of the survey database by removing the contact information associated with non-existent email accounts. Numerous emails were returned as being undeliverable because of full email boxes throughout the entire data collection period; therefore, the researcher deleted the contact information for these individuals as well. An additional 34 individuals opted out of participating in the study without accessing the study itself. (SurveyMonkey® requires users to include an opt-out link on all emails sent through the website.) At the conclusion of this process, the number of individuals remaining in the survey stood at 2,293. The adjusted response rate was 52.3%.

After adjusting the response rate, the researcher began analyzing the data and found that 361 people had answered no to at least one of the first two questions. By definition, these individuals were ineligible to participate in the study. Removing these ineligible instructors reduced the size of the survey population database from 2,293 people to 1,932. The number of valid survey responses dropped from 1,199 to 838. These changes led to another adjustment of the response rate. The rate stood at 43.4%.

At this point, the researcher was concerned about the high number of people who had answered negatively to these filter questions and about the number of emails received after the release of the first follow-up email from individuals who indicated that they were not instructors. He decided to download the course schedules from each of the eight institutions in order to identify whether the original email lists contained others who were not teaching during Fall Quarter 2009 and to identify those individuals who were teaching online classes only. This exercise uncovered an additional 511 people who did not meet the criteria established for this study. Only 1,421 of the original 2,407 people included in the survey population database originally were teaching at least one face-to-face academic course that term. Reducing the survey population database necessitated the recalculation of the survey response rate. The newly adjusted rated was 58.97%.

One final adjustment was needed to account for the removal of the surveys of individuals who did not answer the majority of the survey questions. The researcher removed 64 surveys as a result of this exercise, which reduced the number of valid, completed surveys to 744. The final response rate achieved for this study was 59.0%.

Personal Traits of Survey Respondents

Table 3.19 provides a summary of the personal characteristics of the faculty who contributed usable responses to the study. The mean age of the respondents was 48.78, with ages

Table 3.19

Summary of Survey Respondent Characteristics

Variable	*Value*
Age (N = 686)	M = 48.78, SD = 10.73
Gender (N = 702)	
Female	59.8%
Male	40.2%
Race/Ethnicity (N = 687)	
White/Caucasian	76.3%
African-American	17.9%
Asian	2.2%
Hispanic	1.3%
Other	2.3%
Teaching Experience at Current College (N=713)	M = 6.70, SD = 6.76
Total Teaching Experience (N = 701)	M = 12.91, SD = 10.00
Years of Professional Experience (N = 675)	M = 16.15, SD = 10.72
Highest Degree Earned (N=721)	
High School Diploma/GED	0.8%
Technical Certificate of Credit	0.3%
Diploma	3.5%
Associate Degree	8.9%
Bachelor’s Degree	18.7%
Master’s Degree	53.0%
Advanced Professional Degree	6.5%
Doctorate	8.3%
Employment Status (N = 707)	
Full-Time	52.3%
Part-Time	47.7%

ranging from a low of 23 to a high of 76. The overwhelming majority (59.83%) of respondents were female. Over three-fourths (76.3%) identified themselves as Whites or Caucasians. African-Americans accounted for 17.9% of the survey participants. Asians accounted for 2.2% of the respondents and Hispanics accounted for 1.3%.

The employment status of survey participants was divided nearly evenly, with 52.3% employed on a full-time basis and 47.7% employed as part-time faculty members; however, the percentage of part-time faculty who responded to the survey instrument was significantly lower than the number of part-time faculty included in the total survey population. Respondents' length of teaching experience at their current technical college ranged between one quarter and 41 years, with a mean of 6.7 years. The average length of total teaching experience was 12.9 years, with a range between one quarter and 45 years. Their professional work experience ranged from zero to 46 years, with a mean of 16.2 years.

Finally, 67.8% of those who submitted usable questionnaires held advanced degrees, with the majority (53.0%) having earned master's degrees. An additional 8.3% held doctorate degrees and 6.5% held advanced professional degrees such as jurist doctorates and doctorates of veterinary medicine. It should be noted that 12.6% of the survey participants reported that the highest credentials they had earned were equivalent to those available through the technical colleges included in this study. A total of 8.9% had earned associate degrees, 3.5% had earned diplomas, and 0.3% had earned technical certificates of credit.

Situational Factors

The situational factors of interest to this study include the academic disciplines in which the respondents were teaching, the number of classes they were teaching during Fall Quarter 2009, and the sizes of their smallest and largest classes for the term. Table 3.20 provides a summary of these characteristics. The researcher designed the survey to allow respondents to type in their academic disciplines. At the conclusion of the study, he recoded the disciplines into five broad academic categories—Business, General Education, Learning Support, Life Sciences, and Technical—basing the classifications on those used at his college. Examples of business programs included all computer-related disciplines, Administrative Office Technology, Marketing Management, Paralegal Studies, Culinary Arts, and Interior Design. In this study, 26.4% of the survey respondents indicated that they taught Business-related courses.

Table 3.20

Summary of Institutional Characteristics

Variable	*Value*
Academic Discipline (N = 713)	
Business	26.4%
General Education	26.5%
Learning Support	7.4%
Life Sciences	24.8%
Technical and Industrial	24.8%
Number of Classes Taught (N = 716)	M = 3.60, SD = 2.41
Largest Class Size (N = 717)	M = 24.57, SD = 11.19
Smallest Class Size (N = 715)	M = 15.69, SD = 8.67

General Education faculty comprised over one-fourth (26.5%) of the survey respondents. Examples of these types of courses included English, psychology, mathematics, art, history, sociology, and speech. Learning Support faculty accounted for the fewest number of survey participants. Only 7.43% of the respondents fell into this category. The researcher classified as Learning Support all instructors who stated that they were teaching at least one developmental class in English, mathematics, and reading even if they also indicated that they taught other courses as well.

Life Sciences faculty accounted for 24.8% of all survey respondents. The researcher included in this broad category all health-related academic disciplines and all science disciplines, including anatomy and physiology, biology, medical microbiology, physics, and chemistry. Technical and Industrial faculty accounted for the remaining 14.9% of survey respondents. Examples of these programs of study included Air Conditioning Technology, Automotive Collision Repair, Cosmetology, Drafting Technology, and Electronics Technology.

The survey respondents indicated they were teaching an average of 3.6 classes during Fall Quarter 2009. The range extended from one class to 23 classes. (Instructors of self-paced programs of study make available all courses within the program during each academic term.) Survey participants reported that, on average, 24.57 students were enrolled in their largest class and an average of 15.69 students were in their smallest class. The largest class reported on the survey had 101 students in it; the smallest had only one student in it.

Data Preparation and Data Analysis

Using SurveyMonkey® to administer the survey associated with this study of the instructional practices of technical college faculty greatly simplified the data preparation process. As survey participants selected their responses, this online tool automatically coded the answers in a database. SurveyMonkey® also included the name, email, and computer IP address of each correspondent in the database so that follow-up communications could be initiated if necessary.

At the conclusion of the data collection period, the researcher downloaded the database in a Microsoft Excel® spreadsheet format. SurveyMonkey® inserted two header rows on the spreadsheet during the download process. The first header row included the question number. The second row included the actual questions. The researcher deleted the second header row before importing the data file into version 18 of PASW Statistics®, formerly SPSS. He then removed the files of those respondents who answered no to either of the filter questions inserted at the beginning of the survey and the files of those instructors who completed a minimal amount of the questionnaire. (See the section on *Establishing Response Rates* in this chapter for a complete description of this process.)

Data Analysis

Using version 18 of PASW Statistics®, the researcher began to analyze the data collected for this study. To answer the first question guiding the study, he computed the means and standard deviations for each of the 18 instructional practices before rank ordering the practices from those that were used the most to those that were used the least. The researcher then recoded each of the 18 instructional techniques into new variables in order to group faculty members by their level of usage. Table 3.21 shows the scales used in this recoding process. The researcher then computed percentages for each of the recoded variables.

Table 3.21

Scale for Recoded Usage Variables

Scale	Number of times faculty reported they used a technique
Did not use	0 sessions
Used Rarely	1 to 3 sessions
Used Moderately	4 to 7 sessions
Used Heavily	8 to 9 sessions
Used Always	10 sessions

In planning the data analysis for the second question associated with this study, the researcher and methodologist decided that faculty members who indicated that they had not used a particular practice during the period under observation would be excluded from judging the effectives of that practice in aiding students in acquiring information, in solving problems, and in learning to perform skills. The researcher used the *Select Cases* function in PASW Statistics® to identify those instructors who used *independent research* one or more times. He then calculated means and standard deviations for the corresponding effectiveness questions about *independent research*. PASW Statistics® omitted the responses of all non-users when calculating the means and standard deviations. The researcher had to complete the *select cases/calculate statistics* process 18 times—once for each instructional technique. After calculating the means and standard deviations for all 18 techniques, he rank ordered the variables from the most effective to the least effective in aiding students in acquiring knowledge. He also completed rank-order lists for how effective the techniques are in aiding students in solving problems and in learning to perform tasks.

The researcher used the means generated to answer the first two questions associated with this study in order to create a new database to answer the third question. He used this new database to generate three scatter plots to visually depict the relationship between the level of use and the perceived effectiveness of the instructional practices in accomplishing the three students learning outcomes identified in the conceptual framework section of this chapter. The first scatter plot focused on levels of use and the perceived effectiveness of the instructional practices in aiding students in acquiring information on course content and concepts. The second scatter plot zeroed in on levels of use and the perceived effectiveness of the instructional techniques in auditing students in learning to solve problems. The third scatter plot visually showed survey responses for level of use and perceived effectiveness of the techniques in aiding students in learning to perform tasks.

Finally, one-way variances-of-analysis (one-way ANOVA), linear regression, and independent samples *t*-tests provided information on how personal characteristics and situational factors affected or influenced the types of instructional practices used consistently by technical college faculty. The logic of the Bonferroni method was employed to determine whether differences in the levels of use were significant. The Bonferroni method establishes $p < 0.005$ as the conservative standard to determine significant differences on practices (Bland & Altman, 1995; National Institute of Standards and Technology, n.d.)

Limitations of the Study

The chief limitation to the research project is the fact that faculty from only eight institutions within the Technical College System of Georgia will be asked to complete the survey. Consequently, the results of this study will only apply to those eight institutions. This limitation reduces the applicability of the findings to other two-year colleges in Georgia and throughout the nation. Cautious inferences may be possible, however, for those institutions that are similar in structure and that have a faculty population similar to the eight institutions included in this research project.

CHAPTER IV

RESEARCH FINDINGS

This chapter presents the results of the statistical analysis described in the third chapter of this document. It is divided into four sections. Separate sections address each of the four research questions guiding this research project.

Findings Related to Research Question #1

The first research question asked to what extent did technical college faculty use 18 specific instructional practices in order to aid students in acquiring information, in solving problems, and in learning to perform tasks. Table 4.1 presents the means and standard deviations for each instructional technique. The practices are rank ordered from the most commonly used practice to the least used practice. This table also shows usage levels by practice.

As Table 4.1 reveals, faculty at the eight technical colleges indicated that they lectured 8.13 out of 10 class sessions. Over half (52.6%) indicated that they lectured during all 10 sessions. Another 25.3% of the survey respondents said they used lectures moderately—from four to seven sessions—and 14.9% said they relied heavily (from eight to nine sessions) on lectures. Only 0.9% said they never lectured during the 10 class sessions, while 4.8% said that they rarely lectured (from one to three sessions).

Respondents indicated that they often used full-group discussions ($\underline{M}$ = 7.55 sessions, $\underline{SD}$ = 3.25), course textbooks ($\underline{M}$ = 7.53 sessions, $\underline{SD}$ = 3.36), multimedia devices ($\underline{M}$ = 7.42 sessions, $\underline{SD}$ = 3.42), and hands-on activities ($\underline{M}$ = 6.64 sessions, $\underline{SD}$ = 3.49). Over half of the respondents indicated that they used full-group discussions (52.1%), course textbooks (53.1%),

Table 4.1

Means and Distributions for Levels of Use

Instructional Technique	Frequency Statistics			Usage Levels (Percentages)				
	Rank Order of Mean	M	SD	Did Not Use (0 sessions)	Used Rarely (1-3 sessions)	Used Moderately (4-7 sessions)	Used Heavily (8-9 sessions)	Used Always (10 sessions)
Lectures	1	8.13	2.53	0.9	4.8	25.3	14.9	52.6
Full-Group Discussions	2	7.55	3.25	5.1	10.2	19.8	12.3	52.1
Course Texts	3	7.53	3.36	7.3	8.5	18.9	11.4	53.1
Multimedia Devices	4	7.42	3.42	8.4	8.5	20.1	9.9	52.1
Hands-on Activities	5	6.64	3.49	9.3	13.1	24.9	14.6	36.4
Practical Exercises	6	6.29	3.82	14.9	13.1	21.8	11.0	38.8
Small-Group Discussions	7	5.16	3.59	14.5	21.8	30.2	9.8	23.1
One-on-One Discussions	8	4.85	3.82	17.9	25.9	23.2	6.7	25.3
Online Supplemental Materials	9.5	3.90	3.83	32.4	21.8	19.5	7.7	17.5
Simulation Activities	9.5	3.90	3.90	35.4	21.8	19.5	7.7	17.5
Student-Led Discussions	11	3.68	3.67	29.1	29.5	17.4	6.4	15.7
Debates	12	3.31	3.71	38.5	21.1	18.8	5.0	14.6
Independent Research	13	3.21	3.53	35.8	26.1	20.6	3.3	13.4
Peer Tutors	14	2.79	3.35	42.3	23.4	19.2	5.0	9.3
Case Studies	15	2.78	3.30	41.9	23.6	19.3	4.8	8.5
Portfolios	16	2.58	3.50	50.7	17.9	15.0	4.3	10.6
Capstones	17	1.74	2.96	62.7	13.3	12.1	2.9	5.7
Guest Lecturers	18	0.97	2.07	65.9	23.9	4.4	2.0	2.0

and multimedia devices (52.1%) during all class sessions. The number of faculty members who reported that they assigned hands-on activities in all 10 class sessions was more than 15 percentage points lower than those who indicated they made use in all 10 class sessions of the instructional practices already discussed. Only 36.4% of the technical college faculty who responded to the survey invitation indicated that they assigned hands-on activities in all 10 class sessions.

The instructional practices used the least by technical college faculty included guest lecturers (M = 0.97 sessions, SD = 2.07), capstone projects (M = 1.74 sessions, SD = 2.96), portfolios (M = 2.58 sessions, SD = 3.50), case studies (M = 2.78 sessions, SD = 3.30), and peer tutors (M = 2.79 sessions, SD = 3.35). The majority (65.9%) of survey respondents indicated that they did not invite guest lecturers to speak to their students during any of the 10 class sessions. Also, 62.7% said that they did not provide students with opportunities to work on capstone projects. Over half (50.7%) of the survey participants reported that they did not require students to work on portfolios in any of the 10 class sessions. On the other hand, 10.6% of the faculty members provided opportunities for students to work on portfolios in all 10 class sessions. Approximately 42% said that they did not provide opportunities for students to tutor each other in class (42.3%), nor did they assign case studies (41.9%) for students to review during class time.

Findings Related to Research Question #2

The second research question linked to this research project asked how did technical college faculty rate the effectiveness of the 18 instructional practices in aiding students in acquiring information, in solving problems, and in learning to perform tasks. Survey participants ranked the effectiveness of each instructional technique using a four-point scale with 1 being *not effective* and 4 being *very effective.* As was explained in the third chapter of this document, the responses of those survey participants who indicated that they used an instructional technique at least once were included in the statistical calculations required to answer this question. Tables

4.2 through 4.4 provide the means and standard deviations to establish the effectiveness of the instructional techniques in aiding students in acquiring information (Table 4.2), in solving problems (Table 4.3), and in learning to perform tasks (Table 4.4). The researcher used the mean scores to rank order the techniques from the most effective to the least effective in each of the three tables. He also provided the number of responses in each of the tables in order to provide readers with an indication of the number of respondents who reported that they used the technique at least once during the 10 sessions.

Table 4.2

Means and Distributions for Effectiveness of Instructional Practices in Aiding Students in Acquiring Information

Instructional Technique	Rank Order of Mean	n	M	SD
Hands-on Activities	1	676	3.74	0.53
Practical Exercises	2	639	3.65	0.62
One-on-One Discussions	3	613	3.41	0.73
Multimedia Devices	4	681	3.39	0.71
Simulation Activities	5	477	3.32	0.80
Full-Group Discussions	6	714	3.27	0.77
Small-Group Discussions	7	643	3.14	0.80
Lectures	8	735	3.12	0.76
Course Textbooks	9	692	3.09	0.78
Online Supplemental Course Materials	10.5	499	3.04	0.81
Guest Lecturers	10.5	240	3.04	0.81
Case Studies	12	420	3.01	0.79
Peer Tutors	13	429	2.98	0.81
Capstone Projects	14	252	2.94	0.86
Independent Research	15	482	2.84	0.79
Portfolios	16	351	2.73	0.93
Student-Led Discussions	17	512	2.71	0.83
Debates	18	446	2.67	0.83

The survey respondents consistently rated hands-on activities and practical exercises as the two most effective instructional techniques to accomplish the three student learning outcomes identified in the conceptual framework of this study. Though hands-on activities topped each of

Table 4.3

Means and Distributions for Effectiveness of Instructional Practices in Aiding Students in Solving Problems

Instructional Technique	Rank Order of Means	n	M	SD
Hands-on Activities	1	614	3.69	0.56
Practical Exercises	2	613	3.61	0.62
Simulation Activities	3	456	3.33	0.74
One-on-One Discussions	4	582	3.30	0.77
Small-Group Discussions	5	618	3.10	0.77
Case Studies	6	403	3.05	0.82
Full-Group Discussions	7.5	688	3.04	0.81
Multimedia Devices	7.5	655	3.04	0.88
Peer Tutors	9	408	2.95	0.81
Online Supplemental Course Materials	10.5	475	2.92	0.83
Capstone Projects	10.5	242	2.92	0.93
Independent Research	12	459	2.85	0.84
Lectures	13	704	2.80	0.89
Student-Led Discussions	14	486	2.76	0.84
Course Textbooks	15	663	2.75	0.90
Guest Lecturers	16.5	238	2.72	0.88
Debates	16.5	425	2.72	0.88
Portfolios	18	331	2.66	0.93

the rank-ordered lists, the technical college faculty indicated that this instructional technique was most effective in assisting students in learning to perform tasks (M = 3.76). The distribution of responses were more closely clustered around the mean (SD = 0.51) for the task performance measure than for the other two areas. The survey respondents identified practical exercise as being more effective in helping students to perform tasks (M = 3.66, SD = 0.62). They gave almost identical scores (M =3.65, SD = 0.62) to this technique for its effectiveness in helping students to acquire information on course topics and concepts.

Whereas respondents were in uniform agreement that hands-on activities and practical exercises were the two instructional techniques best suited to assist students in effectively accomplishing the three types of student learning outcomes specified in the Verner-based

Table 4.4

Means and Distributions for Effectiveness of Instructional Practices in Aiding Students in Learning to Perform Tasks

Instructional Technique	Rank Order of Mean	n	M	SD
Hands-on Activities	1	632	3.76	0.51
Practical Exercises	2	598	3.66	0.62
Simulation Activities	3	441	3.42	0.70
One-on-One Discussions	4	564	3.24	0.76
Multimedia Devices	5	635	3.05	0.86
Peer Tutors	6	402	2.97	0.81
Capstone Projects	7	232	2.96	0.93
Small-Group Discussions	8	597	2.88	0.85
Online Supplemental Course Materials	9	460	2.82	0.85
Case Studies	10	395	2.81	0.86
Full-Group Discussions	11	663	2.79	0.90
Lectures	12.5	684	2.74	0.89
Independent Research	12.5	445	2.74	0.93
Portfolios	14	323	2.72	0.98
Course Textbooks	15	643	2.69	0.86
Student-Led Discussions	16	473	2.66	0.86
Guest Lecturers	17	226	2.60	0.90
Debates	18	416	2.50	0.90

typography, they began to identify differences after that. For example, their responses placed simulation activities as the third most effective practice in aiding students in solving problems (M = 3.33, SD = 0.74) and in learning to perform tasks (M = 3.42, SD = 0.70). On the other hand, they placed this instructional practice as the fifth most effective tool on the information acquisition list (M = 3.32, SD = 0.80). The technical college faculty identified one-on-one discussions between students and instructors as the third most effective information acquisition tool (M = 3.41, SD = 0.73). Also of interest is the fact that multimedia devices were rated at the fourth position on the rank-ordered list for information acquisition (M = 3.39, SD = 0.71) and at the fifth position on the task performance list (M = 3.05, SD = 0.86), but tied for the seventh position on the problem solving list (M = 3.04, SD = 0.88).

Technical college faculty consistently rated debates, student-led discussions, portfolios, guest lecturers, and course textbooks as the least effective instructional techniques for affecting the positive accomplishment of the three student learning outcomes. Debates were at the bottom of the rank-ordered lists for both information acquisition (M = 2.67, SD = 0.83) and task performance (M = 2.50, SD = 0.90) and next to last for problem solving (M = 2.72, SD = 0.88). The survey respondents ranked student-led discussions as the second least effective instructional practice to facilitate knowledge acquisition (M = 2.71, SD = 0.83) and the third least effective for task performance (M = 2.66, SD = 0.86), but the fifth least effective in aiding students in solving problems (M = 2.76, SD = 0.84).

Technical college faculty identified portfolios as the least effective instructional technique in helping students become better problem solvers (M = 2.66, SD = 0.93), the third least effective in helping students to acquire information on course content and concepts (M = 2.73, SD = 0.93), and the fifth least effective in teaching students to perform tasks (M = 2.72, SD = 0.98). Survey respondents placed guest lecturers as the third least effective technique on the rank-ordered list for problem solving (M = 2.72, SD = 0.88) and the second least effective on the task performance list (M = 2.60, SD = 0.90). Guest lecturers, however, were considered to be somewhat more effective in aiding students in acquiring course information. The survey participants identified this technique as being the eighth least effective (eleventh most effective) practice for aiding in knowledge acquisition (M = 3.04, SD = 0.81). Course textbooks, according to technical college faculty, were the fourth least effective technique in aiding with developing students' problem solving skills (M = 2.75, SD = 0.90) and for aiding students in learning to perform tasks (M = 2.69, SD = 0.86), but the tenth least effective (ninth most effective) instructional tool available to instructors to aid in the development of students' knowledge and understanding of course content ($M = 3.09$, $SD = 0.78$).

Findings Related to Research Question #3

The third question guiding this dissertation research project asked to what extent did technical college faculty employ instructional practices that are effective in aiding students in acquiring information, in solving problems, and in learning to perform tasks. Table 4.5 shows the PASW Statistics® database the researcher created to answer this question. The first data column repeats part of Table 4.1. This column includes the mean scores showing how often technical college faculty used each of the 18 instructional practices. The three remaining data columns in Table 4.5 show the mean scores representing the effectiveness of each instructional practice in aiding students in developing the proficiencies associated with each of the Verner-based learning outcomes. This information is taken from Tables 4.2 through 4.4.

The researcher used this new database to create scatter plots to visually depict the relationship between usage levels and the perceived effectiveness of the instructional practice in aiding students in acquiring information on course content and concepts (Figure 4.1), in learning to solve problems (Figure 4.2), and in learning to perform tasks (Figure 4.3). Each scatter plot is divided into four quadrants. Quadrant A on each scatter plot shows those instructional practices that technical college faculty used extensively, but they rated the practices as being less effective in accomplishing the student learning outcome. Quadrant B shows the high use, more effective instructional practices. Quadrant C shows the low use, less effective practices, while Quadrant D shows the instructional practices that technical college faculty rated as being more effective in accomplishing the student learning outcome, but they reported that they used these practices less often.

Table 4.5

Mean Use Scores and Mean Effectiveness Scores Database

Instructional Technique	Level of Use	Perceived Effectiveness		
		Information Acquisition	Problem Solving	Task Performance
	M	M	M	M
Lectures	8.13	3.12	2.80	2.74
Full-Group Discussions	7.55	3.27	3.04	2.79
Course Textbooks	7.53	3.09	2.75	2.69
Multimedia Devices	7.42	3.39	3.04	3.05
Hands-on Activities	6.64	3.74	3.69	3.76
Practical Exercises	6.29	3.65	3.61	3.66
Small-Group Discussions	5.16	3.14	3.10	2.88
One-on-One Discussions	4.85	3.41	3.30	3.24
Online Supplemental Course Materials	3.90	3.04	2.92	2.82
Simulation Activities	3.90	3.32	3.33	3.42
Student-Led Discussions	3.68	2.71	2.76	2.66
Debates	3.31	2.67	2.72	2.50
Independent Research	3.21	2.84	2.85	2.74
Peer Tutors	2.79	2.98	2.95	2.97
Case Studies	2.78	3.01	3.05	2.81
Portfolios	2.58	2.73	2.66	2.72
Capstone Projects	1.74	2.94	2.92	2.96
Guest Lecturers	0.97	3.04	2.72	2.60

Table 4.5 shows that technical college faculty rated hands-on activities and practical exercises as the two most effective instructional practices in aiding students in acquiring information on course content and concepts. These ratings, combined with the level-of-use scores reported by survey respondents, placed these instructional techniques in Quadrant B of the scatter plot created for the knowledge acquisition student learning outcome (see Figure 4.1). This quadrant contains the high use/more effective instructional practices. PASW Statistics® also included full-group discussions and multimedia devices in Quadrant B.

