A Comparison of Online Teaching Styles in Florida Community Colleges

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A COMPARISON OF ONLINE TEACHING STYLES
IN FLORIDA COMMUNITY COLLEGES

BY

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This dissertation is dedicated in loving memory of my Grandpa.

Jack Wonders Rankin
October 6, 1913 – May 24, 1994
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This study determined whether differences existed between the teaching styles of male and female community college instructors who teach online. It was significant because distance education literature highlights a learner-centered teaching style as the appropriate method for teaching online, but limited empirical research exists to support this stance. In order to appropriately answer the research questions posed in this study, I implemented a basic correlational research design.

The Principles of Adult Learning Scale (PALS) was used to measure overall teaching style and seven factors related to teaching style (Conti, 1979). Conti developed PALS in order to assess teaching style through positive and negative behaviors. Teaching experience, discipline, level of education, and employment status, which also have the potential to impact whether community college instructors favor a learner-centered style or a teacher-centered style, were considered in this study. The population consisted of all instructors at Florida’s 28 community colleges who were teaching in an online distance education environment. MANOVA and ANOVA were used to analyze the data which was collected through a web-based administration of PALS. Effect size was also included.

Results depicted a difference in the teaching styles of male and female community college instructors who taught online. Women demonstrated a more learner-centered style than men in terms of their overall teaching style. Differences were also apparent based on the second factor, Personalizing Instruction, in which case, women were more likely than men to implement a more learner-centered teaching style. In terms of the demographic variables, differences in teaching styles were noted based on discipline and whether the instructor taught full or part-time. Those instructors who taught in disciplines considered soft/applied implemented a more learner-centered style. Instructors in the hard/pure disciplines demonstrated a greater use of a teacher-centered style. Contrary to prior research, part-time instructors used a more learner-centered style.

A difference in the teaching styles of men and women depicted teaching styles that are below the original norms of PALS, highlighting an online teaching style that is more teacher-centered. Even though women take a more learner-centered approach to teaching than men, the online environment has yet to evolve into a truly learner-centered environment.
CHAPTER 1

INTRODUCTION

The last decades of the 20th century marked the beginning of a variety of educational reform movements. The waves of reform started in the early 1980s with *A Nation at Risk* (The National Commission on Excellence in Education, 1983) which pressed the K-12 educational system toward more accountability. In higher education a major shift was promoted by another publication, *From Teaching to Learning: A New Paradigm for Undergraduate Education* (Barr & Tagg, 1995). This frequently cited article caused an explosion in the discussion of learning-centered environments because it pulled together many popular notions of effective education. Furthermore, it critiqued the traditional purpose and goal of colleges—to provide instruction—and suggested a new precedent wherein colleges actually exist for the purpose of producing learning. According to Barr and Tagg, teaching should no longer be the primary function and the outcome of colleges and universities. Instead, they suggested that the outcome of colleges and universities should be learning that is created through teaching. This shift from an emphasis on teaching to that of learning will inherently have an impact on the teaching styles of instructors. In order to understand the realities of this shift in principles, research investigating teaching styles in the learner-centered environment is needed.

O’Banion (1997) enhanced this discussion by defining learning colleges as places where the primary goal is learning that occurs any way, any place, and any time. He offered six key principles of a learning college:

- The learning college creates substantive change in individual learners.
- The learning college engages learners as full partners in the learning process, with learners assuming primary responsibility for their own choices.
- The learning college creates and offers as many options for learning as possible.
- The learning college assists learners to form and participate in collaborative learning activities.
- The learning college defines the roles of learning facilitators by the needs of the learners.
- The learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners. (p. 47)

With these principles, O’Banion created a framework for understanding the paradigm shift in higher education and the future of learning.

Teaching style is a set of behaviors that are consistent from setting to setting and over time (Conti, 1985a). Teaching style may vary based on gender, discipline, level of education, and employment status. The original debate regarding teaching style attempted to determine which style was most effective. This argument has recently resurfaced. For example, DiBiase (2000) argued that some teaching styles may be more effective in the online environment than others. The discussion regarding teaching style has also
included an emphasis on *when* a style is most appropriate (Conti). For example, Sherron and Boettcher (1997) promoted a learner-centered style as the most effective style for creating interactivity in the online environment.

Instructors play a critical role in the integration of any new technological change in an educational environment (Adams, 2002; Parisot, 1997). “However, little has been done to understand the changing role of faculty in adapting to technology and the changes in the psychological and physical environment promised by distance learning” (Parisot, , p. 5). Having a firm grasp on the components of instructors roles, including teaching style, is a critical element in the paradigmatic shift from a teacher-centered environment to a learner-centered environment.