Technical college faculty rated one-on-one discussions between instructors and individual students as the third most effective instructional practice in aiding students in obtaining course-specific information; however, they reported that they incorporated this practice

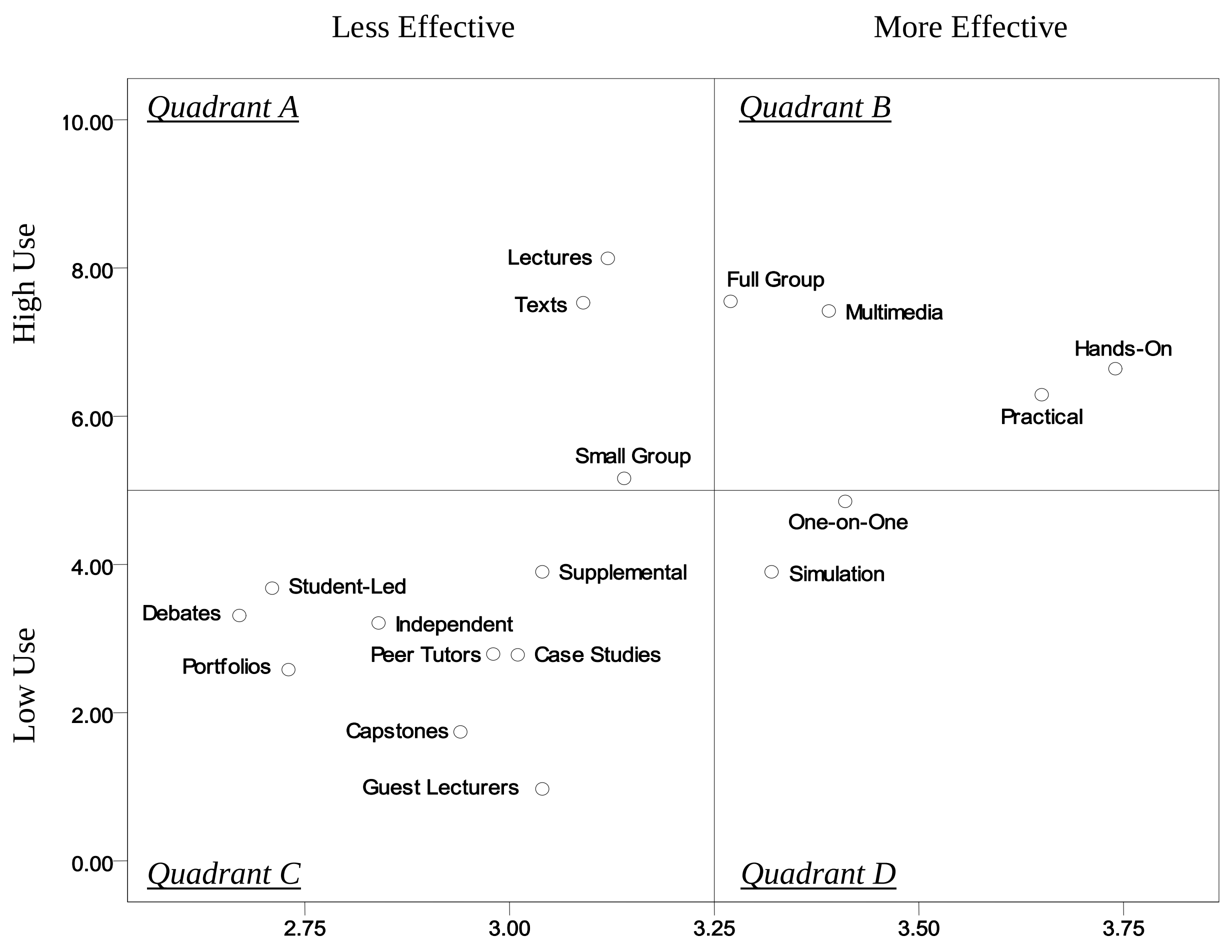

Figure 4.1: *Relationship of Level of Use and Perceived Effectiveness of Instructional Practices in Aiding Students in Acquiring Information on Course Content and Concepts*

into their overall approach to teaching and learning for less than 50% of the time. This combination placed one-on-one discussions in Quadrant D—the low use/more effective quadrant—on the knowledge acquisition scatter plot. Simulation activities, which survey respondents said was the fifth most effective tool in assisting students in successfully accomplishing the knowledge acquisition student learning outcome, also fell within Quadrant D.

As has been noted, technical college faculty said that they lectured during more than eight out of ten class sessions, thus making this instructional technique the most used of the 18 practices analyzed in this study. Survey respondents, however, considered this to be a mid-range technique for aiding in knowledge acquisition. PASW Statistics® placed this technique in Quadrant A of Figure 4.1. This quadrant included the items faculty used often, but were rated as being less effective than the other instructional practices in accomplishing the knowledge acquisition student learning outcome. Also included in Quadrant A were course textbooks and small-group discussions. The remaining instructional items were placed in Quadrant C, the low use, less effective quadrant. Included in this quadrant were case studies, portfolios, online supplemental course materials, student-led discussions, debates, independent research, peer tutors, capstone projects, and guest lecturers.

Technical college faculty rated hands-on activities and practical exercises as the two most effective practices in aiding students in developing their problem solving skills. The combination of the effectiveness scores and the level-of-use scores placed these two items in Quadrant B of the problem solving scatter plot (Figure 4.2). Unlike the information acquisition scatter plot (Figure 4.1), hands-on activities and practical exercises were the only instructional practices to be inserted into the high use/more effective quadrant (Quadrant B) of the problem solving scatter plot.

Full-group discussions and multimedia devices, which fell within Quadrant B on the information acquisition scatter plot, joined lectures, course textbooks, and small-group discussions in Quadrant A on the problem solving scatter plot because of the effectiveness scores assigned to these practices by survey respondents. (Lectures, course textbooks, and small-group discussions fell within this quadrant on the information acquisition scatter plot.) Quadrant A included the high use/less effective items. Simulation activities and one-on-one discussions between instructors and individual students were placed in Quadrant D of the problem solving scatter plot. These items also fell within Quadrant D in Figure 4.1. The items included in

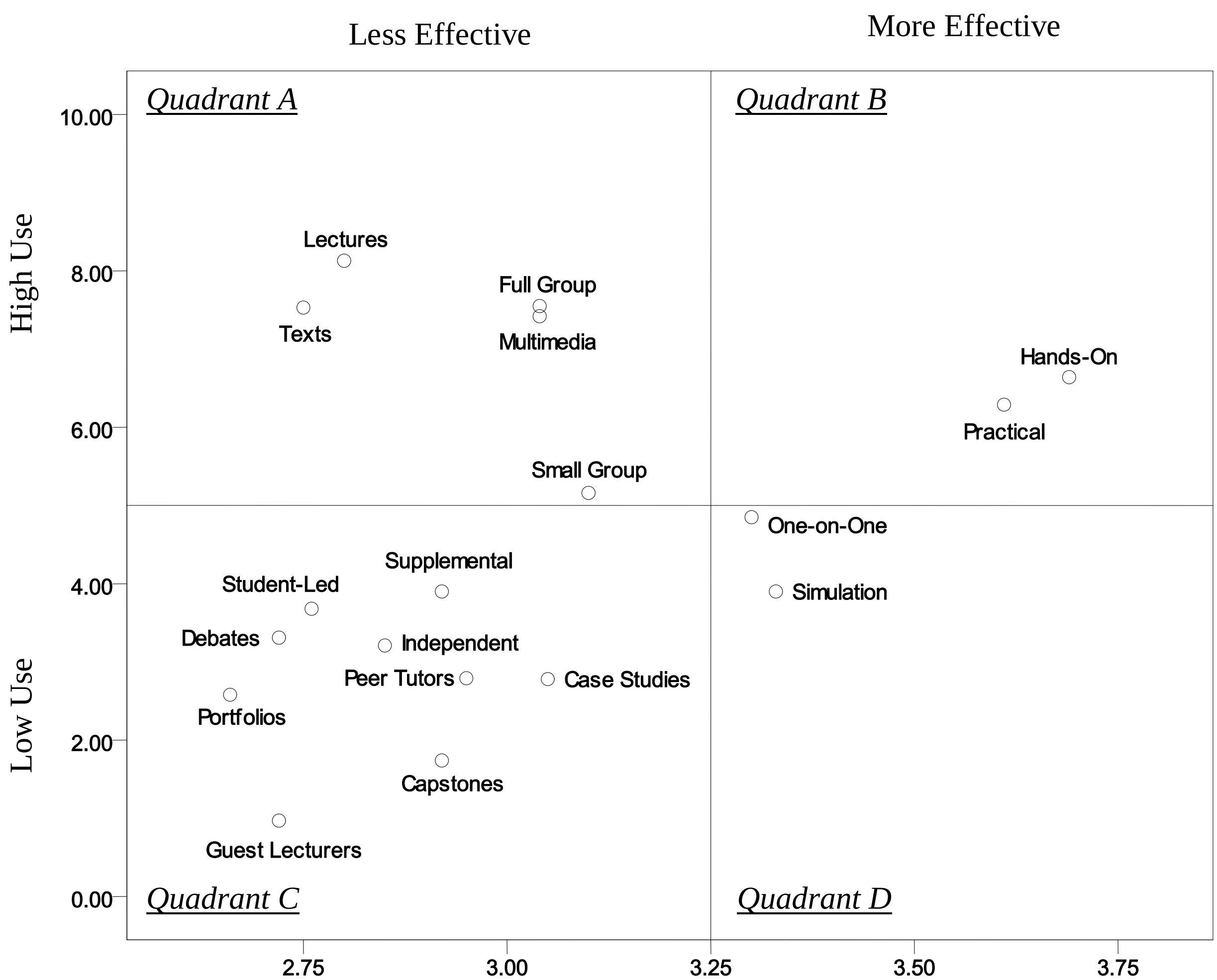

Figure 4.2: *Relationship of Level of Use and Perceived Effectiveness of Instructional Practices in Aiding Students in Learning to Solve Problems*

Quadrant C of the information acquisition scatter plot were also included in this same quadrant on the problem solving scatter plot.

The placement of the instructional practices in the respective quadrants on the task performance scatter plot (Figure 4.3) was the same as that of the problem solving graph. The placement of the individual items only differed in terms of where the instructional items fell on the effectiveness axis. For example, technical college faculty assigned a higher mean score for the effectiveness of hands-on activities in aiding students in learning to solve problems (M =

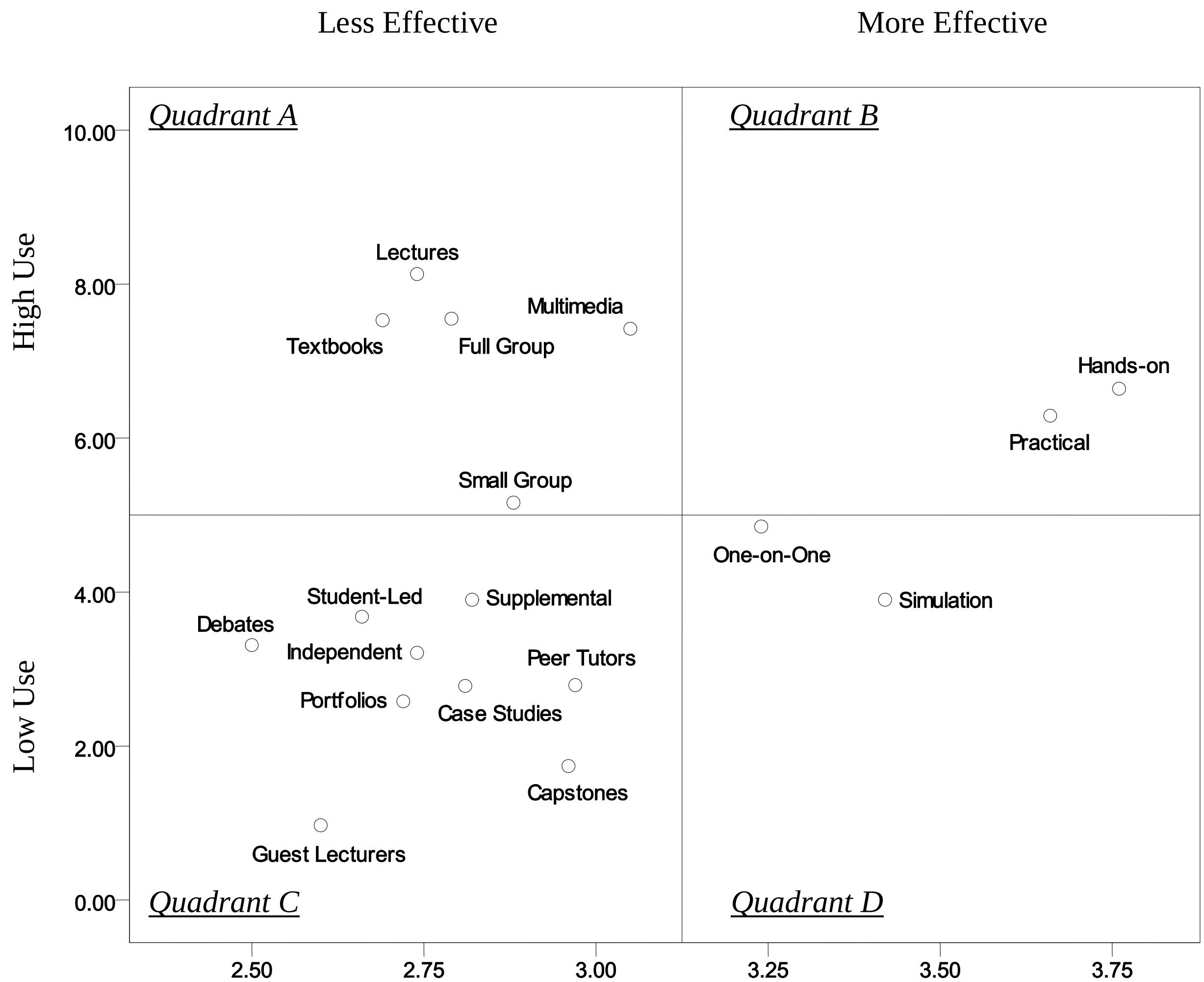

Figure 4.3: *Relationship of Level of Use and Perceived Effectiveness of Instructional Practices in Aiding Students in Learning to Perform Tasks*

3.76) than for the effectiveness of this item in aiding students in developing their problem solving capabilities (M = 3.69); therefore, this item was plotted further to the right on the effectiveness axis in Figure 4.3 than on Figure 4.2

Findings Related to Research Question #4

Was the propensity to use the 18 instructional practices predicted by personal characteristics and situational factors was the focus of the fourth research question. The personal characteristics evaluated as part of this research project included the age, gender, ethnicity, and employment status of those who submitted a usable questionnaire, as well as the highest academic credential they held at the time of the survey administration. The situational factors studied included the academic disciplines of the instructors, their workload, and the size of their largest class.

The researcher conducted independent samples *t*-tests on faculty disaggregated by gender, ethnicity, and employment status. He conducted one-way analysis-of-variance (one-way ANOVA) tests on faculty categorized by the highest credential they had earned and by their academic discipline. Finally, the researcher used linear regression to analyze how class size, faculty workload, and age influenced the types of instructional practices used by technical college instructors. The personal characteristic or situational factor being studied served as the independent variable for each of the significance tests, while the instructional practice served as the dependent variable.

The researcher conducted a total of 162 significance tests to develop a response to this question. Bland and Altman (1995) warn that the likelihood of making Type 1 errors—errors resulting from rejecting a true null hypothesis—increases as the number of significance tests conducted increases. Gravetter and Wallnau (2005) point out that researchers can expect to make a Type 1 error for every 20 significance tests they conduct when the significance level is set at $p < 0.05$. Bland and Altman, Gravetter and Wallnau, and Green and Salkind (2003) recommend that researchers use the logic associated with the Bonferroni method when conducting multiple significance tests. The National Institute of Standards and Technology (NIST) (n.d.) describes this statistical procedure as a "simple method that allows many comparison statements to be made (or confidence intervals to be constructed) while still assuming an overall confidence coefficient is maintained" (p. 1). When employing the Bonferroni method, the significance level is set at $p < 0.005$ rather than the more typical $p < 0.05$ level (Bland & Altman; National Institute of Standards and Technology).

The National Institute of Standards and Technology (n.d.) points out that the Bonferroni method applies to significance tests generated using ANOVA statistics and is valid for both equal and unequal sample sizes. PASW Statistics® includes the Bonferroni method as one of the post hoc tests available in the one-way ANOVA statistical procedures for when equal variance is assumed. The researcher used the Bonferroni post hoc test data when he ran one-way ANOVA tests when determining whether the difference in usage levels were significant. To be consistent, the researcher applied the logic of the Bonferroni method when he used linear regression and independent samples *t*-tests to identify significant differences in classroom instructional practices. Thus, the researcher applied the conservative $p < 0.005$ standard when determine whether differences in levels of use were significant.

Personal Characteristics

As was noted earlier, the researcher conducted independent samples *t*-tests to determine whether male survey respondents used instructional practices at different levels than their female colleagues. Table 4.6 provides the means and standard deviations for male instructors' and female instructors' usage levels for each instructional practice, as well as the results of the independent samples *t*-tests. A positive *t* score indicates that females used the instructional practice more often than did male instructors; a negative *t* score indicates that males used the practice more often.

The independent samples *t*-tests uncovered one case in which the difference in the level of use of an instructional practice by females as opposed to males was significant at the $p < 0.005$ levels. Females ($\underline{M} = 1.15$, $\underline{SD} = 2.29$) invited guest lecturers ($t(686.00) = 3.20$, $p = 0.001$)

Table 4.6

Independent Samples t-tests Results for Gender

Instructional Practice	Gender: Female (n = 420) M	Female SD	Male (n = 282) M	Male SD	*t*-test for Equality of Means: *t*	Sig. (2-tailed)
Lectures	8.12	2.43	8.09	2.71	0.16	0.871
Full-Group Discussions	7.78	3.09	7.14	3.49	2.47	0.014
Course Textbooks	7.69	3.29	7.28	3.47	1.53	0.127
Multimedia Devices	7.39	3.44	7.39	3.43	0.01	0.996
Hands-on Activities	6.80	3.37	6.44	3.69	1.31	0.192
Practical Exercises	6.23	3.82	6.38	3.85	-0.53	0.599
Small-Group Discussions	5.23	3.57	5.02	3.65	0.78	0.437
One-on-One Discussions	4.50	3.68	5.19	3.92	-2.35	0.019
Online Supplemental Course Materials	3.98	3.84	3.68	3.80	1.01	0.313
Simulation Activities	3.79	3.83	3.90	3.98	-0.37	0.713
Student-Led Discussions	3.62	3.62	3.58	3.67	0.14	0.886
Debates	3.03	3.53	3.55	3.87	-1.80	0.072
Independent Research	2.91	3.38	3.48	3.70	-2.08	0.038
Peer Tutors	2.48	3.07	3.12	3.64	-2.44	0.015
Case Studies	2.62	3.15	2.85	3.40	-0.92	0.358
Portfolios	2.47	3.38	2.49	3.53	-0.06	0.955
Capstone Projects	1.51	2.68	1.90	3.23	-1.66	0.098
Guest Lecturers	1.15	2.29	0.68	1.54	3.20	0.001

to speak during class more often than did their male colleagues (M = 0.68, SD = 1.54). The independent samples *t*-tests did not identify any instances in which male instructors used instructional practices at levels that were significantly different at the $p < 0.005$ standard established for this study.

Ethnicity. The demographic data collected during the survey administration revealed that 76.3% of the respondents who reported their ethnicity identified themselves as Caucasians. Another 17.9% of the survey participants said that they were African-Americans. The remaining respondents reported that they were Hispanics, Asian or Pacific Islanders, Native Americans, or people of mixed race. The population of each of these other ethnic groups was not large enough to make valid comparisons. With only two categories to consider, the researcher conducted independent samples *t*-tests to determine whether African-American instructors and Caucasian instructors used the instructional practices at different levels and whether those differences were statistically significant. Table 4.7 shows the results of the *t*-tests. A negative *t* value indicates that African-American instructors used the instructional practices more often than did Caucasian faculty members.

Table 4.7

Independent Samples t-tests Results for Ethnicity

	Ethnicity					
	Caucasian (n = 528)		African-American (n = 123)		*t*-test for Equality of Means	
Instructional Practice	**M**	**SD**	**M**	**SD**	***t***	**Sig. (2-tailed)**
Lectures	7.96	2.62	9.30	1.86	-3.55	0.001
Full-Group Discussions	7.39	3.32	7.15	3.93	0.37	0.714
Course Textbooks	7.31	3.47	8.20	3.03	-1.26	0.209
Multimedia Devices	7.20	3.56	8.44	2.72	-1.79	0.074
Hands-on Activities	6.52	3.51	7.26	3.55	-1.07	0.284
Practical Exercises	6.20	3.82	6.56	4.34	-0.47	0.639
Small-Group Discussions	4.86	3.55	5.44	4.12	-0.82	0.411
One-on-One Discussions	4.69	3.77	5.67	4.00	-1.31	0.191
Online Supplemental Course Materials	3.61	3.77	4.89	4.47	-1.46	0.155
Simulation Activities	3.82	3.87	3.56	4.24	0.34	0.734
Student-Led Discussions	3.11	3.41	4.63	4.46	-1.74	0.092
Debates	2.92	3.58	3.15	4.10	-0.32	0.748
Independent Research	2.88	3.42	4.19	4.13	-1.61	0.119
Peer Tutors	2.54	3.19	3.81	3.69	-2.00	0.046
Case Studies	2.60	3.15	1.58	2.63	1.03	0.628
Portfolios	2.24	3.30	2.15	3.27	0.14	0.887
Capstone Projects	1.53	2.77	2.00	3.66	-0.65	0.518
Guest Lecturers	0.77	1.62	0.67	1.98	0.31	0.754

African-Americans (M = 9.30, SD = 1.86) reported that they lectured during 1.34 more sessions than did the Caucasian respondents (M = 7.96, SD = 2.62). Using the logic of the Bonferroni method as the standard to base decisions, the researcher determined that the results of the *t*-test were significant, ($t(31.66) = -3.55$. $p = 0.001$). The independent samples *t*-tests did not reveal any other instance in which the level of use between Caucasian and African-American instructors was significant at the $p < 0.005$ level.

Employment status. Table 4.8 shows that 370 survey respondents (52.3%) reported that they were employed full-time at their institutions, while 337 participants (47.7%) reported that they were employed on a part-time or adjunct basis. Independent samples *t*-tests were used to identify differences in levels of use. A negative *t* value in Table 4.8 indicates that part-time faculty used the instructional practice more often than did full-time instructors. The independent samples *t*-tests uncovered six instances in which the levels of usage by full-time technical college faculty were significantly higher at the conservative $p < 0.005$ level; the significance value was 0.000 for three of the six items. Full-time faculty used the following instructional practices at significantly higher levels than did their part-time colleagues:

- Multimedia devices ($t(618.55) = 4.67$, $p = 0.000$);
- Practical exercises ($t(699.00) = 4.67$, $p = 0.000$);
- Simulation activities ($t(699) = 4.97$, $p = 0.000$);
- Online supplemental course materials ($t(697.00) = 3.22$, $p = 0.001$);
- Hands-on activities ($t(679.00) = 2.96$, $p = 0.003$); and
- Capstone projects ($t(679.98) = 2.84$, $p < 0.005$).

The independent samples *t*-tests did not uncover any instance in which adjunct instructors used instructional practices at levels that were significantly higher (where $p < 0.005$) than that of full-time faculty members.

Age. A total of 686 survey participants entered onto the questionnaire the year they were born. The recalculation of this information into actual ages revealed that the age of respondents

Table 4.8

Independent Samples t-tests Results for Employment Status

Instructional Practice	Employment Status: Full Time (n = 370)		Employment Status: Part-Time (n = 337)		*t*-test for Equality of Means	
	M	SD	M	SD	*t*	Sig. (2-tailed)
Lectures	7.98	2.52	8.19	2.55	-1.12	0.262
Full-Group Discussions	7.50	3.21	7.47	3.39	0.13	0.901
Course Textbooks	7.55	3.36	7.44	3.39	0.44	0.658
Multimedia Devices	7.96	2.91	6.75	3.84	4.67	0.000
Hands-on Activities	7.00	3.38	6.21	3.61	2.96	0.003
Practical Exercises	6.90	3.51	5.56	4.05	4.67	0.000
Small-Group Discussions	5.10	3.56	5.14	3.63	-0.14	0.886
One-on-One Discussions	4.70	3.86	4.89	3.74	-0.65	0.513
Online Supplemental Course Materials	4.28	3.79	3.36	3.77	3.22	0.001
Simulation Activities	4.48	3.88	3.05	3.73	4.97	0.000
Student-Led Discussions	3.60	3.51	3.57	3.75	0.12	0.908
Debates	3.31	3.70	3.16	3.66	0.53	0.599
Independent Research	3.49	3.59	2.73	3.38	0.76	0.264
Peer Tutors	2.78	3.32	2.66	3.32	0.47	0.636
Case Studies	3.12	3.29	2.25	3.14	0.88	0.244
Portfolios	2.44	3.37	2.56	3.58	-0.47	0.638
Capstone Projects	1.94	3.04	1.32	2.65	2.84	0.005
Guest Lecturers	1.13	2.17	0.78	1.91	2.27	0.024

ranged from a low of 23 to a high of 76. The linear regression analysis uncovered only one instance in which the usage level was significant at the $p < 0.005$ level (see Table 4.9). The number of times technical college faculty engaged in one-on-one discussions with students increased as the age of the instructors increased; however, the r^2 value indicates that the differences in age explained only 1.4% of the variance. Although significant, the differences are not substantively important to this study.

Highest credential held by survey respondents. The final personal characteristic to be studied as part of this research project was the highest credential held by respondents at the time of the survey administration. Table 4.10 provides a breakdown of this data. It should be noted

Table 4.9

Linear Regression Results for Age (n = 686)

Instructional Practice	***r***	***r***^{2}	***Sig.***
Lectures	-0.47	0.002	0.218
Full-Group Discussions	-0.82	0.007	0.031
Course Textbooks	-0.02	0.000	0.621
Multimedia Devices	-0.04	0.001	0.345
Hands-on Discussions	0.01	0.000	0.712
Practical Exercises	0.08	0.007	0.028
Small-Group Discussions	-0.05	0.002	0.194
One-on-One Discussions	0.12	0.014	0.005
Online Supplemental Course Materials	0.04	0.002	0.254
Simulation Activities	-0.01	0.000	0.885
Student-Led Discussions	0.01	0.000	0.840
Debates	0.00	0.000	0.926
Independent Research	0.06	0.004	0.121
Peer Tutors	0.09	0.009	0.015
Case Studies	0.03	0.001	0.405
Portfolios	0.08	0.006	0.053
Capstone Projects	0.03	0.001	0.396
Guest Lecturers	-0.03	0.001	0.449

that the questionnaire also included a high school/GED option and a technical certificate of credit (TCC) option in the list from which respondents could select the highest credential they held. Six people indicated that they only held a high school diploma or its equivalent, and two indicated that they only held a TCC. Because of these low numbers, valid comparisons could not be made; therefore, these responses were omitted from the analysis.

As a reminder to readers of this document, the researcher employed one-way analysis-of-variance (one-way ANOVA) tests to identify statistically significant differences. He used this statistical procedure instead of the independent samples *t*-test or linear regression because there were six different credentials to be evaluated. Table 4.10 shows that the one-way ANOVA tests uncovered six instances in which the difference in levels of use were statistically significant at

Table 4.10

One-Way ANOVA Results for Highest Credential Earned

Instructional Practice	Highest Credential Earned: Diploma (n = 25)		Associate (n = 64)		Bachelor's (n = 64)		Master's (n = 376)		Professional (m = 47)		Doctorate (m = 58)		One-way ANOVA	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	***F***	**Sig.**
Lectures	8.35	2.57	8.05	2.50	8.18	2.26	8.10	2.57	7.74	2.94	8.16	2.54	0.27	0.929
Full-Group Discussions	8.24	2.68	7.40	3.47	7.81	3.02	7.33	3.35	7.91	3.29	7.97	2.91	1.07	0.375
Course Textbooks	7.84	3.22	8.02	2.81	7.82	3.13	7.25	3.56	7.49	3.57	7.67	3.24	1.03	0.399
Multimedia Devices	7.60	3.22	7.25	3.48	7.13	3.52	7.52	3.35	6.43	4.09	7.74	3.29	1.12	0.346
Hands-on Activities	8.00	2.69	7.75	2.96	7.28	3.20	6.20	3.68	5.98	3.37	6.36	3.54	4.53	0.000
Practical Exercises	8.12	2.77	7.73	3.06	6.92	3.56	5.84	3.97	5.43	3.86	5.69	3.86	5.67	0.000
Small-Group Discussions	7.48	3.23	5.81	3.61	4.65	3.52	5.02	3.61	5.45	3.51	5.12	3.40	3.29	0.006
One-on-One Discussions	5.40	3.50	5.59	3.79	4.27	3.87	4.76	3.79	5.21	3.69	4.69	3.87	1.33	0.251
Online Supplemental Course Materials	4.32	4.26	4.15	3.80	3.16	3.61	3.97	3.82	4.11	3.82	4.19	4.13	1.24	0.290
Simulation Activities	6.72	3.75	4.95	3.50	4.40	4.06	3.23	3.72	3.49	3.79	2.83	3.41	10.39	0.000
Student-Led Discussions	6.00	3.85	4.56	3.62	3.17	3.37	3.49	3.65	4.00	3.69	3.21	3.51	3.76	0.002
Debates	4.62	4.27	4.45	3.88	2.89	3.67	3.03	3.52	4.22	3.88	2.84	3.55	2.57	0.013
Independent Research	5.48	3.73	4.00	3.66	2.60	3.20	2.89	3.39	4.40	3.87	3.53	3.95	5,48	0.000
Peer Tutors	4.96	3.82	3.17	3.62	2.75	3.18	2.49	3.22	3.17	3.39	2.60	3.37	3.00	0.011
Case Studies	3.67	3.91	3.56	3.47	2.74	3.31	2.50	3.15	3.02	3.37	2.50	3.03	1.72	0.129
Portfolios	4.24	4.06	3.21	3.79	2.40	3.38	2.36	2.45	2.47	3.16	1.98	2.85	2.22	0.051
Capstone Projects	1.79	3.49	2.29	3.28	2.08	3.20	1.45	2.72	1.52	2.41	1.71	3.16	1.55	0.171
Guest Lecturers	2.76	3.57	1.60	2.48	1.04	2.03	0.76	1.80	0.63	1.59	0.95	2.16	6.27	0.000

the p <0.005 level; the significance value was 0.000 for five of the six items. Those six instructional practices included:

- Hands-on activities ($F(5, 690) = 4.53$, $p = 0.000$);
- Practical exercises ($F(5, 696) = 5.67$, $p = 0.000$);
- Simulation activities ($F(5, 693) = 10.39$, $p = 0.000$);
- Student-led discussions ($F(5, 685) = 3.76$, $p = 0.002$);
- Independent research ($F(5, 695) = 5.48$, $p = 0.000$); and
- Guest lecturers ($F(5, 686) = 6.27$, $p = 0.000$).

The one-way ANOVA tests only indicated where significant differences existed; these tests did not indicate where the differences were significant (Texas A & M University, 2009). The researcher conducted post hoc tests to identify the specific differences. As was noted earlier in this chapter, the Bonferroni method is one of the post hoc tests available with one-way ANOVA to identify where differences exist between subgroups. It was also noted that this method is preferred when a large number of significant tests must be conducted to identify differences that are significant. The researcher used the results of the Bonferroni post hoc tests to identify where the differences existed for the six items where the one-way ANOVA identified significant differences at the $p < 0.005$ level. The Bonferroni post hoc tests conducted to identify specific differences as applied to hands-on activities, practical exercises, simulation activities, student-led discussions, independent research, and guest lecturers consistently documented that the statistically significant differences in approaches to classroom instruction were between holders of diplomas and associate degrees and those who held four-year and graduate degrees.

Instructors who reported that they graduated from diploma programs at technical colleges used the following instructional practices at levels that were significantly higher than the usage levels reported by faculty members who held doctoral degrees: simulation activities (M difference = 3.89), student-led discussions (M difference = 2.79), and guest lecturers (M difference = 1.81). Graduates of diploma programs also used guest lecturers (M difference = 2.13) and simulation activities (M difference = 3.23) more often than did those individuals who had earned professional degrees. Diploma program graduates also used the following instructional techniques at levels that were significantly higher than the levels of use recorded for instructors who held master's degrees: simulation activities (M difference = 3.49), student-led discussions (M difference = 2.51), independent research (M difference = 2.59), and guest lecturers (M difference = 2.00). Finally, instructors who graduated from diploma programs used student-led discussions (M difference = 2.83), independent research (M difference = 2.88), and guest lecturers (M difference = 1.72) more often than did those faculty members who had earned bachelor's degrees.

Instructors who reported that their highest credential was an associate degree used the following instructional practices at higher levels than did faculty members who held master's degrees: hands-on activities (M difference = 1.55), practical exercises (M difference = 1.90), and simulation activities (M difference = 2.72). The post hoc tests revealed that holders of associate degrees incorporated practical exercises and simulation activities at levels that were significantly higher than what was reported by holders of professional degrees and those who held doctoral degrees. The mean differences between usage levels by graduates of associate degree programs and the usage levels of professional degree holders and doctoral program graduates for practical exercises are as follows: professional degrees (M difference = 2.31) and doctoral degrees (M difference = 2.04). The differences between these subgroups for simulation exercises are professional degrees (M difference = 2.46) and doctoral degrees (M difference = 3.12).

Situational Factors

The situational factors of interest to this study included the academic disciplines of the survey respondents, their workload, and the size of their largest class. The researcher provided survey respondents with a blank box to enter their academic discipline. At the conclusion of the data collection period, the researcher recoded the responses into five broad categories using the classifications employed at the institution where he works. Respondents who taught at least one learning support class were grouped in this category regardless of whether they taught other classes. The researcher then conducted one-way ANOVA tests to determine whether instructors of the respective categories used the 18 instructional practices at significantly different levels than did instructors in other categories. Table 4.11 provides the results of those tests. The table also provides information on the number of survey participants who were recoded into each of the broad categories.

The one-way ANOVA tests uncovered 12 instances where the differences in the level of use were significant at the $p < 0.005$ level. The following instructional practices met these criteria:

- Multimedia devices ($F(5, 752) = 14.69$, $p = 0.000$);
- Hands-on activities ($F(5, 748) = 15.16$, $p = 0.000$);
- Practical exercises ($F(5, 756) = 15.41$, $p = 0.000$);
- One-on-one discussions between the instructor and students ($F(5, 752) = 7.33$, $p = 0.000$);
- Online supplemental course materials ($F(5, 751) = 5.16$, $p = 0.000$);
- Simulation activities ($F(5, 753) = 25.67$, $p = 0.000$);
- Independent research ($F(5, 755) = 10.01$, $p = 0.000$);

Table 4.11

One-way ANOVA Results for Academic Discipline

Instructional Practice	Academic Discipline										One-way ANOVA	
	Business (n = 188)		General Education (n = 189)		Learning Support (n = 53)		Life Sciences (n = 177)		Technical (n = 106)			
	M	SD	M	SD	M	SD	M	SD	M	SD	*F*	Sig.
Lectures	7.98	2.68	8.23	2.49	7.79	2.76	8.46	2.09	7.66	2.86	1.91	0.091
Full-Group Discussions	7.54	3.22	7.78	3.16	7.79	3.34	7.33	3.29	7.19	3.54	0.80	0.548
Course Textbooks	7.46	3.38	7.24	3.60	8.20	2.94	7.47	3.50	7.80	2.90	0.90	0.484
Multimedia Devices	8.50	2.56	6.51	3.88	4.83	3.83	7.98	3.05	7.29	3.32	14.69	0.000
Hands-on Activities	7.45	3.37	5.17	3.70	6.23	3.55	6.39	3.31	8.34	2.41	15.16	0.000
Practical Exercises	6.77	3.74	4.69	4.02	5.21	4.24	6.60	3.45	8.30	2.52	15.41	0.000
Small-Group Discussions	4.93	3.66	5.14	3.44	5.62	3.67	4.55	3.60	6.23	3.54	3.32	0.006
One-on-One Discussions	5.48	3.96	4.61	3.59	4.72	3.69	3.59	3.64	5.95	3.62	7.33	0.000
Online Supplemental Course Materials	4.70	4.00	3.58	3.75	4.00	3.87	2.88	3.42	4.50	3.88	5.16	0.000
Simulation Activities	4.62	4.08	1.75	2.86	2.44	3.64	4.14	3.58	6.11	3.78	25.67	0.000
Student-Led Discussions	3.86	3.70	3.37	3.54	3.58	3.64	3.24	3.58	4.01	3.65	2.53	0.027
Debates	3.16	3.71	3.44	3.59	2.77	3.23	2.82	3.60	4.10	4.06	2.29	0.044
Independent Research	4.30	3.78	2.34	3.19	2.49	3.23	2.49	3.15	4.00	3.68	10.01	0.000
Peer Tutors	2.55	3.25	2.75	3.31	3.23	3.50	2.21	3.01	3.67	3.67	3.41	0.005
Case Studies	3.74	3.44	1.39	2.49	1.09	2.34	3.27	3.27	3.10	3.41	16.10	0.000
Portfolios	3.62	3.87	1.62	2.79	2.71	3.59	1.43	2.56	3.79	4.02	14.29	0.000
Capstone Projects	2.99	3.60	0.92	2.26	0.46	1.04	1.01	1.96	2.31	3.43	17.69	0.000
Guest Lecturers	0.93	1.93	0.41	1.44	0.61	1.28	1.43	2.49	1.27	2.26	5.65	0.000

- Peer tutors ($F(5, 753) = 3.41$, $p = 0.005$);
- Case studies ($F(5, 746) = 16.10$, $p = 0.000$);
- Portfolios ($F(5, 748) = 14.29$, $p = 0.005$);
- Capstone projects ($F(5, 753) = 17.69$, $p = 0.000$): and
- Guest lecturers ($F(5, 746) = 5.65$, $p = 0.000$).

The Bonferroni post hoc tests revealed only one statistically significant instance in which faculty who taught business courses used an instructional practice more often than did those who taught technical program courses. Business faculty reported that they used multimedia devices more often than did technical program instructors. The mean difference was 1.22 sessions.

Post hoc tests revealed that business instructors used a number of instructional practices more often than did their peers who taught general education courses, learning support coursework, and life sciences courses. The Bonferroni post hoc tests revealed that instructors of business-related programs used the following activities significantly more often than did general education faculty:

- Multimedia devices ($\underline{M}$ difference = 1.99);
- Hands-on activities ($\underline{M}$ difference = 2.27);
- Practical exercises ($\underline{M}$ difference = 2.08);
- Simulation activities ($\underline{M}$ difference = 2.87);
- Independent research ($\underline{M}$ difference = 1.96);
- Case studies ($\underline{M}$ difference = 2.36);
- Portfolios ($\underline{M}$ difference = 2.01); and
- Capstone projects ($\underline{M}$ difference = 2.07).

Business faculty used the following instructional practices more often than did those instructors who taught learning support coursework in English, reading, and mathematics:

- Multimedia devices (M difference = 3.68);
- Simulation activities (M difference = 2.17);
- Independent research (M difference = 1.81);
- Case studies (M difference = 2.65); and
- Capstone projects (M difference = 2.53).

Finally, business program faculty used the six instructional practices more often than did instructors in life science programs of study. The differences in levels of use were significant at the $p < 0.005$ level. Those six practices were:

- Hands-on activities (M difference = 1.06);
- One-on-one discussions (M difference = 1.89);
- Online supplemental course materials (M difference = 1.82);
- Independent research (M difference = 1.81);
- Portfolios (M difference = 2.19); and
- Capstone projects (M difference = 1.98).

The Bonferroni post hoc test found only one instance in which general education faculty used an instructional practice more often than did instructors in the other divisions. The post hoc test showed that general education faculty used multimedia devices at higher levels than what was reported by instructors of learning support coursework. The mean difference of 1.68 was statistically significant at the $p < 0.005$ level.

Life sciences instructors used multimedia devices (M difference = 3.15), simulation activities (M difference = 1.69), and case studies (M difference = 2.17) at levels that were higher than what was reported by learning support instructors. These differences were significant at the $p < 0.005$ level. Life sciences also used six instructional practices more often than did general education faculty. The six items included:

- Multimedia devices (M difference = 1.47);
- Hands-on activities (M difference = 1.21);
- Practical exercises (M difference = 1.91);
- Simulation activities (M difference = 2.39);
- Case studies (M difference = 1.88); and
- Guest lecturers (M difference = 1.02).

The majority of the statistically significant differences in levels of use were found between instructors of technical programs and instructors in the other four broad categories. Post hoc tests showed that technical program faculty used practical exercises (M difference = 1.54) and simulation activities (M difference = 1.50) at higher levels than what was recorded for business program faculty. Significant differences in usage levels also existed between technical program faculty and those instructors who taught general education courses.

Technical program faculty used the following instructional practices more often than did general education faculty:

- Hands-on activities (M difference = 3.17);
- Practical exercises (M difference = 3.61);
- Simulation activities (M difference = 4.37);
- Independent research (M difference = 1.66);
- Case studies (M difference = 1.71);
- Portfolios (M difference = 2.17);

- Capstone projects (M difference = 1.40); and
- Guest lecturers (M difference = 0.86).

Technical program instructors also used six instructional practices at higher levels than what were reported for those who indicated that they taught learning support courses. In each instance, the differences in the levels of use were significant at the $p < 0.005$ level. The six instructional techniques in this category included:

- Multimedia devices (M difference = 2.46);
- Hands-on activities (M difference = 2.11);
- Practical exercises (M difference = 3.09);
- Simulation activities (M difference = 3.67);
- Case studies (M difference = 2.00); and
- Capstone projects (M difference = 1.85).

Finally, technical college instructors used the following practices at statistically significant higher levels than did instructors in the life sciences fields:

- Hands-on activities (M difference = 1.96);
- One-on-one discussions (M difference = 2.36);
- Online supplemental course materials (M difference = 1.62);
- Simulation activities (M difference = 1.98);
- Independent research (M difference = 1.51);
- Peer tutors (M difference = 1.46);
- Portfolios (M difference = 2.36); and
- Capstone projects (M difference = 1.31).

Faculty workload. Faculty workload strictly focused on the number of classes/courses instructors were teaching during the data collection period. Faculty workload did not incorporate the myriad responsibilities of faculty. Workload did not take into consideration faculty members' advisement responsibilities, committee responsibilities, or accreditation responsibilities. The number of classes taught by technical college faculty ranged from a minimum of 1 class to a maximum of 23 classes. To some readers, the maximum number of classes taught by some technical college faculty members may seem excessive; however, it is not unusual for technical program instructors to use individualized formats that allow students to progress through the sequence of courses at their own pace. Every course within the program of study is included on the schedule of classes each academic term. The instructor may work with a student who is taking his or her first course, another student who is midway through the sequence of courses, and a third student who is taking the last course needed to graduate from the program. On paper, it appears that the instructor is teaching every course associated with that particular program. In actuality, however, the instructor may be teaching only a few courses that term.

The researcher used linear regression to determine whether increases in faculty workload affected the types of instructional practices technical college faculty used. The results of these analyses are presented in Table 4.12. The regression analysis uncovered eight instances in which the differences in usage levels were significant at the $p < 0.005$ level. Instructors incorporated each of the eight instructional practices into their overall approach to classroom instruction more often as their workload increased. The eight items meeting these criteria included:

- Hands-on activities ($r = 0.13$, $p = 0.001$);
- Practical exercises ($r = 0.13$, $p = 0.001$);
- Online supplemental course materials ($r = 0.16$, $p = 0.000$);

Table 4.12

Linear Regression Results for Faculty Workload (n = 715)

Instructional Practice	***r***	r2	***Sig.***
Lectures	-0.47	0.002	0.213
Full-Group Discussions	-0.16	0.000	0.665
Course Textbooks	0.60	0.004	0.111
Multimedia Devices	0.04	0.002	0.287
Hands-on Activities	0.13	0.016	0.001
Practical Exercises	0.13	0.017	0.001
Small-Group Discussions	0.10	0.010	0.007
One-on-One Discussions	0.10	0.010	0.008
Online Supplemental Course Materials	0.16	0.026	0.000
Simulation Activities	0.14	0.018	0.000
Student-Led Discussions	0.10	0.010	0.007
Debates	0.06	0.003	0.118
Independent Research	0.17	0.030	0.000
Peer Tutors	0.11	0.013	0.003
Case Studies	0.13	0.017	0.001
Portfolios	0.10	0.011	0.006
Capstone Projects	0.18	0.031	0.000
Guest Lecturers	0.05	0.003	0.169

- Simulation activities (r = 0.14, p = 0.000);
- Independent research (r = 0.17, p = 0.000);
- Peer tutors (r = 0.11, p = 0.003);
- Case studies (r = 0.13, p = 0.001); and
- Capstone projects (r = 0.18, p = 0.000)

Class size. The final situational factor studied as part of this research project focused on the size of instructors' largest class. Frequency statistics show that the size of classes ranged from a minimum of 1 student to a maximum of 101 students. (Classes with only one student in them tended to be those associated with individualized instructional techniques.) The researcher used linear regression to identify whether class size affected usage levels of instructional practices and whether those differences were significant. Table 4.13 shows only three instances in which the differences usage levels were significant at the *p* = 0.005 level. Those practices included multimedia devices (*r* = 0.10, *p* = 0.005), hands-on activities (*r* = -0.12, *p* = 0.001), and practical exercises (*r* = -0.11, *p* = 0.002). The negative *r* values indicate that the level of use of the instructional practice decreased as the size of the classes increased.

Table 4.13

Linear Regression Results for Class Size (n = 717)

Instructional Practice	***r***	***r^2***	***Sig.***
Lectures	0.07	0.006	0.048
Full-Group Discussions	-0.04	0.002	0.235
Course Textbooks	-0.01	0.000	0.807
Multimedia Devices	0.10	0.010	0.005
Hands-on Discussions	-0.12	0.015	0.001
Practical Exercises	-0.11	0.013	0.002
Small-Group Discussions	0.00	0.000	0.923
One-on-One Discussions	-0.08	0.006	0.037
Online Supplemental Course Materials	0.07	0.005	0.054
Simulation Activities	-0.10	0.011	0.006
Student-Led Discussions	-0.00	0.000	0.954
Debates	0.01	0.000	0.762
Independent Research	-0.06	0.003	0.144
Peer Tutors	-0.05	0.002	0.155
Case Studies	-0.05	0.003	0.155
Portfolios	-0.06	0.004	0.090
Capstone Projects	-0.09	0.007	0.026
Guest Lecturers	-0.07	0.005	0.058

CHAPTER V

DISCUSSION OF FINDINGS

This chapter begins with an overview of the study, which begins by restating the purpose and the questions that guided this research project. The introductory information presented at the beginning of this chapter is followed by a summary of the conceptual framework, the development of the questionnaire, the selection of the survey population, the administration of the survey, and the statistical procedures used to analyze the data. The overview and introductory information serves as the foundation to summarize and discuss the findings. This chapter also includes a discussion about how the findings should shape practice in the future. The concluding section of this chapter offers suggestions about future research initiatives.

The purpose of this study was to explore the use of 18 instructional practices by technical college faculty to accomplish the three learning outcomes of aiding students in acquiring information, in solving problems, and in learning to perform tasks. Four research questions provided the foundation to accomplish the purpose of this study. The research questions included:

1. To what extent did technical college faculty use the instructional practices to aid students in acquiring information, in solving problems, and in learning to perform tasks?
2. How did technical college faculty rate the effectiveness of the instructional practices in aiding students in acquiring information, in solving problems, and in learning to perform tasks?

3. To what extent did technical college faculty employ instructional practices that are effective in aiding students in acquiring information, in solving problems, and in learning to perform tasks?
4. Was the propensity to use the instructional practices predicted by personal characteristics and situational factors?

Cooley Verner's (1962, 1964) observations of the instructional practices used by adult education practitioners in the 1960s provided the conceptual framework for this study. Verner indentified three purposes of adult education and three elements of the instructional management process employed by adult education teachers. Combining the three purposes and three elements created the overriding conceptual structure for this study. The synthesized conceptual framework focused on the techniques, devices, and methods technical college faculty incorporate into their overall approach to classroom management in order to aid students in acquiring information on course content and concepts (information acquisition), in learning to solve problems (knowledge application), and in learning to perform tasks (skill development).

The 18 instructional practices included on the survey questionnaire were derived from a comprehensive review of the scholarly literature on active and collaborative learning and on the student-centered and teacher-centered approaches to teaching and learning, as well as an in-depth evaluation of existing survey instruments designed to measure instructional activities and student and faculty interactions. These reviews identified 662 activities for possible inclusion on the proposed technical college faculty survey. A process of elimination and a series of critique sessions with advanced doctoral students in adult education and College of Education faculty at a private liberal arts college led to the creation of a final item pool containing the 18 instructional practices included on the technical college faculty survey.

The 18 items were incorporated into a prototype survey instrument. This prototype consisted of a series of triplet questions. Each triplet was designed to measure how often faculty used a particular practice to aid with knowledge acquisition (the first triplet), to aid in knowledge application and problem solving (the second triplet), and to aid in skills development and task performance (the third triplet). Upon receiving approval from the university's Institutional Review Board (IRB), the researcher administered the prototype survey instrument to full- and part-time faculty at a technical college located in the northeastern section of Georgia. The pilot administration uncovered a major flaw with the triplet design. The instrument successfully identified variances in how often survey respondents used each of the 18 instructional practices, but it did not identify distinctions between how often respondents used each practice to address each of the three student learning outcomes identified in the conceptual framework of this research study.