Assessing teaching style supports instructors by helping them understand certain aspects of the learning environment (Conti, 1983b) including their teaching styles (Conti, 1989). It is also a starting point for helping instructors improve their teaching (Conti, 1983b). Conti developed the Principles of Adult Learning Scale (PALS) in order to assess teaching style through positive and negative behaviors. Knowledge of teaching style can assist instructors in organizing their courses, dealing with learners, and enhancing learner achievement (Conti, 1985b, 1989; Heimlich & Norland, 2002). Additionally, assessing teaching styles may assist in developing distance education programs that meet the needs of the learners (Dupin-Bryant, 2000).

In exploring teaching styles for this study, there were three main considerations. The first was the effect of gender on teaching style. Specifically, men gravitate towards a more traditional style, teacher-centered style and women focus their teaching efforts on creating a learner-centered environment (Statham, Richardson, & Cook, 1991). Second, the emphasis in a learner-centered environment requires, among other things, the use of teaching styles which meet the needs of learners and actively involve them in the educational process. Third, the online environment is a growing segment in the community college environment, and the nature of the setting has the potential to impact teaching style.

This study determined whether differences exist between the teaching styles of male and female community college instructors who teach online. The PALS was used to measure overall teaching style and seven factors related to a learner-centered teaching style (Conti, 1979). Teaching experience, discipline, level of education, and employment status, which also have the potential to impact whether community college instructors favor a learner-centered style or a teacher-centered style, were considered in this study.

This chapter introduces the proposed research and presents the purpose of the study related to comparing the teaching styles of male and female community college instructors who teach in the online environment. It also defines the research questions and highlights the conceptual framework for carrying out this research. The chapter concludes with sections on the significance of this research project, delimitations, limitations, and assumptions of the study.

**Gender and Teaching Style**

In the traditional classroom, differences in the teaching styles of male and female instructors have frequently been the focus of researchers interested in understanding the role gender plays in the educational environment (Caplan, 1994; Clegg, Trayhurn, & Johnson, 2000; Proost, Elen, & Lowyck, 1997; Statham et al., 1991; Sullivan, 1999).
Research depicted women as leaning more towards a learner-centered style than men, even though men and women are exposed to similar experiences in their own educational endeavors (Moulton, 1992; Scotney, 1986; Statham et al., 1991; Stickney-Taylor & Sasse, 1990). Women tended to focus on the learners through building a climate conducive to learner participation, encouraging learners to collaborate, assessing learner needs, and other such activities (Moulton, 1992; Scotney, 1986). Recently, online distance education has piqued the debate regarding teacher-centered and learner-centered teaching styles. As the discussion ensues, further research such as this study is necessary for understanding the role that gender plays with regard to the issue of teaching styles in an online environment.

The Shift from Teacher to Learner

Pedagogically, the primary focus of higher education has recently shifted from the teacher to the learner (O'Banion, 1997). Community colleges face significant challenges regarding curricular, teaching, learning, and assessment practices due to the shift towards a learning paradigm (Gibson-Harmon, Rodriquez, & Haworth, 2002). Flynn (1999) raised the question as to what the shift to learning means for the next generation of instructors and learners in America's community colleges. He argued that little has been done to embrace the learner-centered paradigm and move it from the fringes to the heart of the educational process. Similarly, Cohen and Brawer (2002) supported learning colleges which create a climate ripe for implementing a learner-centered style. They believe that the concept has potential but criticized the term for being nothing more than words.

According to Flynn, the nature of the community college, including the history, the structure of the organization, and the need for consensus, are barriers to implementing the learner-centered paradigm. Overall, he stated that community colleges must take steps to overcome these barriers and to provide the education the learners need (Flynn, 1999). Flynn summed up his argument by challenging community colleges to take the next step in shifting from a teaching paradigm to a learning paradigm. In expressing a supporting opinion, Cohen and Brawer (2002) stated that success will only come when the link between learning and teaching is recognized.

Conti’s (1989) treatment of the learner-centered paradigm was slightly more tempered than Flynn’s but comparable to that of Cohen and Brawer, although Conti takes a more in-depth approach to the topic. Conti supported a learner-centered teaching style, but after much research he concluded that instructors cannot blindly accept the teaching styles purported to be most effective in the literature. Instead, instructors need to understand their own teaching styles in order to appreciate the role they play in relation to other variables in the teaching situation, including learner achievement. He also encouraged the development of understanding why a learner-centered style is emphasized in the literature (Conti, 1983a).

The Online Learning Environment

In considering the learning environment, effective online distance education is dependent upon the activities of the instructors and learners. Online education is prevalent in community colleges because of mature, motivated, and independent learners, which is a requirement for online education. Also, instructors must have the knowledge,
experience, and drive to function in an online educational environment. Online education works better for some instructors and learners than for others, which may be true because experiences are often a function of one’s skills (Kearsley, 2000). To illustrate, a student who has experience using a particular course management platform such as WebCT will be able to focus more so on the content of the course as compared to another student whose skills with WebCT are nonexistent because the student has not had the experience of taking a course that used the software.