This discovery of a flawed survey design led to a major revision of the instrument. The revised questionnaire included a section to collect data on how often technical college faculty used each of the 18 instructional practices during a specific period of time. The next three sections of the revised questionnaire collected information about instructors' opinions of how effectively each instructional practice addressed the three student learning outcomes. Each of these sections focused specifically on one of the learning outcomes. The final section of the revised questionnaire was inserted to collect information about the personal characteristics and situational factors needed to answer the fourth question associated with this study. Following the creation of the revised instrument, the researcher submitted a revised IRB application seeking approval to conduct a second pilot study at a technical college in the east central section of

Georgia. This pilot revealed that the new version of the survey questionnaire functioned as envisioned.

The actual survey administration occurred over a four-week period during Fall Quarter 2009 using SurveyMonkey®, an Internet-based survey design and data collection tool. Using an online tool greatly reduced the cost of administering the questionnaire; therefore, all full- and part-time faculty—rather than a representative sampling—at eight members institutions of the Technical College System of Georgia were invited to participate in the study. The eight institutions were selected for two reasons: (a) each institution held regional accreditation to award associate degrees and (b) each institution graduated more than 200 students from associate degree programs during the 2007-2008 academic year.

Faculty received up to four emails related to the study during the survey administration period. The first email, which was sent by a senior administrator at each institution, outlined the significance of the study and provided encouragement for the faculty to complete and submit a questionnaire. Two days later all faculty received an email from the researcher inviting them to participate in the study. This email invitation included a web link to the survey instrument. Two follow-up emails were sent to all non-respondents at seven-day increments following the release of the email invitation from the researcher. At the conclusion of the data collection period, 1,119 people had submitted surveys, which yielded a response rate of 50.2%. A series of adjustments to remove ineligible participants from the overall survey population and to remove incomplete surveys reduced the number of usable questionnaires to 744. The removal of ineligible participants from the overall population, however, led to an increase in the response rate. The final adjusted response rate was 54.5%.

Establishing the final response rate provided the basis to run statistical procedures and to analyze data in order to answer the four questions associated with this research project. In relation to the first question, frequency statistics (means and standard deviations) provided the data needed to rank order the practices from those used the most to those used the least. Recoding the survey responses to this first question provided information on the percentage of technical college faculty who always used the practices in all ten class sessions and those who used them heavily (in eight to nine session), moderately (in four to seven sessions), and rarely (in one to three sessions), as well as those who never used a particular practice.

Three sets of frequency statistics were generated to answer the second research question, which asked respondents to evaluate the effectiveness of each instructional practice in accomplishing each of the three student learning outcomes identified in the conceptual framework for this study. One set of frequency statistics specifically focused on the effectiveness of each of the 18 instructional techniques in aiding students in acquiring information on course content and concepts. A second set of statistics explored the perceived effectiveness of the individual teaching practices in aiding students in learning to apply newly acquired knowledge to solve problems, while the third data set analyzed the effectiveness of the items in aiding students in learning to perform tasks. Only the responses of individuals who said they used a practice at least once were included in the calculation of the means and standard deviations.

The four sets of means generated to answer the first two questions formed a new database that was then used to answer the third question, which sought to identify the extent to which technical college faculty used those practices they perceived to be effective in helping students to master the three student learning outcomes. The new database allowed for the creation of three scatter plots. The statistical software package used in this research study divided the scatter plots into four quadrants. The software program placed each instructional practice into one of the quadrants by using a combination of the mean score for level of use and the mean score for the perceived effectiveness of the instructional technique in accomplishing the student learning outcome. This sorting process visually identified the high use/more effective practices, low use/more effective practices, low use/less effective practices, and high use/less effective practices.

Significance tests, including independent samples *t*-tests, one-way analysis-of-variance (one-way ANOVA), and linear regression, were used to generate the data needed to answer the fourth question associated with this research project. This question sought to identify whether the propensity to use the 18 instructional practices was predicted by personal characteristics and situational factors. In the end, 162 significance tests were generated to answer this question. Because of this large number of tests, the logic associated Bonferroni method, a post hoc test associated with ANOVA statistical procedures, was used to reduce the probability of making Type I errors by rejecting the null hypothesis when, in fact, the differences were not significant. The Bonferroni method flags as significant those differences at the $p < 0.005$ level. For consistency, this level of significance was applied to the results of independent samples *t*-tests and linear regression, as well as for the one-way ANOVA tests.

Summary of the Findings

Technical college faculty lectured an average of slightly more than eight out of ten class sessions, thus making lectures the most used of the 18 teaching practices included on the survey questionnaire. Overall, 92.8% of the respondents said they lectured for four or more class sessions, with over half (52.6%) of these respondents indicating that they lectured during all 10 of the class sessions used as the unit of analysis for this study. In additional to lectures, the teaching practices used most often by technical college faculty included full-group discussions (second), course textbooks (third), multimedia devices (fourth), and hands-on activities (fifth). The five least used instructional techniques included peer tutors (fourteenth), case studies (fifteenth), portfolios (sixteenth), capstone projects (seventeenth) and guest lecturers (eighteenth).

Survey respondents determined that hands-on activities (first) and practical exercises (second) were the most effective teaching activities for achieving each of the three student learning outcomes. For both instructional techniques, respondents' mean scores were highest for the skills development (task performance) outcome and lowest for the knowledge application (problem solving) learning outcome, but the range of scores was minimal. Mean scores for the perceived effectiveness of hands-on activities in achieving the three student learning outcomes ranged from 3.69 to 3.74 on a four-point scale. For practical exercises, the mean scores ranged from 3.61 to 3.65 on a four-point scale. Mean scores recorded for simulation activities and one-on-one discussions between instructors and individual students placed these techniques as two of the five most effective practices in accomplishing each of the three student learning outcomes, but their rank order varied. Faculty effectiveness ratings for multimedia devices placed this teaching practice in the top five techniques for both the knowledge acquisition and task performance learning outcomes, but this practice was replaced by small-group discussions as one of the top five techniques that were effective in accomplishing the problem-solving outcome.

Figure 5.1 summarizes the results uncovered to answer the third research question. The order of the instructional practices is based on the mean effectiveness scores for that particular learning outcome; teaching techniques with higher mean scores are listed first. For example, survey respondents assigned a higher mean score to one-on-discussions between the instructor and individual students for the information learning outcome; therefore, this practice is listed ahead of simulation activities for the information acquisition column in Quadrant D of Figure 5.1.

	Less Effective			**More Effective**		
	Quadrant A			Quadrant B		
	Information Acquisition	Problem Solving	Task Performance	Information Acquisition	Problem Solving	Task Performance
High Use	• Small-Group Discussion • Lectures • Course Textbooks	• Small-Group Discussion • Full-Group Discussion • Multimedia Devices • Lectures • Course Textbooks	• Multimedia Devices • Small-Group Discussion • Full-Group Discussion • Lectures • Course Textbooks	• Hands-on Activities • Practical Exercises • Multimedia Devices • Full-Group Discussions	• Hands-on Activities • Practical Exercises	• Hands-on Activities • Practical Exercises
	Quadrant C			Quadrant D		
	Information Acquisition	Problem Solving	Task Performance	Information Acquisition	Problem Solving	Task Performance
Low Use	• Online Supplemental Course Materials • Guest Lecturers • Case Studies • Peer Tutors • Capstone Projects • Independent Research • Portfolios • Student-Led Discussions • Debates	• Case Studies • Peer Tutors • Online Supplemental Course Materials • Capstone Projects • Independent Research • Student-Led Discussions • Guest Lecturers • Debates • Portfolios	• Peer Tutors • Capstone Projects • Online Supplemental Course Materials • Case Studies • Independent Research • Portfolios • Student-Led Discussions • Guest Lecturers • Debates	• One-on-One Discussion • Simulation Activities	• Simulation Activities • One-on-One Discussion	• Simulation Activities • One-on-One Discussion

Figure 5.1: *Relationship Between the Use Means Scores and Perceived Effectiveness Means Scores for Three Student Learning Outcomes*

Significance tests conducted in an effort to answer the fourth research question found that the age, gender, and ethnicity of survey respondents had little influence on how often technical college faculty used the various instructional practices. The significance tests identified one instructional practice for each of these personal characteristics in which the differences in the levels of use among subgroups of respondents were significant at the $p < 0.005$ level. Linear regression showed that the likelihood that technical college faculty would engage in one-on-one discussions with students increased as the age of the instructors increased. Individual samples *t*-tests found that female faculty members invited outside speakers to lecture to students more often than did male instructors. Finally, independent samples *t*-tests found that African-American instructors lectured more often than did their Caucasian colleagues.

Two personal characteristics—the employment status and the highest credential held by survey participants—and two situation factors—the academic discipline of instructors and their teaching workload—accounted for the majority of the significant differences identified while answering this fourth question. The significance tests found that the differences in the levels of use for six instructional practices were significant at the $p < 0.005$ level when comparing survey respondents subdivided by their employment status (full-time or part-time). Significant differences at the $p < 0.005$ level were recorded for 12 of the 18 instructional practices when analyzing faculty subdivided by their academic discipline and by their teaching workload.

Discussion of the Findings

The third chapter of this document argues that the results of previous research studies conducted or reported on by the Community College Survey of Student Engagement (2003b), Gardiner (n.d.), Leslie and Gappa (2002), Pascarella and Terenzini (2005), and others would suggest that technical college faculty as a generic entity adhere to the tenets of the teacher-centered paradigm and its reliance on the lecture as the chief instructional practice used by the adherents of this paradigm. The frequency statistics generated to answer the first research question associated with this study confirmed that technical college faculty lectured for more than 8 out of 10 class sessions, thus making the lecture the main instructional practice used by technical college faculty.

The linear regression tests used to identify whether faculty workload influenced the types of practices used by technical college faculty returned interesting results. For the purposes of this study, faculty workload was defined simply as the number of courses individuals taught during Fall Quarter 2009. This definition did not incorporate the variety of activities in which faculty members are engaged in on a daily basis. Blaum and Deitrich (2000) report that instructional faculty must invest more time and resources when using the active and collaborative learning practices associated with the learner-centered paradigm. One would reason, therefore, that instructors would revert back to the use of lectures in more class sessions as their instructional workload increased. The faculty who responded to the technical college questionnaire indicated that their reliance on lectures actually decreased as the size of their workload increased. Furthermore, they reported that they engaged students in full-group discussions less often as their workload increased. Neither of these findings were significant at the $p < 0.005$ level.

The regression analysis identified eight practices that technical college faculty used more often as their workload increased. These increases were significant at the $p < 0.005$ level. As workloads increased, technical college faculty provided more class time for students to participate in a variety of active and collaborative activities, including time to work on hands-on activities, practical exercises, and simulation activities. They also provided more class time for students to tutor each other on course topics, to work on capstone projects, to analyze case studies, to conduct independent research, and to review supplemental course materials posted online. One possible explanation for these results is the fact that employment rules and regulations limit the number of course sections an individual can teach in a given quarter and still be classified as a part-time employee of the institution. Full-time technical college instructors, therefore, carry a heavier teaching load than what is required of their part-time colleagues. As will be discussed later in this section, previous research has documented that part-time instructors lecture more often than their full-time peers.

Whereas linear regression showed that instructors who carried heavier teaching loads tended to lecture less often than did those with smaller teaching loads, this same finding did not apply when evaluating teaching practices based on the number of students enrolled in a course. Respondents of the current study were asked how many students were enrolled in their largest class. The information obtained from that question was used to analyze the effect of class size on teaching practices. Linear regression showed that instructors increased their use of lectures as the size of classes increased; however, the differences in the levels of use were not significant at the $p < 0.005$ level. The data did reveal that instructors increased their use of multimedia devices as the sizes of their classes increased, but they decreased the number of opportunities they provided students to be involved in hands-on activities and practical exercises as class size grew. The differences in the level of use of multimedia devices, hands-on activities, and practical exercises were significant at the $p < 0.005$ level. Further investigation of the data is needed to determine if the larger classes were associated with certain academic disciplines such as general education or if larger classes were reserved for courses in which theory and concepts were covered and, if so, did faculty tend to lecture more often in those situations than in smaller classes which might have been devoted to aiding students in learning to apply the newly acquired theoretical foundation to solving problems and performing tasks.

Another avenue of research looks at whether the academic credentials held by faculty members affect the propensity of individuals to engage in learner-centered or teacher-centered instructional activities. Lei (2007) and Bowles (1982) discovered that community and technical college faculty who held doctorate degrees were more apt to use active and collaborative learning strategies to engage students in course content and concepts. Cohen and Outcalt (2001) uncovered the opposite in their 2000 study of faculty employed at 156 two-year colleges throughout the United States. The current study of faculty at eight institutions within the Technical College System of Georgia returned results more in line with the findings of Cohen and Outcalt: technical college faculty who held graduate degrees lectured more often than did those who held diplomas, associate degrees, or bachelor's degrees. Technical college instructors who had not earned a graduate-level credential were more likely to engage students in debates, hands-on activities, practical exercise, simulation activities, and student-led discussions, which are classified as active and collaborative student-centered teaching practices.

Kozeracki (2005) and Gaff and Pruitt-Logan (1998) attribute the use of the more traditional teacher-centered instructional practices by holders of graduate degrees to the idea that graduate-level education is more concerned with preparing students to conduct original research rather than to be effective college instructors. The rationale used by Kozeracki and Gaff and Pruitt-Logan is consistent with the notion that the way instructors approach their teaching responsibilities often mirror that of their own college professors. The issue of how instructors' teaching styles are influenced by their own experiences as college students has attracted the attention of numerous researchers, including Neumann (2001), Mourtos and Allen (2003), Schaefer and Zygmont (2003), Schuh (2003), Portmann and Stick (2003), Singer (1996), Battersby (2005), and Crosling (2008). This avenue of research hypothesizes that students are enculturated into the academic discipline, and this enculturation process reveals the theories and concepts that must be taught, as well as how they must be taught (Battersby; Crosling; Neumann; Schuh; Singer).

Of all the personal characteristics and situational factors analyzed as part of the current study, the academic disciplines of the survey respondents accounted for the greatest number of significant differences (at the $p < 0.005$ level) in how often technical college faculty used the various instructional techniques. The one-way analysis-of-variances (one-way ANOVA) tests identified 12 instructional practices in which levels of use were significant when survey respondents were aggregated by the broad academic disciplines of business, general education, learning support, life sciences, and technical. Post-hoc tests conducted to find where the differences existed documented that faculty of technical programs of study incorporated the 12 practices into their overall approaches to classroom management more often than did faculty in at least one other academic discipline. Technical program faculty engaged students in individual discussions, required students to access online supplemental course materials, and provided opportunities for students to tutor each other during class time more often than did faculty who taught in the life sciences fields. Furthermore, post hoc tests showed that instructors in technical fields assigned practical exercises and simulation activities during class sessions more often than did those survey respondents who were grouped into the four remaining academic disciplines. Technical program faculty also provided students with opportunities during class to perform hands-on activities and to work on capstone projects at levels that were significantly higher than what was reported by faculty who taught general education, learning support, and life sciences courses. The technical college study reinforced previous research studies that have proven that academic discipline influences classroom teaching practices.

The technical fields consist of what many educators would classify as traditional *vocational-technical school* programs. Examples of these programs include Air Conditioning Technology, Automotive Collision Repair, Automotive Technology, Cosmetology, Electrical Construction and Maintenance, and Plumbing. Advanced academic degrees are, for the most part, not prevalent among instructors of technical disciplines. Only 20 of the 104 survey respondents (19.2%) who identified themselves as instructors in technical fields reported that they held a graduate degree. It should be noted that 49.0% of instructors in technical disciplines said that they held either a diploma or associate degree. On the other hand, 82.9% of business faculty, 93.6% of general education instructors, 69.8% of those who were classified as learning support instructors, and 57.7% of life sciences faculty reported that they had earned graduate degrees. While these statistics support previous research where it was documented that holders of graduate degrees approached their instructional responsibilities differently than did faculty who had, at the maximum, earned a baccalaureate degree, one must question whether these results are more reflective of the nature of these programs rather than the academic credentials held by the instructors of these programs.

One final area requiring an in-depth analysis of the results is that of the employment status of survey respondents. Part-time or adjunct faculty are now in the majority at community and technical colleges. Banachowski (1997) reports that part-time faculty accounted for 38.5% of the instructional staff employed at two-year colleges in 1962. By 1993, the percentage of part-time faculty stood at 65%. Today, the percentage of part-time faculty is even higher. In preparing his institution's *Fifth-Year Interim Report for the Commission on Colleges of the Southern*

Association of Colleges and Schools (D. J. Smith, 2009), the researcher associated with this current study found that the part-time faculty accounted for 73.7% of the instructional staff at his institution for Fall Quarter 2007. The percentage of part-time faculty teaching during Fall Quarter 2007 at the eight technical colleges at the center of this study was 73.9%. To determine whether the statistics for his institution and for the eight institutions included in this study were out of line with similar institutions, the researcher generated a peer comparison using data submitted to the Integrated Postsecondary Data System (IPEDS). The researcher programmed the IPEDS system to select as a comparison group all associate degree-granting institutions located in the states that border Georgia. He further narrowed the search parameters by limiting the comparison group to those institutions that enrolled between 3,000 and 4,999 students during Fall Quarter 2007. IPEDS included 24 institutions in the comparison group. The percentage of part-time faculty was 67.2% at these 24 institutions (D. J. Smith, 2009).

These statistics are important in light of the research by Jacoby (2006) that shows that graduation rates decreased by an average of 2.6% for each 10% increase in the number of part-time faculty employed by community and technical colleges. Jaegar and Eagan (2009) identified similar findings. They report that “a 10% increase in overall exposure to part-time faculty members resulted in a 1% reduction in the students’ likelihood of completing an associate’s (sic) degree at a community college” (Jaegar & Eagan, p. 9).

Banachowski (1997) argues, however, that the use of part-time faculty can benefit students enrolled at two-year institutions because they bring a different, more contextually based background to the classroom environment. Banachowski does not shy away from highlighting the disadvantages associated with employing part-time faculty at community and technical colleges. Chief among these disadvantages is the fact that previous “research suggest that part-timers rely on traditional pedagogy" (Banachowski, p. 1). The findings of this current study of technical college faculty reinforces this fact. Significance tests revealed that part-time faculty used multimedia devices, practical exercises, simulation activities, online supplemental course materials, hands-on activities, and capstone projects at lower levels than full-time faculty. The differences in levels of use were significant at the conservative $p < 0.005$ level.

Implications for Practice

The enculturation process described in the discussion section on academic disciplines stresses that college instructors base their approaches to teaching on their own experiences as college students. Instructors do not use techniques to which they have little or no exposure; therefore, professional development activities must show how different activities can be incorporated easily and effectively into classroom management practices. As Cabrera and La Nasa (2002) note, "the use of innovative teaching techniques presumes specialized knowledge on the part of faculty that only constant training and substantial experience can provide" (p. 21). Based on the results of this study, college administrators responsible for planning professional development programs should identify educational activities that allow faculty members the opportunity to explore how they can incorporate simulation activities and one-on-one discussions between themselves and individual students more often into their overall approach to classroom management. As Figure 5.1 indicates, these two instructional practices were not used that often by technical college faculty even though they rated these practices as being more effective in accomplishing the three student learning outcomes identified in the conceptual framework of the current study. Previous research activities and scholarly publications on active and collaborative learning demonstrated the value and benefits of several instructional practices that technical college faculty rated as being less effective in accomplishing the three student learning outcomes. The college-based professional development activities should address the value and benefits of these activities along with ways to incorporate the practices into their approaches to classroom instruction.

Implications for Future Research

Technical college instructors who responded to this study pointed out that some instructional practices, including several that, by definition, are classified as active and collaborative instructional techniques, are more effective than others in accomplishing the three student learning outcomes incorporated into the conceptual framework of this study. However, instructors reported that they did not utilize these practices as often as they used more traditional teacher-centered practices. A follow-up qualitative study would provide the opportunity to uncover the reasons why instructors do not incorporate those practices they consider to be more effective into their classroom management practices on a more consistent basis. The results of the qualitative study combined with the results of this quantitative study would provide those who create professional development programs with a wealth of information to incorporate into future learning opportunities for instructors at these eight institutions.

One must also question whether the findings of the current study would have been different had the researcher selected another group of institutions for inclusion in this study. As was noted in the methodology section of this document, the eight technical colleges selected for this study had achieved regional accreditation from the Commission on Colleges of the Southern Association of Colleges and Schools. Achieving this level of accreditation signifies that institutions have met certain standards of good practice. Accreditation standards include guidelines regarding the credentials faculty must hold in order to teach at the postsecondary level. The Commission on Colleges of the Southern Association of Colleges and Schools (2005) guidelines specify that instructors teaching general education courses and courses designed for transfer to baccalaureate degree programs must hold the minimum of a master's degree with 18 or more semester hours of coursework in the academic discipline. The Commission on Colleges standards also specify that associate degree courses not designed to transfer to a four-year program must be taught by instructors who hold an associate degree and have "demonstrated competencies in the teaching discipline" (p. 54).

Not all of the institutions in the Technical College System of Georgia (TCSG) have met the Commission on Colleges standards; therefore, they do not hold regional accreditation as an associate degree-granting college. One of the reasons for this failure to achieve this level of accreditation is the fact that faculty have not acquired the academic credentials specified by the Commission. Additional research is needed to determine whether faculty at the institutions yet to achieve regional accreditation incorporate instructional techniques into their overall classroom management practices at levels that are different than those for corresponding groups of faculty aggregated by academic discipline and by the highest credential earned. Comparisons should also look at whether instructors at associate degree-granting institutions approach their instructional responsibilities differently than from how their colleagues at non-accredited institutions teach the same subject matter.

The technical colleges selected for this study and their sister institutions in the Technical College System of Georgia differ from community and technical colleges in other states because the missions of the Georgia institutions focus on providing the educational foundation students need to enter the workforce; those missions do not incorporate the transfer component. Instead, the transfer function falls within the purview of the two-year institutions governed by the Board of Regents of the University System of Georgia. Future research studies should utilize the survey instrument developed for this project to explore whether faculty who teach at transfer-oriented two-year colleges in Georgia approach their classroom management responsibilities differently than do their colleagues in the Technical College System of Georgia. This type of study would also provide the opportunity to identify whether faculty at transfer-oriented colleges differed in their opinion as to how effective the 18 instructional practices are in aiding students in accomplishing the three Verner-based student learning outcomes.

The survey instrument needs to be tested in different settings, including comprehensive community and technical colleges outside Georgia and at public and private four-year colleges and universities, to observe differences in approaches to classroom instruction and to identify differences in perceptions on how effective these practices are in accomplishing student learning outcomes. Expanding into new arenas will test whether the Verner-based conceptual framework extends to different types of institutions or whether its usefulness in explaining phenomena is confined to the technical college setting where knowledge acquisition, task performance, and knowledge application are essential in preparing students for entry into the workforce.

This research project was originally intended to focus on the retention of students; however, the literature on prevailing theories of student departure focused on students' academic preparation and demographic background in order to identify the factors that suggest early departure. As an employee of an open-door institution, the researcher quickly realized that these types of institutions cannot screen out prospective students who possess the characteristics that lead to early departure. This realization led the researcher to study the instructional practices employed by technical college faculty to determine whether faculty use those practices that research has shown to be effective in engaging students in the academic studies, in aiding students in mastering student learning outcomes at greater levels, and in leading to deep learning rather than rote memorization. Students who are actively involved in educational endeavors are much more likely to graduate.

This research project, however, still has implications on student retention. Cravatta (1997), ACT, Inc. (2008b), and others show that the largest group of students depart higher education between their freshman and sophomore years. Keeping in mind that previous studies have shown that an increase in the employment of part-time faculty reduces the likelihood that students with persist and eventually graduate, it is important to note that "on average, students earned 48% of their credit hours in courses taught by part-time faculty members during their 1st (sic) year of enrollment. … The results suggest that an increase of 10% in the 1st-year (sic) proportion of credits earned in courses taught by part-time faculty members resulted in students becoming 1% less likely to earn an associate's (sic) degree" (Jaegar & Egan, 2009, pp. 7-8). The *Fifth-Year Interim Report* prepared by the researcher for his institution included statistics showing that 78% of the general education course sections and 83% of the learning support courses offered were taught by part-time faculty. Most students complete these courses during their first year of enrollment. Future studies need to look at the attrition rates of these courses to see if there are significant differences in departure rates from courses taught by part-time faculty, as compared to those taught by full-time faculty. Likewise, future research also needs to evaluate attrition rates by academic discipline, by class size, and by other personal characteristics and situational factors discussed in this paper. These research efforts will add breadth and richness to the understanding of how the use of teaching practices influence student achievement, as well as student persistence to graduation.

The discussion section in this chapter also touched on a number of other topics for future research. Critics of lectures and the teacher-centered paradigm charge that this instructional practice and its associated pedagogical paradigm relegate students to a passive role in the learning process (Pascarella & Terenzini, 2005). Chickering and Gamson (1987) argue that effective learning occurs when instructors actively engage students in classroom activities. These authors issued a seminal article on good practices in undergraduate education in 1987, and it continues to influence scholarly research on teaching and learning more than 20 years later. Chickering and Gamson identified seven cornerstones of effective undergraduate practices. They state that effective undergraduate practices:

1. Encourage contact between students and faculty.
2. Develop reciprocity and cooperation among students.
3. Encourage active learning.
4. Give prompt feedback.
5. Emphasize time on task.
6. Communicate high expectations.
7. Respect diverse talents and ways of learning. (Chickering & Gamson, p. 1)

Taken at face value, the instructional practice (lectures) used most often by technical college faculty does not incorporate these cornerstones of effectiveness; however, additional research is needed to confirm or dispute this statement.

Drummond (2002) provides guidance on how lectures can be effective in "present[ing] new information orally to fit differences in learners" (p. 1). Drummond's suggestions include several supporting activities used in conjunction with lectures that moves beyond the "sage on the stage" (Krakauer, 2005, p. 186) characterization of lectures to a more comprehensive practice that is more closely aligned with the seven cornerstones of effective undergraduate teaching practices advanced by Chickering and Gamson in 1987. Drummond states that these supporting practices require instructors to lecture for approximately 10 to 15 minutes before pausing to actively engaging students by asking them to respond to question, by having them talk to each other about what was just said, or by having them to quietly reflect on what was said during the lecture. Observations of technical college instructors' approaches to lectures or additional survey questions designed to uncover whether faculty members use supporting practices to enhance their lectures are needed in order to develop a complete understanding of how the instructors utilize lectures on a daily basis.

Future research initiatives should also seek to identify the percentage of time instructors use each of the instructional practices during class sessions. Furthermore, efforts should also focus on identifying how often instructors use the different techniques to accomplish each of the three student learning outcomes identified in the conceptual framework of this study. Finally, further investigation of the data collected in this study is needed in order to determine if larger classes are associated with certain academic disciplines and whether larger classes are devoted to theory and foundation knowledge as opposed to knowledge application and task performance activities.

Conclusion

This study of full-time and part-time faculty at eight member institutions of the Technical College System of Georgia was grounded in the pioneering work of Verner. He introduced two conceptual roadmaps in the early 1960s to explain how adult education practitioners approached their teaching responsibilities. The research for this current project collapsed the two roadmaps into a single, more concise conceptual framework to record the extent to which technical college faculty used 18 instructional practices and to measure the effectiveness of those techniques in accomplishing the three learning outcomes Verner first addressed in the early 1960s. This study confirmed that the student learning outcomes of knowledge acquisition, knowledge application, and skill development are still relevant to the education of adults almost 50 years later.

This research project was guided by four questions. The first question sought to identify the instructional practices used most often by technical college faculty. The survey results revealed that faculty members most often approach their instructional responsibilities from the traditional teacher-centered instructional paradigm. This fact is illustrated by the prolific use of lectures as reported by survey respondents. Technical college faculty reported that they lectured on average eight out of ten class sessions.

The second research question sought to identify whether survey respondents considered these instructional practices to be effective tools to accomplish the three Verner-based student learning outcomes. The survey respondents consistently ranked practical exercises, hands-on activities, simulation activities, and one-on-one discussions between instructors and individual students as the four activities that are most effective in accomplishing the three learning outcomes. By definition, these practices are characterized as active and collaborative learning techniques.

The third research question focused on determining whether technical college faculty consistently used the instructional practices they deemed to be highly effective in accomplishing the student learning outcomes. The results were incongruent in many instances. For example, the respondents reported that lecturing was not an effective means to engender student acquisition of the learning outcomes, but as has been noted, the respondents used this instructional technique more often than the others included on the list. Additional examples of the incongruence between usage and perceived effectiveness involve simulation activities and one-on-one discussions between instructors and students. Technical college faculty reported that they rarely used these highly rated practices. Technical college faculty also rated several instructional techniques as being less effective in accomplishing student learning outcomes. Their perceptions are in direct contrast to previous research studies that have demonstrated how these tools can enhance student performance in the classroom. Again, further studies are needed to determine the cause of these inconsistencies. Developing a better understanding why faculty do not use some practices that they consider to be highly effective and why they rated some practices as less effective (which is counter to previous research) provides the means to develop targeted activities to aid instructors in learning to use effective learning techniques more consistently in their daily approach to classroom management.

Finally, the fourth research question guiding this study sought to identify whether the propensity to use specific instructional practices was predicted by personal characteristics and situational factors. Significance tests conducted on the data collected from technical college faculty revealed that the personal characteristics of gender, ethnicity, and age provided minimal explanation why faculty members used certain practices. Likewise, the situational factors of class size and faculty workload provided minimal explanation as well. The personal characteristics of employment status (full-time/part-time) and educational attainment of the survey respondents, as well as the situational factor of academic discipline, provided the richest details about the propensity to use specific instructional practices. Full-time faculty members were more apt to incorporate active and collaborative instructional techniques into classroom management practices, while part-time faculty tended to lecture more often than did their full-time peers. The results of this study differed from other studies since technical college instructors who held doctorates lectured more often than did those who held undergraduate degrees, including diplomas, associate degrees, and bachelor’s degrees. Finally, instructors of technical programs such as Air Conditioning Technology and Cosmetology used active and collaborative learning strategies more frequently than did their colleagues who taught courses in business, general education, learning support, and life sciences.

This study introduced a revised theory of instructional practices derived from the work in the 1960s by Verner. It also introduced a new survey instrument to measure how often instructors use 18 specific instructional techniques. The researcher for this project selected those 18 techniques based on an in-depth review of other survey instruments and a thorough evaluation of higher education publications on active and collaborative learning and the learner-centered paradigm of classroom instruction. The list of instructional practices is not exhaustive. Rather, the list reflects the types of practices employed by faculty in the technical college setting. Researchers interested in developing an understanding of the approaches used by faculty at their institutions should add or subtract instructional techniques to accurately reflect what is occurring in their institutions. Furthermore, the survey instrument used in this study could easily be adapted to obtain student input on how often their instructors use specific types of instructional practices and to assess students' opinions of how effective the instructional techniques are in aiding them in acquiring knowledge of course content, in learning to apply newly acquired knowledge to the solving of problems, and in learning to perform tasks. A combination of data collected from faculty and from students can provide a rich source of information to triage roadblocks to student success.

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APPENDIX A

FINAL SURVEY INSTRUMENT

(REDUCED FORMAT)

Welcome

Thank you for your willingness to complete this online survey. This research study is designed to measure the instructional practices of faculty members who teach at least one face-to-face academic program course at a member institution of the Technical College System of Georgia. We hope you will take a few minutes to contribute to this study. The online survey will only take approximately 15 minutes to complete. We believe the results of the study will be invaluable to both new teachers and experienced teachers. We will use the results to identify the instructional techniques used most often by our faculty, to identify best practices, and to uncover professional development opportunities for current and future faculty members. Your involvement in this research study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled.

Your participation in this survey will remain confidential. The survey software automatically tracks responses so that we can send up to two reminders to participants who have not returned the questionnaire. As soon as we collect the data and as soon as we share the executive summary with survey participants, we will destroy our mailing list so that no one will be able to determine the names of people who completed the questionnaires. Please note that Internet communications are insecure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once we receive the completed surveys, we will store them in a locked cabinet in the associate professor's office and destroy any contact information that we have by January 15, 2010. If you are not comfortable with the level of confidentiality provided by the Internet, please feel free to print out a copy of the survey, fill it out by hand, and mail it to the doctoral student at the address given below, with no return address on the envelope. When we publish our findings, we will report information based upon groups, not individuals. Furthermore, no individually identifiable information about either of us or provided by us during the research will be shared with others without our written permission.

If you have any questions about this research project, please contact either of us at the email listed below. Questions or concerns about your rights as a research participant should be directed to the Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199. The email address is irb@uga.edu.

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Types of Course Taught

* Did you teach any learning support, general education, program-specific courses (such as ACC, AUT, RAD, etc.) during Fall Quarter?

- ○ Yes
- ○ No

* Did you teach any face-to-face classes during Fall Quarter?

- ◯ Yes
- ◯ No

Instructional Techniques You Use

In this questionnaire, we have identified 18 different instructional techniques often used by college instructors. We are interested in learning how often you have used each technique **during the last 10 class sessions across all courses** that you have taught this quarter.

Important: We realize that faculty engage students in course content by assigning out-of-class activities that students must complete on their own. Our focus, however, is on 18 specific instructional techniques that occur in the classroom/laboratory/clinical setting.

Think of the *last 10 class sessions across all courses* that you have taught during Fall Quarter. In how many sessions did you use the following instructional techniques:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
1. I provided opportunities for students to engage in *independent research (Internet-based and library-based)* during class time.	○	○	○	○	○	○	○	○	○	○	○
2. I provided opportunities for students to work on *capstone projects* during class time.	○	○	○	○	○	○	○	○	○	○	○
3. I required students to analyze *case studies* during class time.	○	○	○	○	○	○	○	○	○	○	○
4. I engaged students in *full class/group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
5. I provided opportunities for students to participate in *small group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
6. I provided opportunities for students to perform *simulation activities (including computer simulations)* during class time.	○	○	○	○	○	○	○	○	○	○	○
7. I required students to read or refer to *course texts* during class time.	○	○	○	○	○	○	○	○	○	○	○
8. I provided opportunities for students to participate in *debates* during class time.	○	○	○	○	○	○	○	○	○	○	○
9. I *lectured* to students during class time.	○	○	○	○	○	○	○	○	○	○	○
10. I had *guest lecturers* speak to students during class time.	○	○	○	○	○	○	○	○	○	○	○
11. I provided opportunities for students to *perform hands-on activities* during class time.	○	○	○	○	○	○	○	○	○	○	○
12. I required students to read or refer to *online supplemental course materials* during class	○	○	○	○	○	○	○	○	○	○	○

time.											
13. I provided opportunities for students to *work on course/program portfolios* during class time.	○	○	○	○	○	○	○	○	○	○	○
14. I provided opportunities for students to *lead discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
15. I used *multimedia devices (including PowerPoint, smart boards, flip charts, etc.)* during class time to present course materials to students.	○	○	○	○	○	○	○	○	○	○	○
16. I held *one-on-one discussions* with individual students during class time.	○	○	○	○	○	○	○	○	○	○	○
17. I provided opportunities for students to *perform practical exercises (including those performed in clinical, laboratory, experiential, and classroom settings).*	○	○	○	○	○	○	○	○	○	○	○
18. I required students to *tutor each other on course topics* during class time.	○	○	○	○	○	○	○	○	○	○	○

Information Acquisition

One of the purposes of instruction is to provide students with opportunities to develop their knowledge and understanding of course concepts. In this section, you will be rating each of the 18 instructional techniques for its value in providing students with opportunities to acquire information on course topics and concepts.

For the purposes of this study, **information acquisition techniques** refer to the techniques utilized by instructors to discuss or cover facts, data, and information with students either individually or in groups.

How effective are the following instructional techniques in providing students with opportunities to acquire information on course topics and concepts?

	Not Effective	Somewhat Effective	Quite Effective	Very Effective
19. Independent Research (Internet-Based and Library-Based)	○	○	○	○
20. Capstone Projects	○	○	○	○
21. Case Studies	○	○	○	○
22. Full Class/Group Discussions	○	○	○	○
23. Small Group Discussions	○	○	○	○
24. Simulation Activities (Including Computer Simulations)	○	○	○	○
25. Course Texts	○	○	○	○
26. Debates	○	○	○	○
27. Lectures	○	○	○	○
28. Guest Lecturers/Guest Speakers	○	○	○	○
29. Hands-On Activities	○	○	○	○
30. On-Line Supplemental Course Materials	○	○	○	○
31. Course Portfolios	○	○	○	○
32. Student-Led Discussions	○	○	○	○
33. Multimedia Devices (Including PowerPoint, Smart Boards, Flip Charts, etc.)	○	○	○	○
34. Individual Discussions Between Instructor and Students	○	○	○	○
35. Practical Exercises (Including Those Performed in Clinical, Laboratory, Experiential, and Classroom Settings)	○	○	○	○
36. Tutoring Each Other	○	○	○	○

Solving Problems

Another purpose of instruction is to provide students with opportunities to develop abilities to solve complex problems they will encounter in the workforce. In this section, you will be rating each of the 18 instructional techniques for its value in providing students with opportunities to solve problems.

For the purposes of this study, **problem solving techniques** refer to the techniques utilized by instructors to engage students individually or in group settings to use intellectual processes in order to integrate newly acquired knowledge into existing frameworks in order to solve problems.

How effective are the following instructional techniques in providing students with opportunities to learn to solve problems?

	Not Effective	Somewhat Effective	Quite Effective	Very Effective
37. Independent Research (Internet-Based and Library-Based)	○	○	○	○
38. Capstone Projects	○	○	○	○
39. Case Studies	○	○	○	○
40. Full Class/Group Discussions	○	○	○	○
41. Small Group Discussions	○	○	○	○
42. Simulation Activities (Including Computer Simulations)	○	○	○	○
43. Course Texts	○	○	○	○
44. Debates	○	○	○	○
45. Lectures	○	○	○	○
46. Guest Lecturers/Guest Speakers	○	○	○	○
47. Hands-On Activities	○	○	○	○
48. On-Line Supplemental Course Materials	○	○	○	○
49. Course Portfolios	○	○	○	○
50. Student-Led Discussions	○	○	○	○
51. Multimedia Devices (Including PowerPoint, Smart Boards, Flip Charts, etc.)	○	○	○	○
52. Individual Discussions Between Instructor and Students	○	○	○	○
53. Practical Exercises (Including Those Performed in Clinical, Laboratory, Experiential, and Classroom Settings)	○	○	○	○
54. Tutoring Each Other	○	○	○	○

Skill Development

Finally, a third purpose of instruction is to provide students with opportunities to develop their skills to perform tasks encounter in the workforce. In this section, you will be rating each of the 18 instructional techniques for its value in providing students with opportunities to perform tasks.

For the purposes of this study, skill development techniques refer to the techniques utilized by instructors individually and in in group settings to develop students' competencies and proficiencies in performing tasks.

How effective are the following instructional techniques in providing students with opportunities to learn to perform tasks.

	Not Effective	Somewhat Effective	Quite Effective	Very Effective
55. Independent Research (Internet-Based and Library-Based)	○	○	○	○
56. Capstone Projects	○	○	○	○
57. Case Studies	○	○	○	○
58. Full Class/Group Discussions	○	○	○	○
59. Small Group Discussions	○	○	○	○
60. Simulation Activities (Including Computer Simulations)	○	○	○	○
61. Course Tests	○	○	○	○
62. Debates	○	○	○	○
63. Lectures	○	○	○	○
64. Guest Lecturers/Guest Speakers	○	○	○	○
65. Hands-On Activities	○	○	○	○
66. On-Line Supplemental Course Materials	○	○	○	○
67. Course Portfolios	○	○	○	○
68. Student-Led Discussions	○	○	○	○
69. Multimedia Devices (Including PowerPoint, Smart Boards, Flip Charts, etc.)	○	○	○	○
70. Individual Discussions Between Instructor and Students	○	○	○	○
71. Practical Exercises (Including Those Performed in Clinical, Laboratory, Experiential, and Classroom Settings)	○	○	○	○
72. Tutoring Each Other	○	○	○	○

Demographics and College/Course Characteristics

This final section is designed to collect information about you and your teaching environment. It contains 14 questions. Please remember that the questionnaire is confidential and there will be no attempt made to identify you individually; however, we will need to be able to describe the sample population from which we received data.

73. In which program do you teach? (If you teach general education courses, please identify the specific subject.)

74. How many classes are you teaching this term?

75. How many students are in your largest class this term?

76. How many students are in your smallest class this term?

Demographis and College/Course Characteristics

77. What is your employment status at this college?

- ◯ Full-time faculty member
- ◯ Part-time or adjunct faculty member

78. How many years have you taught courses at this college?

Demographics and College/Course Characteristics

79. Please indicate the different levels in which you have taught? (Please check all that apply.)

- [ ] Secondary School (Middle or high school)
- [ ] Another two-year college
- [ ] Four-year college or university
- [ ] Non-credit courses for a college or university
- [ ] Professional development courses offered by a business, industry, or organization other than a college or university

80. How many years have you taught (at this college and at all other institutions)?

81. How many years of professional experience do you have in this field? (For example, nursing instructors would indicate the number of years they worked in a health care setting such as a hospital or doctor's office. Please do not include the years as an instructor in this total.)

Demographics and College/Course Characteristics

82. What is the highest credential that you have earned?

- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

83. What degree are you currently working on?

- ◯ None
- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

Demographics and College/Course Characteristics

85. What is your gender?

86. What is your race/ethnicity?

87. In what year were you born?

This completes our survey. We would like to thank you for taking time from your busy schedule to respond to our survey. We will send all survey participants an executive summary of our findings.

APPENDIX B

DEFINITIONS OF INSTRUCTIONAL PRACTICES AND ITS CHIEF COMPONENTS AS SUBMITTED TO THE ORIGINAL CRITIQUE PANEL COMPOSED OF ADVANCED DOCTORAL STUDENTS

Instructional practices are defined as the presentation strategies and techniques, learning tasks, and assessment methods utilized on a consistent basis by instructors (Federal Way Public Schools, 2008; National Center for Educational Statistics, 1999)

Definition of the Chief Components of Instructional Practices

Component Name	Definition
Presentation Strategies and Techniques	The manner or method by which course content and material are delivered
Learning Tasks	Assignments designed to develop and expand students' knowledge and understanding of course content and materials
Assessment Methods	The tools used to measure the extent to which students expand their knowledge and understanding of course content and materials

APPENDIX C

FINAL ITEM POOL ORIGINALLY SUBMITTED

FOR REVIEW BY FIRST CRITIQUE PANEL

Final Item Pool Sorted by Chief Categories of Instructional Practices

Category	Items
Presentation Strategies and techniques	• Lecture • Facilitate class discussions on course topics • Demonstrate a concept using multimedia • Demonstrate a concept using a marker board • Demonstrate a concept using an overhead projector • Work with individual students during class • Have guest presenters • Work with small groups of students during class • Use PowerPoint to support lectures • Ask open-ended questions to encourage class discussion • Post supplemental instructional materials in an electronic medium (listserv, Internet, etc.) • Have students explain course materials to each other during class • Have students tutor each other during class • Use textbooks as sole source of course content
Learning Tasks	• Complete hands-on activities during class • Complete group tasks during class • Give oral reports • Complete assignments using instructional-aided software • Complete group projects outside of class • Prepare projects that require the integration of information from various sources • Support opinions with logical arguments • Memorize information • Apply concepts to solve real-world problems • Apply newly acquired knowledge to new situations • Analyze the basic elements of an idea • Seek alternative solutions to a problem • Use knowledge to perform a new skill • Complete problems where there are several appropriate answers • Complete problems where there are several appropriate ways to solve the problems

Assessment Methods	• Oral quizzes • Multiple choice exams • Essay exams in which students support ideas with logical thought • Essay exams in which students repeat knowledge learned during lectures • True/false exams • Short-answer exams • Student portfolios demonstrating achievement of course competencies • Class participation • Homework on textbook activities • Performance on projects • Performance on practical exercises • Student evaluations of their own work • Student evaluations of the work of other students • Case studies • Independent research on a topic • Capstone projects • Laboratory experiments • Laboratory notebooks

APPENDIX D

PRELIMINARY SURVEY SUBMITTED TO FIRST CRITIQUE PANEL

(REDUCED FORMAT)

1. Presentation Techniques and Strategies

1. How often do you use each of the following presentation strategies and techniques?

	In none of my courses	In few of my courses	In some of my courses	In many of my courses	In most of my courses	In all of my courses
Have guest presenters	○	○	○	○	○	○
Ask open-ended questions to encourage class discussion	○	○	○	○	○	○
Work with small groups of students during class	○	○	○	○	○	○
Use PowerPoint to support lectures	○	○	○	○	○	○
Have students tutor each other during class	○	○	○	○	○	○
Demonstrate a concept using an overhead projector	○	○	○	○	○	○
Demonstrate a concept using a marker board	○	○	○	○	○	○
Use textbooks as sole source of course content	○	○	○	○	○	○
Demonstrate a concept using multimedia	○	○	○	○	○	○
Work with individual students during class	○	○	○	○	○	○
Lecture	○	○	○	○	○	○
Facilitate class discussions on course topics	○	○	○	○	○	○
Have students explain course materials to each other during class	○	○	○	○	○	○
Post supplemental instructional materials in an electronic medium (listserv, Internet, etc.)	○	○	○	○	○	○

2. Learning Tasks

1. Indicate the frequency with which you have students perform the following learning tasks.

	In none of my courses	In few of my courses	In some of my courses	In many of my courses	In most of my courses	In all of my courses
Complete hands-on activities during class	○	○	○	○	○	○
Complete group tasks during class	○	○	○	○	○	○
Complete problems where there are several appropriate answers	○	○	○	○	○	○
Use knowledge to perform a new skill	○	○	○	○	○	○
Give oral reports	○	○	○	○	○	○
Complete assignments using instructional-aided software	○	○	○	○	○	○
Support opinions with logical arguments	○	○	○	○	○	○
Complete problems where there are several appropriate ways to solve the problems	○	○	○	○	○	○
Analyze the basic elements of an idea	○	○	○	○	○	○
Memorize information	○	○	○	○	○	○
Apply newly acquired knowledge to new situations	○	○	○	○	○	○
Seek alternative solutions to a problem	○	○	○	○	○	○
Complete group projects outside of class	○	○	○	○	○	○
Apply concepts to solve real-world problems	○	○	○	○	○	○
Prepare projects that require the integration of information from various sources	○	○	○	○	○	○

3. Assessment Methods

1. Indicate the frequency with which you use each of the following assessment methods to evaluate student performance.

	In none of my courses	In few of my courses	In some of my courses	In many of my courses	In most of my courses	In all of my courses
Laboratory notebooks						
Case studies						
Performance on practical exercises						
Student portfolios demonstrating achievement of course competencies						
Essay exams in which students support ideas with logical thought						
Capstone projects						
Independent research on a topic						
Multiple choice exams						
Laboratory experiments						
Oral quizzes						
Essay exams in which students repeat knowledge learned throughout the course						
Performance on projects						
Homework on textbook activities						
Short-answer exams						
True/false exams						
Student evaluations of the work of other students						
Student evaluations of their own work						
Class participation						

APPENDIX E

RESULTS OF CRITIQUE PANEL SORTING EXERCISE

PERFORMED ON ORIGINAL ITEM POOL

Item	Original Classification by Researcher	Sort Exercise Results			
		Presentation Strategies (PS)	Learning Tasks (LT)	Assessment Methods (AM)	Unranked
01. Have students explain course materials to each other during class	PS	3	3		
02. Complete problems where there are several appropriate ways to solve the problems	LT		6		
03. Demonstrate a concept using a marker board	PS	6			
04. Have students tutor each other during class	PS	3	3		
05. Independent research on a topic	LT		6		
06. Use knowledge to perform a new skill	LT		3	3	
07. Work with individual students during class	PS	5	1		
08. Essay exams in which students support ideas with logical thought	AM		1	5	
09. Performance on projects	AM		1	5	
10. Use PowerPoint to support lectures	PS	6			
11. Work with small groups of students during class	PS	6			
12. Class participation	AM	1	2	2	1
13. Have guest presenters	PS	6			
14. Homework on textbook activities	AM		5	1	
15. Essay exams in which students repeat knowledge learned during lectures	AM			6	
16. Laboratory experiments	AM	1	4	1	
17. Seek alternative solutions to a problem	LT		6		
18. Complete problems where there are several appropriate answers	LT		5	1	
19. Use textbooks as sole source of course content	PS	6			
20. Student portfolios demonstrating achievement of course competencies	AM			6	
21. Apply newly acquired knowledge to new situations	LT		4	2	
22. Facilitate class discussions on course topics	PS	6			
23. Apply concepts to solve real-world problems	LT		5	1	
24. Demonstrate a concept using multimedia	PS	6			

Item	Original Classification by Researcher	Sort Exercise Results			
		Presentation Strategies (PS)	Learning Tasks (LT)	Assessment Methods (AM)	Unranked
25. Analyze the basic elements of an idea	LT		6		
26. Oral quizzes	AM			6	
27. Laboratory notebooks	AM		2	4	
28. Student evaluations of the work of other students	AM		1	5	
29. Multiple choice exams	AM			6	
30. Memorize information	LT		6		
31. Capstone projects	AM		1	5	
32. True/false exams	AM			6	
33. Post supplemental instructional materials in an electronic medium (listserv, Internet, etc.)	PS	6			
34. Complete group tasks during class	LT		6		
35. Complete group projects outside of class	LT		6		
36. Lecture	PS	6			
37. Complete group projects outside of class	LT		6		
38. Performance on practical exercises	AM		1	5	
39. Give oral reports	LT		4	2	
40. Complete hands-on activities during class	LT	1	5		
41. Student evaluations of their own work	AM		2	4	
42. Complete assignments using instructional-aided software	LT	1	5		
43. Case studies	AM	2	3		1
44. Prepare projects that require the integration of information from various sources	LT		6		
45. Demonstrate a concept using an overhead projector	PS	6			
46. Short-answer exams	AM			6	
47. Ask open-ended questions to encourage class discussion	PS	6			

APPENDIX F

ITEM POOL BASED ON THE WORK OF VERNER

Original Item Pool based on Verner Conceptual Framework: Information Acquisition

- I assigned reading assignments from the course text.
- I discussed course concepts with small groups of students during class.
- I facilitated class discussions on course topics.
- I had guest presenters teach a concept.
- I lectured extensively during class.
- I lectured with no student participation.
- I lectured with voluntary student participation.
- I provided students with the reading materials they needed for class sessions
- I provided supplemental instructional materials through an online course management system.
- I referenced case studies during class discussions.
- I tutored students individually during class on course concepts.
- I used a marker board to demonstrate a concept during class.
- I used an overhead projector to demonstrate a concept during class.
- I used audiovisual medial to demonstrate a concept during class.
- I used computer applications to demonstrate a concept during class.
- I used computer simulations to demonstrate a concept during class.
- I used PowerPoint while discussing a concept during class.
- I visually demonstrated a concept during class.
- Students discussed course materials online.
- Students explained course materials to each other in class.
- Students had to memorize information.
- Students had to seek out additional materials on class topics.
- Students participated in debates on course topics.
- Students participated in learning communities.
- Students tutored each other during class.