Community college instructors are more likely than instructors at other institutions to teach some form of distance education classes (National Center for Education Statistics, 2002). Turning attention to the demographics of instructors highlights the characteristics of those who are teaching in the distance education environment. To illustrate, whether or not an instructor taught a distance education course was not associated with gender, discipline, or level of education. However, part-time employment status resulted in differences. Part-time instructors taught more distance education classes than did full-time instructors (National Center for Education Statistics, 2002).

As noted, instructors and learners influence the educational environment, and the perception of the technology also affects the teaching environment. One factor to consider when discussing teaching style is that the online environment has a history of being dominated by men and, consequently, being characterized as masculine. This characterization has been noted as recently as 1999 (Sullivan). Additionally, this characterization of the Internet may influence the attitudes and perceptions of instructors (Sullivan).

In terms of changes made in teaching, instructors who teach distance education classes reported that they spent more time interacting with students via email (Bradburn, 2002). Along with the changes in how online instructors spend their time, they must make changes in their teaching styles (Palloff & Pratt, 2001). It is not effective for instructors to teach in the traditional lecture mode in an online distance education environment. Consequently, instructors must use different teaching practices, strategies, and methods (Palloff & Pratt). Essentially, they must adapt to or adopt an altered teaching style in the online distance education environment.

**Purpose of the Study**

The main focus of this study was to assess and compare the teaching styles of male and female online distance education instructors. As a by-product, comparing teaching styles highlighted whether or not instructors are using a learner-centered style when teaching via online distance education. The demographic characteristics of interest, in addition to gender, included teaching experience, discipline, level of education and employment status because they have impacted teaching style in previous research.
Research Questions

The following research questions were designed to address the problem previously stated in this chapter:

1. Is there a difference in the overall teaching style of male and female community college instructors who teach in an online distance education environment? Is this difference shown on the following factors: (a) learner-centered activities, (b) personalized instruction, (c) activities related to life experiences, (d) activities related to assessing student needs, (e) activities related to climate building, (f) encouragement of student participation in the learning process, or (g) flexibility for personal development?

2. Does teaching experience, subject discipline, level of education, or employment status affect teaching style in the online distance education community college environment?

Conceptual Framework

The research questions were investigated through the following framework that is based on the concepts measured by Conti’s PALS. This scale determines the level of an instructor’s use of a learner-centered teaching style. The teaching style is a continuum characterized on one end with a learner-centered teaching style and on the other end with a teacher-centered style. Teaching style consists of seven factors that provide a detailed understanding of the behaviors inherent in an instructor’s teaching style. The factors are (a) learner-centered activities, (b) personalizing instruction, (c) relating to the learner’s experience, (d) assessing learner needs, (e) climate building, (f) learner participation in the educational process, and (g) flexibility for the learner’s personal development. In building on this framework, it is necessary to consider how essential aspects of gender relate to teaching style. Theories regarding women and relationships propose that women are more network-orientated than men who tend to take a more hierarchical approach to relationships (Gilligan, 1982).

As mentioned previously, the primary purpose of this study was to investigate the teaching styles of online community college instructors with a specific emphasis on the interaction of teaching style and gender. Secondarily, the demographic variables including the instructor’s teaching experience, discipline, level of education, and employment status, also provided a framework for thoroughly investigating teaching style.

The following section, definition of terms, lists and defines concepts that were essential in providing the background for understanding this study. The list is by no means exhaustive. Instead, it outlines the keys concepts of the study as noted and used in the literature.
Definition of Terms

1. Teaching style – a variety of identifiable behaviors which are consistently present, though the subject being taught may change (Conti, 1985a).
2. Collaborative teaching-learning mode – continuum with teacher-centered style on one end and the learner-centered style on the other end.
3. Learner-centered style – “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)” (McCombs & Whisler, 1997, p.9).
4. Teacher-centered style – a teaching style within which the primary focus is the transmitting of knowledge using a traditional skilled teaching technique (Jarvis, 1995) such as lecturing.

Significance of the Research

Gaps in the literature regarding teaching styles include a lack of research assessing the teaching styles of men and women in the online environment. Distance education literature parallels adult education literature in espousing the virtues of learner-centered styles and environments. The literature highlights a learner-centered teaching style as the appropriate method for teaching in an online environment, but limited empirical research exists to support this stance. Little is known about the differences between teaching styles as they relate to the gender of online community college instructors. Nor is there a great deal of research regarding the teaching styles used by instructors who are teaching classes in an online distance education environment in Florida’s community colleges. Florida is an appropriate setting for conducting this study because Florida’s community colleges have been involved in providing distance education for roughly 30 years (State Board of Community Colleges, 2000).