Original Item Pool based on Verner Conceptual Framework: Knowledge Application

- Students completed activities in which they had to support ideas with logical thought.
- Students completed experiential activities to solve problems.
- Students completed hands-on activities during class to solve problems.
- Students completed independent research on a topic I assigned them.
- Students completed independent research on a topic of their choice.
- Students completed laboratory experiments to solve problems.
- Students completed practical exercises during class to solve problems.
- Students completed problems in which they were several appropriate ways to solve the problems.
- Students completed problems where there were several appropriate answers.
- Students participated in debates to identify ways to solve problems.
- Students prepared projects in which they integrated information from various sources.
- Students sought alternative solutions to problems.
- Students used audiovisual medial to solve problems.
- Students used case studies to solve problems.
- Students used computer applications to solve problems.
- Students used computer simulations to solve problems.
- Students used instructional-aided software to solve problems.
- Students used models to solve problems.
- Students used newly acquired knowledge to solve problems.
- Students used supplemental instructional materials to solve problems.
- Students used texts to solve problems.
- Students worked in small groups to solve problems.
- Students worked on capstone projects designed to solve problems.
- I worked individually with students to help them solve problems.

Original Item Pool based on Verner Conceptual Framework: Skills Development

- I worked individually with students in class to develop their ability to perform specific tasks.
- Students completed clinical-based activities in order to develop their skills.
- Students completed experiential activities in order to develop their skills.
- Students completed hands-on activities during class to learn to perform tasks
- Students completed laboratory experiments in order to develop their skills.
- Students completed portfolio projects to demonstrate their ability to perform skills.
- Students completed practical exercises during class to learn to perform tasks.
- Students completed text-based exercises to develop their skills.
- Students participated in supplemental instructional activities to perform tasks.
- Students tutored each other on how to perform tasks.
- Students used audiovisual media to learn to perform tasks.
- Students used computer applications to perform tasks.
- Students used computer simulations to perform tasks.
- Students used instructional software to perform tasks.
- Students used marker boards to perform tasks.
- Students used models to perform tasks.
- Students used newly acquired knowledge to perform tasks.
- Students used texts to learn to perform tasks.
- Students worked in small groups to solve problems.
- Students worked on capstone projects designed to help them solve problems

APPENDIX G

PROTOTYPE SURVEY INSTRUMENT PREPARED FOR SECOND CRITIQUE PANEL COMPOSED OF FACULTY MEMBERS FROM THE SCHOOL OF EDUCATION AT A PRIVATE LIBERAL ARTS COLLEGE IN THE NORTHERN PART OF GEORGIA

(REDUCED FORMAT)

Introduction

Thanks for taking time to review my survey for me. I would like for you to take the survey as if you were submitting it in a real collection process. As you go through, please look to see if items need to be added, if items are unclear, and if items are duplicated. At the end of the survey, I've added a section for you to add your critique of the instrument.

I've provided below the purpose and research questions guiding this research project. Hopefully, this information will help you critique the survey itself.

The purpose of this study is to develop a better understanding of the specific types of instructional practices used by faculty at eight institutions within the Technical College System of Georgia. The following research questions will provide the foundation to accomplish this broad purpose.

1. To what extent do technical college faculty use specific instructional practices?
2. To what extent do the practices that are used by technical college faculty demonstrate learner centeredness?
3. Is the propensity to use learner-centered instructional practices predicted by situational factors and personal characteristics?

Before we get to the survey, I've drafted the initial letter that will be sent to survey participants. I would like your feedback on the letter.

Again, thanks for your time.

Dan

Initial Letter that I will send out

Teaching is both an art and a science, and college faculty approach their instructional responsibilities from a variety of instructional lenses. Numerous studies have focused on the instructional practices of college faculty. Unfortunately, the majority of those studies have focused on the activities of faculty in four-year colleges and university.

We are conducting a study of all full- and part-time faculty at eight institutions within the Technical College System of Georgia in order to develop a better understanding of the specific types of instructional practices they use on a consistent basis. Your institution was one of the eight institutions selected for this study. We are contacting those instructors who taught at least one face-to-face learning support, general education, or academic program course during Spring Quarter 2009.

The questionnaire consists of 57 items designed to identify your teaching practices. It also contains 18 questions describing your professional background. You should be able to complete the questionnaire in less than 20 minutes. This link will take you to the online survey.

We believe this study is very important, and your response will be extremely helpful. If you have any questions or concerns, please feel free to contact us at the email addresses below. Thank you for your input.

Sincerely,

Daniel J. Smith
Doctoral Candidate
Department of Lifelong Education, Administration, and Policy
The University of Georgia
smitd882@uga.edu

Desna Wallin
Associate Professor
Department of Lifelong Education, Administration, and Policy
The University of Georgia
dwallin@uga.edu

Thomas Valentine
Associate Professor
Department of Lifelong Education, Administration, and Policy
The University of Georgia
tvnj@uga.edu

Does this letter sufficiently describe the study and make you want to take the survey itself.

This is the welcome page that survey participants will see when they click ...

Thank you for your willingness to complete this survey. It is designed to measure the instructional practices of faculty members who teach at least one face-to-face academic program course at a member institution of the Technical College System of Georgia. It should take approximately 15 minutes to complete this online survey. Your involvement in this study is voluntary, and you may choose not to participate or to stop at any time.

Your participation in this survey will remain confidential. The results of the study may be published, but your name will not be used. In fact, the published results will be presented in aggregate form. Your identity will not be associated with your responses in any published format. Furthermore, there are no know risks or discomforts associated with this survey.

If you have any questions about this research project, please contact Dr. Desna Wallin, professor of Lifelong Learning, Administration, and Policy. Her email address is dwallin@uga.edu. Questions or concerns about your rights as a research participant should be directed to the Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199. The email address is irb@uga.edu.

By clicking to continue this survey, you are agreeing to participated in this research project. Thank you for your consideration.

Respectfully,

Daniel J. Smith
Doctoral Candidate
Department of Lifelong Education, Administration, and Policy
smitd822@uga.edu
(706) 355-5085

Section One

* **Did you teach any face-to-face classes during the term?**

- ◯ Yes
- ◯ No

* **Did you teach any learning support, general education, or academic program courses during the term?**

- ◯ Yes
- ◯ No

Section One

Think of the last 10 class sessions that you taught. In how many sessions did you do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
01. I used a multimedia devices (PowerPoint, smart boards, flip charts, models, computer simulations, etc.) to demonstrate a concept during class.											
02. I lectured with voluntary student participation.											
03. I tutored students individually during class on course concepts.											
04. I referenced case studies during class discussions.											
05. I had guest presenters teach a concept.											
06. I provided students with the reading materials they needed for class sessions.											
07. I facilitated class discussions on course topics.											
08. I lectured extensively during class.											

Section One

Think of the last 10 class sessions that you taught. In how many sessions did you do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
09. I discussed course concepts with small groups of students during class.	○	○	○	○	○	○	○	○	○	○	○
10. I provided supplemental instructional materials through an online course management system.	○	○	○	○	○	○	○	○	○	○	○
11. I assigned reading assignments from the course text.	○	○	○	○	○	○	○	○	○	○	○
12. I worked individually with students in class to develop their ability to perform specific tasks.	○	○	○	○	○	○	○	○	○	○	○
13. I lectured with no student participation.	○	○	○	○	○	○	○	○	○	○	○
14. I worked individually with students during class to help them solve problems.	○	○	○	○	○	○	○	○	○	○	○

Section Two

Again think of the last 10 class sessions that you taught. In how many sessions did you have students do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
15. Students completed hands-on activities during class to solve problems.	○	○	○	○	○	○	○	○	○	○	○
16. Students used models to solve problems.	○	○	○	○	○	○	○	○	○	○	○
17. Students tutored each other on how to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
18. Students worked in small groups to solve problems.	○	○	○	○	○	○	○	○	○	○	○
19. Students completed laboratory experiments in order to develop their skills.	○	○	○	○	○	○	○	○	○	○	○
20. Students used newly acquired knowledge to solve problems.	○	○	○	○	○	○	○	○	○	○	○
21. Students participated in learning communities.	○	○	○	○	○	○	○	○	○	○	○
22. Students completed problems where there were several appropriate answers.	○	○	○	○	○	○	○	○	○	○	○

Section Two

Again think of the last 10 class sessions that you taught. In how many sessions did you have students do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
15. Students completed hands-on activities during class to solve problems.	○	○	○	○	○	○	○	○	○	○	○
16. Students used models to solve problems.	○	○	○	○	○	○	○	○	○	○	○
17. Students tutored each other on how to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
18. Students worked in small groups to solve problems.	○	○	○	○	○	○	○	○	○	○	○
19. Students completed laboratory experiments in order to develop their skills.	○	○	○	○	○	○	○	○	○	○	○
20. Students used newly acquired knowledge to solve problems.	○	○	○	○	○	○	○	○	○	○	○
21. Students participated in learning communities.	○	○	○	○	○	○	○	○	○	○	○
22. Students completed problems where there were several appropriate answers.	○	○	○	○	○	○	○	○	○	○	○

Section Two

Again think of the last 10 class sessions that you taught. In how many sessions did you have students do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
23. Students used audiovisual media to learn to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
24. Students completed clinical-based activities in order to develop their skills.	○	○	○	○	○	○	○	○	○	○	○
25. Students explained course materials to each other in class.	○	○	○	○	○	○	○	○	○	○	○
26. Students participated in supplemental instructional activities to learn to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
27. Students worked on capstone projects designed to solve problems.	○	○	○	○	○	○	○	○	○	○	○
28. Students used texts to solve problems.	○	○	○	○	○	○	○	○	○	○	○
29. Students used computer applications to solve problems.	○	○	○	○	○	○	○	○	○	○	○
30. Students completed practical exercises during class to learn to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
31. Students completed experiential activities to solve problems.	○	○	○	○	○	○	○	○	○	○	○

Section Two

Again think of the last 10 class sessions that you taught. In how many sessions did you have students do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
32. Students used instructional-aided software to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
33. Students used computer simulations to solve problems.	○	○	○	○	○	○	○	○	○	○	○
34. Students used computer applications to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
35. Students completed independent research on topics I assigned them.	○	○	○	○	○	○	○	○	○	○	○
36. Students used models to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
37. Students sought alternative solutions to problems.	○	○	○	○	○	○	○	○	○	○	○
38. Students completed problems in which there were several appropriate ways to solve the problems.	○	○	○	○	○	○	○	○	○	○	○
39. Students used computer simulations to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
40. Students used instructional-aided software to solve problems.	○	○	○	○	○	○	○	○	○	○	○

Section Two

Think of the last 10 class sessions you taught. In how many sessions did you have students do the following:

	No class session	1	2	3	4	5	6	7	8	9	All 10 class sessions
41. Students used texts to learn to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
42. Students completed independent research on a topic of their choice.	○	○	○	○	○	○	○	○	○	○	○
43. Students completed activities in which they had to support ideas with logical thought.	○	○	○	○	○	○	○	○	○	○	○
44. Students completed hands-on activities during class to learn to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
45. Students discussed course materials online.	○	○	○	○	○	○	○	○	○	○	○
46. Students worked in small groups to perform specific tasks.	○	○	○	○	○	○	○	○	○	○	○
47. Students participated in debates on course topics during class.	○	○	○	○	○	○	○	○	○	○	○
48. Students prepared projects in which they integrated information from various sources.	○	○	○	○	○	○	○	○	○	○	○
49. Students had to seek out additional materials on class topics.	○	○	○	○	○	○	○	○	○	○	○

Section Two

Again think of the last 10 class sessions that you taught. In how many sessions did you have students do the following:

	No class sessions	1	2	3	4	5	6	7	8	9	All 10 class sessions
50. Students completed practical exercises during class to solve problems.	○	○	○	○	○	○	○	○	○	○	○
51. Students completed portfolio projects to demonstrate their ability to perform skills.	○	○	○	○	○	○	○	○	○	○	○
52. Students used case studies to solve problems.	○	○	○	○	○	○	○	○	○	○	○
53. Students had to memorize information.	○	○	○	○	○	○	○	○	○	○	○
54. Students worked on capstone projects to demonstrate their ability to perform tasks.	○	○	○	○	○	○	○	○	○	○	○
55. Students used supplemental instructional materials to solve problems.	○	○	○	○	○	○	○	○	○	○	○
56. Students completed textbook exercises to develop their skills.	○	○	○	○	○	○	○	○	○	○	○
57. Students used audiovisual media to solve problems.	○	○	○	○	○	○	○	○	○	○	○

Section Three

The following questions will focus on personal characteristics and situational factors.

58. In what year were you born?

59. What is your gender?

60. What is your race/ethnicity?

61. What is the name of the technical college where you teach?

62. In which program do you teach? (If you teach general education courses, please identify the specific subject.)

63. What is your employment status?

- Full-time faculty member
- Part-time (adjunct) faculty member

Section Three

64. What is the average size of the classes you teach?

65. How many students are in your smallest class?

66. How many students are in your largest class?

67. How many classes are you teaching this term?

Section Three

68. Please indicate the different levels in which you have taught? (Please check all that apply.)

- ☐ Secondary School (Middle or high school)
- ☐ Another two-year college
- ☐ Four-year college or university
- ☐ Non-credit courses for a college or university
- ☐ Professional development courses offered by a business, industry, or organization other than a college or university

69. What is the highest credential that you have earned?

- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

70. What degree are you currently working on?

- ◯ None
- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

Section Three

71. Indicate the other duties for which you are responsible. (Check all that apply.)

- ☐ Program Chair
- ☐ Adviser of a Student Organization
- ☐ Chair of a College Committee
- ☐ Instructor for experiential-based course
- ☐ Other (please specify)

72. How many years have you taught courses at this college?

73. How many years have you taught (at this college and at all other institutions/businesses)?

Section Three

74. How many years of professional experience do you have in this field? (Do not include the time you have taught courses in this field.)

[ ]

75. Please indicate the types of courses you are teaching this term. (Check all that apply.)

- [ ] Learning Support
- [ ] General Education
- [ ] Introductory Program Courses
- [ ] Advanced Program Courses

Thank you for your time!

Would you like a summary of the research findings?

- ◯ Yes
- ◯ No

Comments

You've finished the survey. Now I need you to provide comments.

Did the survey adequately cover the purpose as described earlier?

What should be deleted from the survey?

What should be added to the survey?

What feedback would you like to provide?

APPENDIX H

PROTOTYPE SURVEY INSTRUMENT SUBMITTED

WITH PROSPECTUS DOCUMENT

(REDUCED FORMAT)

Welcome

Thank you for your willingness to complete this survey. It is designed to measure the instructional practices of faculty members who teach at least one face-to-face academic program course at a member institution of the Technical College System of Georgia. It should take approximately 20 minutes to complete this online survey. Your involvement in this study is voluntary, and you may choose not to participate or to stop at any time.

Your participation in this survey will remain confidential. The results of the study may be published, but your name will not be used. In fact, the published results will be presented in aggregate form. Your identity will not be associated with your responses in any published format. Furthermore, there are no known risks or discomforts associated with this survey.

If you have any questions about this research project, please contact me at the email address below or Dr. Desna Wallin, Professor of Lifelong Learning, Administration, and Policy, at dwallin@uga.edu. Questions or concerns about your rights as a research participant should be directed to the Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199. The email address is irb@uga.edu.

By clicking to continue this survey, you are agreeing to participated in this research project. Thank you for your consideration.

Respectfully,

Daniel J. Smith
Doctoral Candidate
Department of Lifelong Education, Administration, and Policy
smitd822@uga.edu
(706) 355-5085

Types of Course Taught

* **Did you teach any face-to-face classes during the term?**

- ◯ Yes
- ◯ No

* **Did you teach any learning support, general education, or academic program courses during the term?**

- ◯ Yes
- ◯ No

Knowledge Acquisition

Think of the last 10 class sessions across all courses that you have taught this term. In how many sessions did you do the following to assist students in acquiring facts, data, or information:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
01. Used multimedia devices (PowerPoint, smart boards, flip charts, computerized simulators, etc.)	○	○	○	○	○	○	○	○	○	○	○
02. Led guided discussions on course concepts	○	○	○	○	○	○	○	○	○	○	○
03. Lectured with little or no student participation	○	○	○	○	○	○	○	○	○	○	○
04. Lectured with moderate student participation	○	○	○	○	○	○	○	○	○	○	○
05. Lectured with extensive student participation	○	○	○	○	○	○	○	○	○	○	○
06. Assisted students individually during class	○	○	○	○	○	○	○	○	○	○	○
07. Had guest speakers present course materials	○	○	○	○	○	○	○	○	○	○	○
08. Discussed course concepts with small groups of students during class	○	○	○	○	○	○	○	○	○	○	○
09. Had students explain course materials to each other in class	○	○	○	○	○	○	○	○	○	○	○
10. Had students memorize information	○	○	○	○	○	○	○	○	○	○	○
11. Assigned homework that required students to discuss course materials with each other online	○	○	○	○	○	○	○	○	○	○	○

Problem Solving Activities

The next section focuses on instructional activities that require students to solve problems.

Problem Solving Activities

Think of the last 10 class sessions across all courses that you have taught this term. In how many sessions did you have students do the following to solve problems:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
12. Work in small groups	○	○	○	○	○	○	○	○	○	○	○
13. Work on problems where there were several appropriate answers	○	○	○	○	○	○	○	○	○	○	○
14. Use internet-based resources	○	○	○	○	○	○	○	○	○	○	○
15. Use computer applications	○	○	○	○	○	○	○	○	○	○	○
16. Use models	○	○	○	○	○	○	○	○	○	○	○
17. Use case studies	○	○	○	○	○	○	○	○	○	○	○
18. Use supplemental instructional materials	○	○	○	○	○	○	○	○	○	○	○

Performing Skills or Tasks

The next section focuses on instructional activities that help students learn to perform tasks.

Performing Skills or Tasks

Again think of the last 10 class sessions across all courses that you have taught this term. In how many sessions did you have students do the following in order to develop their proficiency in performing skills or tasks:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
19. Complete hands-on activities											
20. Perform laboratory experiments											
21. Have students teach each other											
22. Complete clinical-based activities											
23. Complete practical exercises											
24. Use computerized simulators											
25. Use computer applications											
26. Other experiential activities											

(Please specify the types of other experiential activities used)

Course Projects

For the following items, please indicate the number of courses in which you have done the following during this term:

	No Courses	1 Course	2 Courses	3 Courses	4 Courses	5 or More Courses
27. Identified all reading materials students needed for the course	○	○	○	○	○	○
28. Provided supplemental instructional materials through an online course management system	○	○	○	○	○	○
29. Assigned a capstone project	○	○	○	○	○	○
30. Required students to complete independent research on a topic I assigned them	○	○	○	○	○	○
31. Required students to complete independent research on topics of their choice	○	○	○	○	○	○
32. Required students to prepare projects in which they had to integrate information from various sources	○	○	○	○	○	○
33. Assigned portfolio projects	○	○	○	○	○	○
34. Required students to give oral presentations	○	○	○	○	○	○
35. Required students to seek additional material on course topics	○	○	○	○	○	○

Demographics and College/Course Characteristics

The following questions will focus on personal characteristics and situational factors.

36. What is your gender?

37. What is your race/ethnicity?

38. In what year were you born?

39. In which program do you teach? (If you teach general education courses, please identify the specific subject.)

40. What is your employment status?

- Full-time faculty member
- Part-time or adjunct faculty member

Demographics and College/Course Characteristics

41. How many students are in your smallest class this term?

42. How many students are in your largest class this term?

43. How many classes are you teaching this term?

44. Please indicate the different levels in which you have taught? (Please check all that apply.)

- ☐ Secondary School (Middle or high school)
- ☐ Another two-year college
- ☐ Four-year college or university
- ☐ Non-credit courses for a college or university
- ☐ Professional development courses offered by a business, industry, or organization other than a college or university

Demographics and College/Course Characteistics

45. What is the highest credential that you have earned?

- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

46. What degree are you currently working on?

- ◯ None
- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

Demographics and College/Course Characteristics

47. Indicate the other duties for which you are responsible. (Check all that apply.)

- [ ] Program Chair
- [ ] Adviser of a Student Organization
- [ ] Chair of a College Committee
- [ ] Instructor for experiential-based course
- [ ] Other (please specify)

48. How many years have you taught courses at this college?

49. How many years have you taught (at this college and at all other institutions/businesses)?

Demographics and College/Course Characteristics

50. How many years of professional experience do you have in this field? (Do not include the time you have taught courses in this field.)

51. Please indicate the types of courses you are teaching this term. (Check all that apply.)

- [ ] Learning Support
- [ ] General Education
- [ ] Introductory Program Courses
- [ ] Advanced Program Courses

Thank you for your time!

Would you like a summary of the results of this study?

- Yes
- No

If so, please enter your name here.

Also, please enter your email address.

Thank you for your time!

Would you like a summary of the results of this study?

- Yes
- No

If so, please enter your name here.

Also, please enter your email address.

APPENDIX I

SURVEY INSTRUMENT USED IN FIRST PILOT STUDY

Welcome

Thank you for your willingness to complete this online survey. This research study is designed to measure the instructional practices of faculty members who teach at least one face-to-face academic program course at a member institution of the Technical College System of Georgia. We hope you will take a few minutes to contribute to this study. The online survey will only take approximately 15 minutes to complete. We believe the results of the study will be invaluable to both new teachers and experienced teachers. We will use the results to identify the instructional techniques used most often by our faculty, to identify best practices, and to uncover professional development opportunities for current and future faculty members. Your involvement in this research study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled.

Your participation in this survey will remain confidential. The survey software automatically tracks responses so that we can send up to two reminders to participants who have not returned the questionnaire. As soon as we collect the data and as soon as we share the executive summary with survey participants, we will destroy our mailing list so that no one will be able to determine the names of people who completed the questionnaires. Please note that Internet communications are insecure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once we receive the completed surveys, we will store them in a locked cabinet in the associate professor's office and destroy any contact information that we have by January 15, 2010. If you are not comfortable with the level of confidentiality provided by the Internet, please feel free to print out a copy of the survey, fill it out by hand, and mail it to the doctoral student at the address given below, with no return address on the envelope. When we publish our findings, we will report information based upon groups, not individuals. Furthermore, no individually identifiable information about either of us or provided by us during the research will be shared with others without our written permission.

If you have any questions about this research project, please contact either of us at the email listed below. Questions or concerns about your rights as a research participant should be directed to the Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199. The email address is irb@uga.edu.

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Types of Course Taught

* Did you teach any learning support, general education, or academic program courses during Summer Quarter?

- Yes
- No

* Did you teach any face-to-face classes during Summer Quarter?

- Yes
- No

Instructional Practices

Most technical college faculty approach their instructional responsibilities with three broad purposes in mind:

- to allow students to acquire information on course topics and concepts.
- to allow students to learn to solve problems.
- to allow students to learn to perform tasks.

In this questionnaire, we have identified 18 different instructional methods. We are interested in learning how often you have used each method **to accomplish each of the three purposes** listed above. We have listed each method on a separate page in order to allow you to make appropriate comparisons.

Important: We realize that faculty engage students in course content by assigning out-of-class activities that students must complete on their own. Our focus, however, is on 18 specific instructional techniques that occur in the classroom/laboratory/clinical setting.

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 1A. Students **acquired information** on course topics and concepts by engaging in *independent research (internet- based and library-based)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 1B. Students learned to **solve problems** by engaging in *independent research (internet-based and library-based)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 1C. Students learned to **perform tasks** by engaging in *independent research (internet-based and library-based)* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 2A. Students **acquired information** on course topics and concepts by working on *capstone projects* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 2B. Students learned to **solve problems** by working on *capstone projects* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 2C. Students learned to **perform tasks** by working on *capstone projects* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 3A. Students **acquired information** on course topics and concepts by analyzing case studies during class time.											
• 3B. Students learned to **solve problems** by analyzing case studies during class time.											
• 3C. Students learned to **perform tasks** by analyzing case studies during class time.											

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 4A. Students **acquired information** on course topics and concepts by engaging in *full class/group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 4B. Students learned to **solve problems** by engaging in *full class/group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 4C. Students learned to **perform tasks** by engaging in *full class/group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 5A. Students **acquired information** on course topics and concepts by engaging in *small group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 5B. Students learned to **solve problems** by engaging in *small group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 5C. Students learned to **perform tasks** by engaging in *small group discussions* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 6A. Students **acquired information** on course topics and concepts by performing *simulation activities (including computer simulations)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 6B. Students learned to **solve problems** by performing *simulation activities (including computer simulations)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 6C. Students learned to **perform tasks** by performing *simulation activities (including computer simulations)* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 7A. Students **acquired information** on course topics and concepts by reading or referring to course texts during class time.	○	○	○	○	○	○	○	○	○	○	○
• 7B. Students learned to **solve problems** by reading or referring to course texts during class time.	○	○	○	○	○	○	○	○	○	○	○
• 7C. Students learned to **perform tasks** by reading or referring to course texts during class time.	○	○	○	○	○	○	○	○	○	○	○

Copy of page: Instructional Practices

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 8A. Students **acquired information** on course topics and concepts by participating in ***debates*** during class time.	○	○	○	○	○	○	○	○	○	○	○
• 8B. Students learned to **solve problems** by participating in ***debates*** during class time.	○	○	○	○	○	○	○	○	○	○	○
• 8C. Students learned to **perform tasks** by participating in ***debates*** during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 9A. Students **acquired information** on course topics and concepts through the *lectures I provided* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 9B. Students learned to **solve problems** through the *lectures I provided* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 9C. Students learned to **perform tasks** through the *lectures I provided* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 10A. Students **acquired information** on course topics and concepts through *presentations made by guest lecturers* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 10B. Students learned to **solve problems** through *presentations made by guest lecturers* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 10C. Students learned to **perform tasks** through *presentations made by guest lecturers* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 11A. Students **acquired information** on course topics and concepts by performing *hands-on activities* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 11B. Students learned to **solve problems** by performing *hands-on activities* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 11C. Students learned to **perform tasks** by performing *hands-on activities* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 12A. Students **acquired information** on course topics and concepts by reading or referring to *online supplemental course materials* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 12B. Students learned to **solve problems** by reading or referring to *online supplemental course materials* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 12C. Students learned to **perform tasks** by reading or referring to *online supplemental course materials* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 13A. Students **acquired information** on course topics and concepts by working on *course portfolios* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 13B. Students learned to **solve problems** by working on *course portfolios* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 13C. Students learned to **perform tasks** by working on *course portfolios* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 14A. Students **acquired information** on course topics and concepts through *student-led discussions* during class time.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
• 14B. Students learned to **solve problems** through *student-led discussions* during class time.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
• 14C. Students learned to **perform tasks** through *student-led discussions* during class time.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 15A. Students **acquired information** on course topics and concepts by using *multimedia devices (including PowerPoint, smart boards, flip charts, etc.)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 15B. Students learned to **solve problems** by using *multimedia devices (including PowerPoint, smart boards, flip charts, etc.)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 15C. Students learned to **perform tasks** by using *multimedia devices (including PowerPoint, smart boards, flip charts, etc.)* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 16A. Students **acquired information** on course topics and concepts through *individual discussions with me* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 16B. Students learned to **solve problems** through *individual discussions with me* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 16C. Students learned to **perform tasks** through *individual discussions with me* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 17A. Students **acquired information** on course topics and concepts by performing *practical exercises (including those performed in clinical, laboratory, experiential, and classroom settings)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 17B. Students learned to **solve problems** by performing *practical exercises (including those performed in clinical, laboratory, experiential, and classroom settings)* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 17C. Students learned to **perform tasks** by performing *practical exercises (including those performed in clinical, laboratory, experiential, and classroom settings)* during class time.	○	○	○	○	○	○	○	○	○	○	○

Instructional Practices

Again, think of the *last 10 class sessions across all courses* that you have taught during Summer Quarter. In how many sessions did you have students do the following:

	No Class Session	1	2	3	4	5	6	7	8	9	All 10 Class Sessions
• 18A. Students **acquired information** on course topics and concepts by *tutoring* **each** *other* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 18B. Students learned to **solve problems** by *tutoring* **each** *other* during class time.	○	○	○	○	○	○	○	○	○	○	○
• 18C. Students learned to **perform tasks** by *tutoring* **each** other during class time.	○	○	○	○	○	○	○	○	○	○	○

Demographics and College/Course Characteristics

This section is designed to collect information about you and your teaching environment. Please remember that the questionnaire is confidential and there will be attempt made to identify you individually; however, we will need to be able to describe the sample population from which we received data.

19. In which program do you teach? (If you teach general education courses, please identify the specific subject.)

20. Please indicate the types of courses you are teaching this term. (Check all that apply.)

- [ ] Learning Support
- [ ] General Education
- [ ] Introductory Program Courses
- [ ] Advanced Program Courses

Demographics and College/Course Characteristics

21. How many classes are you teaching this term?

22. How many students are in your largest class this term?

23. How many students are in your smallest class this term?

Demographics and College/Course Characteristics

24. Indicate the other duties for which you are responsible. (Check all that apply.)

- [ ] Program Chair
- [ ] Advisor of a Student Organization
- [ ] Chair of a College Committee
- [ ] Instructor for experiential-based course
- [ ] Other (please specify)

Demographis and College/Course Characteristics

25. What is your employment status at this college?

- ◯ Full-time faculty member
- ◯ Part-time or adjunct faculty member

26. How many years have you taught courses at this college?

Demographics and College/Course Characteristics

27. Please indicate the different levels in which you have taught? (Please check all that apply.)

- [ ] Secondary School (Middle or high school)
- [ ] Another two-year college
- [ ] Four-year college or university
- [ ] Non-credit courses for a college or university
- [ ] Professional development courses offered by a business, industry, or organization other than a college or university

28. How many years have you taught (at this college and at all other institutions)?

29. How many years of professional experience do you have in this field? (Do not include the time you have taught courses in this field.)

Demographics and College/Course Characteristics

30. What is the highest credential that you have earned?

- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

31. What degree are you currently working on?

- ◯ None
- ◯ High school diploma/GED
- ◯ Technical Certificate of Credit
- ◯ Diploma
- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Advanced Professional Degree (J.D., D.V.M.)
- ◯ Doctorate

Demographics and College/Course Characteristics

32. What is your gender?

33. What is your race/ethnicity?

34. In what year were you born?

This completes our survey. We would like to thank you for taking time from your busy schedule to respond to our survey. We will send all survey participants an executive summary of our findings.

APPENDIX J

INSTITUTION REVIEW BOARD APPLICATION

(REDUCED FORMAT)

Check One

New Application: ☒
Resubmission*: ☐ **Revision** ☐ *(All changes must be highlighted)*

**NOTE: A new application is required every five years.*

Human Subjects Office
University of Georgia
612 Boyd GSRC
Athens, GA 30602-7411
(706) 542-3199

IRB APPLICATION

MAIL 2 COPIES OF APPLICATION TO ABOVE ADDRESS

(Check One) Dr. ☒ Mr. ☐ Ms. ☐	*(Check One)* Dr. ☐ Mr. ☒ Ms. ☐
(Check One) Faculty ☒ Undergraduate ☐ Graduate ☐	*(Check One)* Faculty ☐ Undergraduate ☐ Graduate ☒
Desna Wallin — Xxx-Xx-7463	Daniel J. Smith — 8101152890
Principal Investigator — **UGA ID – last 10 digits only**	**Co-Investigator** — **UGA ID – last 10 digits**
Lifelong Education, Administration, And Policy/River's Crossing	Lifelong Education, Administration, and Policy/River's Crossing
Department, Building and + Four *(Include department even if living off campus or out of town)*	**Department, Building and + Four**
	275 Bedford Dr
Mailing Address (if you prefer not to receive mail in dept.)	**Mailing Address (if you prefer not to receive mail in dept.)**
706-583-8098 — dwallin@uga.edu	706-546-5737 — dsmith@athenstech.edu
Phone Number (s) — **E-Mail (REQUIRED)**	**Phone Number (s)** — **E-Mail**
****Signature of Principal Investigator**	**Signature of Co-Investigator** *(use additional cover sheets for more than one Co-Investigator)*

UGA Faculty Advisor:

Dr. Desna Wallin	Lifelong Education/River's Crossing	dwallin@uga.edu	706-583-8098
Name	**Department, Bldg+ Four**	**E-Mail (REQUIRED)**	**Phone No.**

Signature: ______________ **Date: ______________ **UGA ID – last 10 digits only** XXX-XX-7463

***Your signature indicates that you have read the human subjects guidelines and accept responsibility for the research described in this application.*

If funded:
***Sponsored Programs Proposal# ______________ **Name of Funding Agency** ______________

****By listing a proposal number, you agree that this application matches the grant application and that you have disclosed all financial conflicts of interest (see Q6a)*

TITLE OF RESEARCH: The Use of Learner-Centered Instructional Practices by Faculty at Eight Associate Degree-Granting Technical Colleges in a Southeastern American State

NOTE: SUBMIT 4-6 WEEKS PRIOR TO YOUR START DATE

APPROVAL IS GRANTED ONLY FOR 1 YEAR AT A TIME

CHECK ALL THAT APPLY:

Investigational New Drug ☐ **Exceptions to/waivers of Federal regulations** ☐
If yes to the above, provide details:

Data Sets ☐ **Existing Bodily Fluids/Tissues** ☐ **RP Pool** ☐ **Deception** ☐

Illegal Activities☐ Minors☐ Moderate Exercise☐ Audio/ Video taping☐
MRI/EEG/ECG/NIRS/Ultrasound/ Blood Draw☐ X-RAY/DEXA☐ Pregnant Women/Prisoners☐

HUMAN SUBJECTS RESEARCH APPLICATION

INSTRUCTIONS:

1. *Type responses to all 11 questions (all parts) listed below (12 pt. font only).*
2. *Do not answer any question with "see attachments" or "not applicable".*
3. *Submit original plus one copy to the **Human Subjects Office**.*
4. *We will contact you via email if changes are required. Allow 4-6 weeks.*

IMPORTANT: Before completing this application, please determine if the project is a research project. Check the federal definition of research at http://www.ovpr.uga.edu/faqs/hso.html#7 or call the Human Subjects office at 542-3199. The IRB only reviews research projects.

1. **PROBLEM ABSTRACT**: *State rationale and research question or hypothesis (why is this study important and what do you expect to learn?).*
The purpose of this study is to develop a better understanding the specific types of instructional practices used by faculty at eight institutions within the Technical College System of Georgia. The following research questions will provide the foundation to accomplish this broad purpose:

To what extent do technical college faculty use specific instuctional practices?
To what extent do the practices that are used by technical college faculty demonstrate learner centeredness?
Is the propensity to use learner-centered instructional practices predicted by situational factors and personal characteristics?

This study will expand the theoretical knowledge of the instructional practices of college faculty at the two-year college level in general and at technical colleges specifically. The study will provide information on the level of use by participating faculty in the area of effective educational practices associated with the learner-centered paradigm. It will focus on measuring the instructional practices that engender information acquisition, knowledge application, and skills development that technical college faculty use on a consistent basis. This assessment with benchmark current practices so that the leadership at these eight technical colleges can develop and implement strategies to transition from a traditional instructional paradigm to that of a learner-centered model. The end result will provide leverage to increase the retention and graduation rates of the eight institutions indentified for inclusion in this study.

2. **RESEARCH DESIGN**: *Identify specific factors or variables, conditions or groups and any control conditions in your study. Indicate the number of research participants assigned to each condition or group, and describe plans for data analysis.*
This application is to cover both a pilot administration of the attached survey instrument, as well as the actual collection of data from faculty at eight technical colleges. The student researcher will administer the pilot survey to faculty at a technical college not included in the actual study. The pilot administration will follow the procedures listed below. This pilot administration is designed to test the reliability of the survey instrument and to verify that the data collection and data analysis procedures are functioning as planned. The student researcher will provide the Human Subjects Office with a revised survey instrument prior to the actual study if it is determined that changes must be made in order to improve the working of the items included on the instrument itself.

Online survey software will be used to collect data from all full-time and part-time faculty employed at the pilot institution, as well as the eight institutions included in the actual study. While control conditions will not be used, survey participants will be asked a number of questions to establish the demographic profile of the survey participants. They will also be asked to provide details to establish specific situational characteristics.

The survey will ask faculty members to provide information on their academic discipline, the number of students enrolled in their largest and smalles classes they are teaching during the survey collection period, the number of classes they are teaching during the survey college period, and the type/level of courses taught (learning support, general education, introductory subject-matter courses, advanced subject-matter courses) during the data collection period.

The survey will also ask participants to indicate the year they were born (in order to establish their age), their gender, ethnicity, length of teaching experience, breadth of teaching experience (i.e., high school, technical college, community college, four-year university, etc.), level of educational attainment (bachelor's, master's, specialist, doctorate), professional experience in the field, and employment status (full-time or part-time).

Means and frequences will be calculated to measure the specific instructional practicues used on a consistent basis (question one listed in the problem abstract). These statistics will be generated for the item pool as a whole, as well as for each of the learning objectives (information acquisition, knowledge application, and skills development) discussed in the problem abstract section of this application.

Weighted scores will be generated used a panel of professors, advanced doctoral students, and graduates of the doctoral program of the Department of Lifelong Education, Administration, and Policy in the College of Education at the University of Georgia. Establishing the weighted scores will take place concurrently with the pilot survey administration. A copy of the survey that will be used to establish weighted scores is attached as an appendix to this document.

Weighted means will be calculated to determine the extent to which the practices of technical college faculty demonstrate learner centeredness (the focus of question two presented in the problem abstract section of this document). High scores will indicate that faculty members most often use learner-centered instructional practices, while low scores will indicate that they use traditional teacher-centered practices for the majority of the time.

Bivariate analysis procedures will be performed in order to provide insight into whether the propensity to use learner-centered instructional practices is predicted by situational factors and personal characteristics (the focus of question three). Again, statistics will be generated for the item pool as a whole, as well as for each subsection (information acquisition, knowledge acquisition, skills development). The specific statistical analysis used will depend on the level of measure of the predictor variable. Simple regression analysis will be used to measure continuous items such as age. T-tests will be used to study the affect of dichotomous predictor variables. Analysis of variance will be used to analyze categorical variables with more than two values.

Exploratory model building using multiple regression analysis will be used to identify how situational factors and personal characteristics combine to influence the use by technical college faculty of teacher-centered and learner-centered instructional practices. Again, this statistical analysis will be performed for the item pool as a whole, as well as for each individual subset.

3. **RESEARCH SUBJECTS:**

a. ***List maximum number of subjects** 4,000, **targeted age group** 18 Years Or Older (**this must be specified in years**) **and targeted gender*** Male and Female;

b. ***Method of selection and recruitment - list inclusion and exclusion criteria. Describe the recruitment procedures (including all follow-ups).***

The student researcher is working with the vice presidents of academic affairs at the pilot institution and at each of the eight institutions included in the actual study to obtain email addresses of all full- and part-time faculty members who teach at least one face-to-face course that is applicable to the technical certification, diploma, or associate degree programs offered at these institutions. Also included in this list are those instructors who teach only learning support courses because these type of courses are remediation type courses that prepare students to be successful in their college-level courses. Excluded from this list will be faculty who teach online classes only or who teach adult education, continuing education, and other types of non-credit courses offered at these institutions.

For the pilot administration, the student researcher will ask the vice president of academic affairs at the pilot institution to notify the faculty that the survey instrument will be sent to them within two days and to encourage them to complete the instrument. The student researcher will send an email through SurveyMonkey to these faculty members. The goal is to obtain responses from at least 30 to 50 employees. Other than to send an automatically generated thank you email to those who take the time to complete the survey instrument, the student researcher will not send any follow-up letters/emails to the faculty at the pilot institution.

For the actual study involving the eight technical colleges selected for the actual study, the vice presidents of academic affairs will be asked to end an email to all eligible faculty at their institutions to encourage them to participate in this study. Two days later the student researcher will send an email through SurveyMonkey to the participants. This email message will ask the participants to complete the survey. SurveyMonkey will send automatic thank you emails to faculty who complete the survey instrument.

The student researcher will send a follow-up email approximately two weeks later to those participants who have not completed the survey at that time. SurveyMonkey will send automatic thank you emails to those who complete the survey as a result of receiving the letter at their mailing addresses. The researcher will send a final follow-up email to non-respondents approximately ten days after he sends the letter to the mailing addresses. Faculty who complete the survey at this point will receive an automatically generated thank you email.

c. ***The activity described in this application involves another institution (e.g. school, university, hospital, etc.) and/or another country.*** **Yes**☒ **No**☐

If yes, provide the following details:

1) Name of institution: North Georgia Technical College (Pilot Institution), Athens Technical College (# 1), Augusta Technical College (#3), Central Georgia Technical College (#4), Chattahoochee Technical College (#4), Columbus Technical College (#5), DeKalb Technical College (#6), Griffin Technical College (#7), and Gwinnett Technical College (#8)

2) County and state: Habersham, Georgia (Pilot Institution); Clarke, Georgia (#1); Richmond, Georgia (#2); Bibb, Georgia (#3); Cobb, Georgia (#4); Muscogee, Georgia (#5); DeKalb (#6); Spalding, Georgia (#7); and Gwinnett, Georgia (#8)

3) Country: United States

4) *Written letter of authorization (<u>on official letterhead only</u>)*/ **IRB approval:**
Attached: ☒
Pending: ☐

d. ***Is there any working relationship between the researcher and the subjects?***
Yes☒ **No**☐. ***If yes, explain.***
The student researcher serves as the vice president for institutional effectiveness at Athens Technical College.

e. ***Describe any incentives (payment, gifts, extra credit).***
<u>Extra credit cannot be offered unless there are equal non-research options available.</u>
No payment, gifts, or extra credit will be given to participants.

4. **<u>PROCEDURES</u>**: ***State in chronological order what a subject is expected to do and what the researcher will do during the interaction. Indicate time commitment for each research activity. And detail any follow-up.***
The email invitation from the student researcher will contain a hyperlink that participants can click on to go directly to the survey instrument.
Upon accessing the survey instrument they will find a brief introductory statement. After reading the statement, they will be asked to click enter.
They will then work their way through the survey instrument.
After completing and submitting the online survey instrument, they will receive a thank you email that is automatically generated by Survey Monkey.

Duration of participation in the study: The survey will be open for one month. ***Months***
No. of testing/training sessions: Participants only need to complete the survey one time. ***Length of each session:*** Approximately 15 minutes
Start Date:

<u>Only if your procedures include work with blood, bodily fluids or tissues, complete below:</u>
Submit a MUA from Biosafety: Attached☐ ***Pending***☐
If you are exempted from obtaining a MUA by Biosafety, explain why?

Total amount of blood draw for study: ml Blood draw for each session: ml

5. **<u>MATERIALS</u>**: ***Itemize all questionnaires/instruments/equipment and attach copies with the corresponding numbers written on them.***
1. Technical College Survey of Teaching Practices
2. Sample email to be sent by vice presidents of academic affairs
3. Invitation email to be sent by student researcher
4. Follow-up letter to be sent by student researcher to mailing addresses
5. Final follow-up email to be sent by student researcher.
6. Weighted Scores Survey
7. Weighted Scores Survey Invitation Email

Check all other materials that apply and are attached:
Interview protocol☐ **Debriefing Statement**☐ **Recruitment flyers or advertisements**☐
Consent/Assent forms☐
If no consent documents are attached, justify omission under Q. 8

6. **<u>RISK</u>**: ***Detail risks to a subject as a result of data collection and as a direct result of the research and your plans to minimize them and the availability and limits of treatment for sustained physical or emotional injuries.***

NOTE: <u>REPORT INCIDENTS CAUSING DISCOMFORT, STRESS OR HARM TO THE IRB IMMEDIATELY</u>!

a. **<u>CURRENT RISK</u>**: ***Describe any psychological, social, legal, economic or physical discomfort, stress or harm that might occur as a result of participation in research. How will these be held to the absolute minimum?***
Survey participants should not encounter any risks in completing the survey instrument.

Is there a financial conflict of interest (see UGA COI policy)? **Yes☐ No☒**
If yes, does this pose any risk to the subjects?

b. **<u>FUTURE RISK</u>**: ***How are research participants to be protected from potentially harmful future use of the data collected in this project? Describe your plans to maintain confidentiality, including removing identifiers, and state who will have access to the data and in what role. Justify retention of identifying information on any data or forms.***

DO NOT ANSWER THIS QUESTION WITH "NOT APPLICABLE"!

Anonymous☐ Confidential☒ Public☐ ***Check one only and explain below.***
SurveyMonkey automatically tracks who has/has not responded to the survey instrument. The researcher will subscribe to the confidentiality polices of the University of Georgia. He will explain the confidentiality policies in his invitation email to participants (See attachment 3/invitation email). The introductory page of the survey also reiterates the confidentiality information. He will also provide a link to allow participants to opt out of participating in the survey. The identifying information will allow the researcher to generate aggregate data by institution should administrators at the respective institutions request this information. In no circumstance, will data on individuals be released to these administrations.

Audio-taping☐ Video-taping☐
If taping, how will tapes be securely stored, who will have access to the tapes, will they be publicly disseminated and when will they be erased or destroyed? Justify retention.

7. **<u>BENEFIT</u>**: ***State the benefits to individuals and humankind. Potential benefits of the research should outweigh risks associated with research participation.***

a. ***Identify benefits of the research for participants, e.g. educational benefits:***
The survey will hopefully encourage faculty to think about how their instructional practices affect the level of learning in their classrooms. The results of the survey instruments can be used to develop and implement professional development programs designed to transition faculty members from the traditional teacher-centered paradigm to the learner-centered paradigm.

b. ***Identify any potential benefits of this research for humankind in general, e.g. advance our knowledge of some phenomenon or help solve a practical problem.***
This assessment with benchmark current practices so that the leadership at these eight technical colleges can develop and implement strategies to transition from a traditional paradigm to that of a learner-centered model. The end result will provide leverage to increase the retention and graduation rates of the eight institutions indentified for inclusion in this study.

8. **<u>CONSENT PROCESS</u>:**

a. ***Detail how legally effective informed consent will be obtained from all research participants and, when applicable, from parent(s) or guardian(s).***

The student researcher included a consent form at the beginning of the survey instrument. Participants must click on the "I agree" link in order to access the actual survey instrument. This link will serve as a "signed" consent form.

Will subjects sign a consent form? Yes☒ No☐

If No, request for waiver of signed consent – Yes☐

Justify the request, including an assurance that risk to the participant will be minimal. Also submit the consent script or cover letter that will be used in lieu of a form.

b. **Deception Yes☐ No☒**

If yes, describe the deception, why it is necessary, and how you will debrief them. The consent form should include the following statement: "In order to make this study a valid one, some information about my participation will be withheld until completion of the study."

9. **<u>VULNERABLE PARTICIPANTS</u>: Yes☐ No☒**

Minors☐ Prisoners☐ Pregnant women/fetuses☐ Elderly☐

Immigrants/non-English speakers☐ Mentally/Physically incapacitated☐ Others☐ ***List below.***

Outline procedures to obtain their consent/assent to participate. Describe the procedures to be used to minimize risk to these vulnerable subjects.

10. **ILLEGAL ACTIVITIES: Yes☐ No☒**

If yes, explain how subjects will be protected.

<u>NOTE: Some ILLEGAL ACTIVITIES must be reported, e.g. child abuse.</u>

11. ***<u>STUDENTS</u>***

This application is being submitted for :

Undergraduate Honors Thesis☐

Masters Applied Project, Thesis or Exit Exam Research☐

Doctoral Dissertation Research☒

Has the student's thesis/dissertation committee approved this research? Yes☒ No☐

The IRB recommends submission for IRB review only after the appropriate committees have conducted the necessary scientific review and approved the research proposal.

TECHNICAL COLLEGE
TCSG
SYSTEM OF GEORGIA

Sonny Perdue
Governor

Ronald W. Jackson
Commissioner

April 2, 2009

Mr. Dan Smith
Vice President, Institutional Effectiveness
Athens Technical College
800 U.S. Highway 29 North
Athens, GA 30601-1500

Dear Mr. Smith:

The Research Office of the Technical College System of Georgia has reviewed your plan of study for your dissertation research. You have permission to conduct a survey of faculty based on the plan of study that was submitted to our office.

Once you receive official IRB approval, please send us a copy of the documentation for our files. Let me know if you need our assistance in disseminating the survey.

Please do not hesitate to contact me if you have any questions.

Sincerely,

Sandra Kinney

Sandra Kinney
Research Manager

cc: Andrew Dollar

1800 Century Place Suite 400 Atlanta, Georgia 30345 404.679.1600

APPENDIX K

INSTITUTION REVIEW BOARD EMAIL REGARDING

NEEDED REVISIONS FOR INTRODUCTORY LETTER

From: Larie Sylte [mailto:lsylte@uga.edu]
Sent: Thursday, June 25, 2009 4:50 PM
To: dwallin@uga.edu
Cc: Smith, Dan
Subject: IRB Review- Wallin

TITLE OF STUDY: The Use of Learner-Centered Instructional Practices by Faculty at Eight Associate Degree-Granting Technical Colleges in a Southeastern American State
PRINCIPAL INVESTIGATOR: Dr. Desna Wallin

Dear Dr. Wallin,

Your above-titled human subjects application has been reviewed by the IRB. There are some modifications/additional information needed in order to complete the review, and before approval can be granted. Please address the following:

A. Consent Form- Welcome Online-

1. Please include a statement that the study involves research.

2. Please add the following language- Please note that Internet communications are insecure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once we receive the completed surveys, we will store them in a locked cabinet in my office and destroy any contact information that we have by <give date>. If you are not comfortable with the level of confidentiality provided by the Internet, please feel free to print out a copy of the survey, fill it out by hand, and mail it to me at the address given below, with no return address on the envelope.

3. Please describe any benefits to the subject or to others which may reasonably be expected from the research.

4. 1st paragraph, last sentence- Please add "without penalty or loss of benefits to which you are other wise entitled."

5. 2nd paragraph- Please include- "No individually-identifiable information about me, or provided by me during the research, will be shared with others without my written permission."

Please send me the revised documents (with the revisions highlighted or all CAPS) as an e-mail attachment. Please do not resend all your documents associated with the above study; this fills up the email inbox. Please e-mail revisions by July 9th. Thank you, and if you have any questions, please feel free to contact me.

Regards,

LaRie Sylte, M.H.A, M.A., CIP
Human Subjects Office
University of Georgia
www.ovpr.uga.edu/hso/

APPENDIX L

REVISED COVER LETTER SUBMITTED TO

INSTITUTION REVIEW BOARD

Welcome

Thank you for your willingness to complete this online survey. This research study is designed to measure the instructional practices of faculty members who teach at least one face-to-face academic program course at a member institution of the Technical College System of Georgia. We hope you will take a few minutes to contribute to this study. The online survey will only take approximately 15 minutes to complete. We believe the results of the study will be invaluable to both new teachers and experienced teachers. We will use the results to identify the instructional techniques used most often by our faculty, to identify best practices, and to uncover professional development opportunities for current and future faculty members. Your involvement in this research study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled.

Your participation in this survey will remain confidential. The survey software automatically tracks responses so that we can send up to two reminders to participants who have not returned the questionnaire. As soon as we collect the data and as soon as we share the executive summary with survey participants, we will destroy our mailing list so that no one will be able to determine the names of people who completed the questionnaires. Please note that Internet communications are insecure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once we receive the completed surveys, we will store them in a locked cabinet in the associate professor's office and destroy any contact information that we have by January 15, 2010. If you are not comfortable with the level of confidentiality provided by the Internet, please feel free to print out a copy of the survey, fill it out by hand, and mail it to the doctoral student at the address given below, with no return address on the envelope. When we publish our findings, we will report information based upon groups, not individuals. Furthermore, no individually identifiable information about either of us or provided by us during the research will be shared with others without our written permission.

If you have any questions about this research project, please contact either of us at the email listed below. Questions or concerns about your rights as a research participant should be directed to the Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199. The email address is irb@uga.edu.

Dr. Desna Wallin
Associate Professor
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 583-8098
dwallin@uga.edudwallin@uga.edu

and

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
800 U.S. Highway 29 North
Athens, Georgia 30601
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085
dsmith@athenstech.edu

APPENDIX M

INITIAL EMAIL FROM VICE PRESIDENT FOR ACADEMIC

AFFAIRS AT FIRST PILOT INSTITUTION

From: Vicki Nichols [mailto:vnichols@northgatech.edu]
Sent: Monday, July 20, 2009 7:48 AM
To: Clarkesville Faculty; Blairsville Faculty; Currahee Faculty
Cc: Executive Team
Subject: Research Survey

In a few days, you will receive an email invitation to participate in a research study being conducted by the Department of Lifelong Education, Administration, and Policy at the University of Georgia. The purpose of this study is to develop an understanding of the instructional practices of technical college faculty.

I encourage you to take a few minutes to complete the online survey connected with the UGA study. The research team will use the results to identify the instructional techniques used most often by our faculty, to identify best practices, and to uncover professional development opportunities for current and future faculty members.

I believe this study is very important. Your response will be extremely helpful to the UGA research team as they study why technical college faculty are so successful in helping their students achieve their educational and career goals.

Thank you for taking time to participate in this research project.

Vicki

Vicki R. Nichols

Vice President for Academic Affairs
NORTH GEORGIA TECHNICAL COLLEGE
1500 Hwy. 197 N.
Clarkesville, GA 30523
706/754-7790 (office)
vnichols@northgatech.edu

APPENDIX N

INITIAL EMAIL FROM RESEARCHER TO FACULTY AT FIRST PILOT INSTITUTION

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To: [Email]

From: dsmith@athenstech.edu

Subject: Survey of Instructional Practices

Body: Dear [FirstName]:

The Technical College System of Georgia is a crucial part of our state's effort to provide educational opportunities to its citizens. The mission of the technical colleges is to provide our citizens with a high quality technical education that will enable graduates to excel in the workplace. You -- as an instructor -- are integral to the success of the colleges and to the success of those individuals who turn to these institutions to accomplish their educational and career goals.

There are many effective ways to teach, and each instructor has her or his own teaching styles and preferences; however, we do not have a very good understanding of the most common and effective strategies used by technical college faculty. I am currently conducting a study that will help us find out what those strategies are. In this study, we are asking a selected group of faculty how they approach their teaching responsibilities. Specifically, we are interested in finding out the specific strategies they use and what purposes they are trying to accomplish when they use a particular strategy.

I hope you will take a few minutes to contribute to this study. The online survey will only take approximately 15 minutes to complete. We believe the results of the study will be invaluable to both new teachers and experienced teachers. You can access the survey by clicking on this link http://www.surveymonkey.com/s.aspx .

Once the study is complete, we will share the results of this survey with everyone who participated in the study, as well as with each college president and with staff at the Technical College System of Georgia.

In closing, thank you for taking 15 minutes of your valuable time to participate in this important study. If you have questions, please contact us by the email address or telephone numbers listed below.

Respectfully,

Dr. Desna Wallin

Associate Professor
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) (706) 583-8098
dwallin@uga.edu

and

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085
dsmith@athenstech.edu

P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .

APPENDIX O

FIRST FOLLOW-UP REMINDER FROM RESEARCHER

TO FACULTY AT FIRST PILOT INSTITUTION

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To:	[Email]
From:	dsmith@athenstech.edu
Subject:	We Have Not Heard From You
Body:	Dear [FirstName]:

Last week you received an email describing an important study we are engaged in at the University of Georgia. You are only one of a select group of faculty from across the system whom we are asking to participate; therefore, your opinions are important to us.

As we pointed out in our previous email, technical college faculty members are integral to the success of their colleges and to their graduates. Our study is designed to identify the instructional strategies commonly used by faculty to prepare their students for their future career opportunities.

I hope you will find the 15 minutes necessary to complete this survey! You can access the online questionnaire by clicking this link http://www.surveymonkey.com/s.aspx .

Respectfully,

Dr. Desna Wallin
Associate Professor
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 583-8098
dwallin@uga.edu

and

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy

The University of Georgia
(706) 355-5085
dsmith@athenstech.edu

P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .

APPENDIX P

FINAL FOLLOW-UP REMINDER FROM RESEARCHER TO FACULTY

AT FIRST PILOT INSTITUTION

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To:	[Email]
From:	dsmith@athenstech.edu
Subject:	Final Reminder
Body:	Dear [FirstName]:

We are about to wrap up our study of the instructional practices of faculty within the Technical College System of Georgia.

As a vice president at Athens Technical College, I fully understand the demands placed on our faculty and how hard it is for them to find 15 minutes in their busy schedules. However, I truly believe that the results of this study will be worth the time it takes to complete the questionnaire. You can access the questionnaire by clicking on this link http://www.surveymonkey.com/s.aspx .

As noted before, I will send an executive summary of the survey results to all survey participants. I want to thank you in advance for taking time to respond to this study.

Respectfully,

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085
dsmith@athenstech.edu
P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .

APPENDIX Q

AMENDED INSTITUTION REVIEW BOARD APPLICATION

(REDUCED FORMAT)

Institutional Review Board
Human Subjects Office
612 Boyd GSRC
Athens, GA 30602-7411

The University of Georgia

Phone: 706-542-3199
Fax: 706-542-3360
Email: irb@uga.edu

IRB CONTINUING REVIEW/AMENDMENT FORM

Principal Investigator (PI): **Dr. Desna Wallin**	
Co-Principal Investigator (Required, if co-PI is a student): **Daniel J. Smith**	
Project #: **2009-10957-0**	Title of Study: **The Use of Learner-Centered Instructional Practices by Faculty at Eight Associate Degree-Granting Technical Colleges in a Southeastern American State**

	PLEASE ANSWER ALL QUESTIONS (Use the text boxes for explanation/additional information or attach a separate cover letter.)	YES	NO
1	**Have you started data collection for this research project?**	☒	☐
2	**How many total participants have been accrued since the beginning of the research project?** *(Note: This corresponds to the number of individuals who gave consent; this number should include withdrawals but actual number of withdrawals is reported in #7 below.)*	**86**	
3	**Do you plan to continue to recruit participants for this research project? (If you answered YES, please skip to Question #6.)**	☒	☐
4	**If you answered NO to question #3, do you plan to continue to collect data with previously recruited participants?**	☐	☐
5	**If you answered NO to questions #3 and #4 above, do you plan to continue to analyze previously collected data that is individually-identifiable?**	☐	☐
6	**Have there been any complaints about the research since the protocol was approved by the IRB? If YES, please provide complete information on the complaints made.**	☐	☒
7	**Have any participants withdrawn, dropped out, or were lost to follow-up from participation since the protocol was last approved by the IRB? If YES, please indicate the number and provide detailed information/reason(s).** 2 -- Both answered one question and then selected the option to leave the online survey.	☒	☐
8	**Have there been any adverse events or unanticipated problems involving risks to the participants or others since the protocol was last approved by the IRB? If YES, please contact the IRB office immediately to request an adverse event/incident report form.**	☐	☒
9	**Have there been any changes to the study population? If YES, please explain changes.** We want to add a pilot administration at a second institution. The original IRB proposal called for one pilot administration before actual data collection. We need to add approximately 50 faculty members at the second pilot institution to the study population	☒	☐
10	**Have the procedures changed in any way since the protocol was last approved by the IRB? If YES, please explain.**	☐	☒
11	**Have any materials or instruments changed in any way since the protocol was last approved by the IRB? If YES, please explain.** The original insturment asked instructors to indicate the number of times they had used an instructional technique to assist students in acquiring knowledge, to assist students in developing problem solving skills, and to assist students in learning to perform tasks. We recorded wide variety in the types of techniques used, but no differentiation in how they used those techniques. The revised instrument asks respondents to rate the effectiveness of each of the techniques in assisting students to acquiring knowledge, develop their problem solving skills, and develop their ability to perform taks.	☒	☐
12	**Have changes in the scientific literature, or interim experience with this or related studies, changed your assessment of potential risks or benefits to study participants? If YES, please explain and attach any relevant literature.**	☐	☒
13	**Have the consent documents changed in any way since the protocol was last approved by the IRB? If YES, please explain and attach copy of the revised document(s).**	☐	☒
14	**A clean copy of the current version of the consent document(s) must be submitted with the request to continue if you plan to recruit new participants, or if a revised consent document is necessary as a result of an amendment. Have you attached a clean copy of**	☒	☐

	your current consent document(s)?		
15	**Have there been any changes to the members of the research team (e.g., change in PI; addition/deletion of co-investigators)? If YES, please describe personnel change(s). Note: All new personnel must complete the CITI training.**	☐	☒
Principal Investigator's Signature: **For electronic submission, a check in this box is acceptable as a signature:** ☐		**Date: 2 Sept 2009**	

<u>Important</u>: If research activities involving human participants will continue five years after the original IRB approval, please submit a new IRB Application for initial review. **<u>Exceptions</u>:** If the research is permanently closed to the enrollment of new subjects, all participants have completed all research-related interventions, **<u>and</u>** the research will remain active only for long-term follow-up of subjects; or if the remaining research activities are limited to analysis of individually-identifiable private information.

APPENDIX R

APPROVAL OF AMENDED INSTITUTION REVIEW BOARD APPLICATION

From: Larie Sylte [mailto:lsylte@uga.edu]
Sent: Thursday, September 10, 2009 1:25 PM
To: dwallin@uga.edu
Cc: Smith, Dan
Subject: IRB Approval- Amendment- Wallin

PROJECT NUMBER: 2009-10957-1
TITLE OF STUDY: The Use of Learner-Centered Instructional Practices by Faculty at Eight Associate Degree-Granting Technical Colleges in a Southeastern American State
PRINCIPAL INVESTIGATOR: Dr. Desna Wallin

Dear Dr. Wallin,

Please be informed that the University of Georgia Institutional Review Board (IRB) has reviewed and approved your request for modifications to the above-titled human subjects proposal. It was determined that the amendment request continues to meet the criteria for exempt (administrative) review procedures.

You may now begin to implement the amendment. Your approval packet will be sent via campus mail.

Please be reminded that any changes to this research protocol must receive prior review and approval from the IRB. Any unanticipated problems must be reported to the IRB immediately. The principal investigator is also responsible for maintaining all applicable protocol records (regardless of media type) for at least three (3) years after completion of the study (i.e., copy of approved protocol, raw data, amendments, correspondence, and other pertinent documents). You are requested to notify the Human Subjects Office if your study is completed or terminated.

Good luck with your study, and please feel free to contact us if you have any questions. Please use the IRB number and title in all communications regarding this study.

Regards,

LaRie Sylte, M.H.A, M.A., CIP
Human Subjects Office
University of Georgia
www.ovpr.uga.edu/hso/

APPENDIX S

EMAIL NOTIFICATION FROM VICE PRESIDENT FOR ACADEMIC AFFAIRS TO FACULTY AT SECOND PILOT INSTITUTION

From: Erica Harden [mailto:eharden@sandersvilletech.edu]
Sent: Tuesday, September 08, 2009 8:31 AM
To: Smith, Dan
Subject: RE:

Later this morning you will receive an email invitation to survey being piloted as part of the dissertation research being conducted by a colleague at Athens Technical College. The purpose of this study is to develop an understanding of the instructional practices of technical college faculty. I encourage you to take a few minutes to complete the online survey. The survey is designed to identify the instructional techniques used most often by our faculty, to identify best practices, and to uncover professional development opportunities for current and future faculty members.

Thank you for taking time to participate in this research project.

APPENDIX T

EMAIL INVITATION FROM RESEARCHER TO

FACULTY AT SECOND PILOT INSTITUTION

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To:	[Email]
From:	dsmith@athenstech.edu
Subject:	Survey of Instructional Techniques
Body:	Dear [FirstName]:

The Technical College System of Georgia is a crucial part of our state's effort to provide educational opportunities to its citizens. The mission of the technical colleges is to provide our citizens with a high quality technical education that will enable graduates to excel in the workplace. You -- as an instructor -- are integral to the success of the colleges and to the success of those individuals who turn to these institutions to accomplish their educational and career goals.

There are many effective ways to teach, and each instructor has her or his own teaching styles and preferences; however, we do not have a very good understanding of the most common and effective strategies used by technical college faculty. I am currently conducting a study that will help us find out what those strategies are. In this study, we are asking a selected group of faculty how they approach their teaching responsibilities. Specifically, we are interested in finding out the specific strategies they use and what purposes they are trying to accomplish when they use a particular strategy.

I hope you will take a few minutes to contribute to this study. The online survey will only take approximately 15 minutes to complete. We believe the results of the study will be invaluable to both new teachers and experienced teachers. You can access the survey by clicking on this link http://www.surveymonkey.com/s.aspx .

Once the study is complete, we will share the results of this survey with everyone who participated in the study, as well as with each college president and with staff at the Technical College System of Georgia.

In closing, thank you for taking 15 minutes of your valuable time to participate in this important study. If you have questions, please contact us by the email address or telephone numbers listed below.

Respectfully,

Dr. Desna Wallin

Associate Professor
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) (706) 583-8098
dwallin@uga.edu

and

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085
dsmith@athenstech.edu

P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .

APPENDIX U

SAMPLE EMAIL SENT BY RESEARCHER TO PRESIDENTS OF EIGHT TECHNICAL COLLEGES IDENTIFIED FOR INCLUSION IN STUDY

-----Original Message-----
From: Smith, Dan
Sent: Monday, July 13, 2009 7:11 PM
To: sbartels@GwinnettTech.edu
Subject: Dissertation Help

Hi Sharon –

It has been awhile since I've seen you. Hope your summer is going well and that you are getting to enjoy a nice trip to somewhere!

I’m writing you today to ask for a favor. I am at the point in my doctoral program where I can now officially conduct my research. I am studying the instructional practices of technical college faculty at the eight TSCG colleges that awarded more than 200 associate degrees in the 2007-2008 academic year. I want to identify the specific practices used most often, as well as to identify how faculty members use those practices. Do they use the practices to develop students’ knowledge acquisition abilities, their knowledge application/problem solving abilities, or their abilities to perform specific tasks or skills?

With your permission, I would like to administer the survey to the full-time and adjunct faculty at Gwinnett Technical College. I will use an online survey instrument to collect data; therefore, I would need to obtain names/email addresses of your entire faculty. I plan to administer the survey in late October or early November; therefore, I will need your Fall instructional roster. I would need a contact person to obtain this information, and I would need a contact on your IT staff to make sure that the survey will get through the email filters. I would also like to have you or your vice president for academic affairs to send out an email two days before data collection begins to encourage your faculty to participate. I will provide a draft of that email as we get closer to the data collection phase.

I have obtained the necessary approvals from the Technical College System of Georgia, and I have had my IRB proposal approved by the Human Subjects Office at the University of Georgia. I will follow all established procedures for ensuring that individuals cannot be identified. Those assurances are listed on the first screen of the online survey tool.

I hope that I can use the faculty at Gwinnett Tech. Please email or call me if you have questions. I will provide you with an executive summary of the results. My major professor also wants to publish our aggregate results in an appropriate journal.

Thanks

Dan

Daniel J. Smith
Vice President for Institutional Effectiveness
Athens Technical College
800 U.S. Highway 29 North
Athens, GA 30606

706-355-5085
dsmith@athenstech.edu

APPENDIX V

SAMPLE EMAIL FROM VICE PRESIDENT FOR ACADEMIC AFFAIRS TO FULL-TIME AND PART-TIME FACULTY AT EIGHT TECHNICAL COLLEGES

From: Wentworth, Craig [mailto:crw@centralgatech.edu]
Sent: Monday, October 26, 2009 9:37 AM
To: CGTC (Faculty)
Cc: Smith, Dan
Subject: Assistance needed in doctoral dissertation research study
Importance: High

To Credit Faculty,
One of our colleagues, Mr. Dan Smith, VP for Institutional Effectiveness at Athens Technical College, is requesting your assistance in participating in a survey for his doctoral dissertation research study. We would appreciate your prompt response and help.

In a few days, you will receive an email invitation to participate in a research study being conducted by the Department of Lifelong Education, Administration, and Policy at the University of Georgia. The purpose of this study is to develop an understanding of the instructional practices of technical college faculty.

I encourage you to take a few minutes to complete the online survey connected with the UGA study. The research team will use the results to identify the instructional techniques used most often by our faculty, to identify best practices, and to uncover professional development opportunities for current and future faculty members.

I believe this study is very important. Your response will be extremely helpful to the UGA research team as they study why technical college faculty are so successful in helping their students achieve their educational and career goals.
Thank you for taking time to participate in this research project.

Craig R. Wentworth, Ed.D.
Vice President for Academic Affairs
Central Georgia Technical College
3300 Macon Tech Drive
Macon, GA 31206
Phone: (478)757-3510
Fax: (478)757-3672

APPENDIX W

SURVEY INVITATION TO FULL-TIME AND PART-TIME

FACULTY AT EIGHT TECHNICAL COLLEGES

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To:	[Email]
From:	dsmith@athenstech.edu
Subject:	Instructional Practices of Technical College Faculty Survey
Body:	Dear [FirstName]:

The Technical College System of Georgia is a crucial part of our state's effort to provide educational opportunities to its citizens. The mission of the technical colleges is to provide our citizens with a high quality technical education that will enable graduates to excel in the workplace. You -- as an instructor -- are integral to the success of the colleges and to the success of those individuals who turn to these institutions to accomplish their educational and career goals.

There are many effective ways to teach, and each instructor has her or his own teaching styles and preferences; however, we do not have a very good understanding of the most common and effective strategies used by technical college faculty. I am currently conducting a study that will help us find out what those strategies are. In this study, we are asking a selected group of faculty how they approach their teaching responsibilities. Specifically, we are interested in finding out the specific strategies they use and what purposes they are trying to accomplish when they use a particular strategy.

I hope you will take a few minutes to contribute to this study. The online survey will only take approximately 15 minutes to complete. We believe the results of the study will be invaluable to both new teachers and experienced teachers. You can access the survey by clicking on this link http://www.surveymonkey.com/s.aspx .

Once the study is complete, we will share the results of this survey with everyone who participated in the study, as well as with each college president and with staff at the Technical College System of Georgia.

In closing, thank you for taking 15 minutes of your valuable time to participate in this important study. If you have questions, please contact us by the email address or telephone numbers listed below.

Respectfully,

Dr. Desna Wallin

Associate Professor
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) (706) 583-8098
dwallin@uga.edu

and

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085
dsmith@athenstech.edu

P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .

APPENDIX X

FOLLOW-UP EMAIL SENT BY RESEARCHER ADDRESSING CONNECTIVITY ISSUES

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To:	[Email]
From:	dsmith@athenstech.edu
Subject:	Internet Connections and the Technical College Survey
Body:	Dear [FirstName]:

Thank you for taking time to complete the Teaching Practices of Technical College Faculty survey that I sent to you yesterday.

I understand that several colleges were experiencing connectivity problems with their Internet servers. Several people have emailed me and said that they lost connection while in the middle of completing the survey instrument because of these connectivity problems. If this happened to you, I would like to ask you to attempt to complete the survey again using this link:

http://www.surveymonkey.com/s.aspx

Again thank you for your participation.

Respectfully,

Daniel J. Smith
Vice President for Institutional Effectiveness
Athens Technical College
706-355-5085
dsmith@athenstech.edu

Opt Out Link: http://www.surveymonkey.com/optout.aspx

APPENDIX Y

FIRST FOLLOW-UP REMINDER SENT BY RESEARCHER TO

FACULTY AT EIGHT TECHNICAL COLLEGES

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To:	[Email]
From:	dsmith@athenstech.edu
Subject:	We Have Not Heard From You Regarding the Instructional Practices Survey
Body:	Dear [FirstName]:

Last week you received an email describing an important study we are engaged in at the University of Georgia. You are only one of a select group of faculty from across the Technical College System of Georgia whom we are asking to participate; therefore, your opinions are important to us.

As we pointed out in our previous email, technical college faculty members are integral to the success of their colleges and to their graduates. Our study is designed to identify the instructional strategies commonly used by faculty to prepare their students for their future career opportunities.

I hope you will find the 15 minutes necessary to complete this survey! You can access the online questionnaire by clicking this link http://www.surveymonkey.com/s.aspx .

Respectfully,

Dr. Desna Wallin
Associate Professor
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 583-8098
dwallin@uga.edu

and

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085

dsmith@athenstech.edu

P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .

APPENDIX Z

FINAL REMINDER SENT BY RESEARCHER TO

FACULTY AT EIGHT TECHNICAL COLLEGES

Message Preview

Below is a preview of your message based on the first recipient in your list ([Email])

To: [Email]

From: dsmith@athenstech.edu

Subject: Final Reminder Regarding Instructional Practices Survey

Body: Dear [FirstName]:

We are about to wrap up our study of the instructional practices of faculty within the Technical College System of Georgia.

As a vice president at Athens Technical College, I fully understand the demands placed on our faculty and how hard it is for them to find 15 minutes in their busy schedules. However, I truly believe that the results of this study will be worth the time it takes to complete the questionnaire. You can access the questionnaire by clicking on this link http://www.surveymonkey.com/s.aspx .

As noted before, I will send an executive summary of the survey results to all survey participants. I want to thank you in advance for taking time to respond to this study.

Respectfully,

Daniel J. Smith
Vice President for Institutional Effective
Athens Technical College
and
Doctoral Student
Department of Lifelong Learning, Administration, and Policy
The University of Georgia
(706) 355-5085
dsmith@athenstech.edu
P.S. You may select not to participate in the survey by clicking this link http://www.surveymonkey.com/optout.aspx .