Investigating teaching styles enhances theory by providing more information about the practice of teaching in an online environment. The results of this study shed light on whether instructors are, as preferred by distance education proponents, using a learner-centered teaching style in the online environment. Additionally, the successful completion of this study resulted in a deeper understanding of the role of the instructor, provided insight on gender and teaching, and enhanced the body of knowledge regarding online distance education, specifically in the area of teaching style.

The use of a correlation research design was an attempt to add to the literature in a way that is currently lacking. To explain, Berge and Mrozowski (2001) conducted a review of the distance education literature and reached a few important conclusions. They reviewed 1,419 distance education articles and considered 890 of those to be research articles. The majority of the articles implemented a descriptive research methodology. Berge and Mrozowski (2001) concluded that one of the types of research that is lacking in the distance education literature is correlation research, supporting the need for the type of research design proposed in this study. Furthermore, Berge and Mrozowski found that the majority of the research focused on pedagogical issues.
Redefining the role of key participants, including instructors, was the area least studied. Thus, focusing on the teaching styles of community college instructors teaching in an online distance education environment is a worthy endeavor due to the possible theoretical and practical contributions to the field of distance education. In addition, understanding the relationship between genders and teaching style in the online environment may enhance the well accepted tenant that gender plays a role in how one may approach work and relationships with others. The next section reviews the delimitations of this study.

**Delimitations**

Numerous mitigating factors delimited this study including three main components—the chosen population, the learners, and the institutions. This study focused on community college instructors who teach online. This population may differ from other instructors who are teaching in an online environment for various reasons. For example, the nature of the community college instructor’s job allows time to focus on teaching responsibilities whereas university instructors may not have as much time to emphasize teaching because their role is more likely to be divided between research, teaching, and service. Chapter 2 reviews the role of the community college instructor.

Community college learners who opt to take online community college courses differ from those who take other online courses, and they also differ from those who choose to take traditional face-to-face courses. The needs of these learners have the potential to impact the ways in which instructors adapt their teaching styles. Additionally, the diversity of these learners must be taken into account when considering teaching style. Chapter 2 discusses some of the needs of community college learners who may be considered adult learners and, thus, have specific needs in the learner-centered environment. Although the characteristics, experiences, and perceptions of the learners are of great importance in the learner-centered environment, these aspects of learners are beyond the scope of this research.

Furthermore, the mission and purpose of community colleges do not exhibit characteristics similar to other higher education institutions such as universities or private or for-profit institutions. Community colleges were selected for this study because of their emphasis on teaching. The mission and purpose of community colleges are noted in Chapter 2.

**Limitations**

The main limitation of this study was related to the way in which the sample was collected. Chapter 3 details how the sample was selected. The sample came from information listed on the Florida Community College Distance Learning Consortium’s database. Although the database contains many courses and the names of instructors who teach them, not all of the 28 community colleges in Florida choose to list their courses in the database. Those institutions and instructors who are not included in the Consortium’s database may exhibit characteristics and teaching styles that are different from those who were included in this study.
Assumptions

In conducting this research, I made the following assumptions:

1. Men and women differ in their teaching styles in the face-to-face classroom and in the online environment.
2. The participants will answer honestly on the self-administered questionnaire.
3. Differences in teaching experience, subject discipline, level of education, or employment status affect teaching style in the online distance education environment.
4. Community colleges are more focused on teaching than research.

The next chapter is an in-depth review of the literature on teaching styles and gender theories. It also focuses on variables that may impact teaching style. Chapter 3 covers the methodology applied in this study followed by Chapters 4 and 5 which discuss results and conclusions, respectively.
CHAPTER 2

REVIEW OF LITERATURE

The purpose of this study was to explore the differences in the teaching styles of male and female community colleges instructors who teach in an online distance education environment. Therefore, this chapter will review theory and research related to the teaching styles of community college instructors and the role of gender. The first section of this chapter reviews the collaborative teaching-learning mode, a teaching style which has its roots in adult education theory. Included in the first section are discussions of the community college as an adult education setting, the teacher-centered teaching style, the learner-centered teaching style, and the factors of the collaborative teaching-learning mode. The second section examines theories and research related to gender with special attention given to the ways in which men and women approach relationships such as those relationships that take place between an instructor and a learner. Next is a section on distance education that discusses the online environment and teaching styles. The fourth section details the mission and purposes of community colleges and specifically considers community colleges and distance education in Florida. Finally, the fifth section highlights literature related to instructors, including a review of teaching experience, discipline, level of education, and employment status.

Collaborative Teaching-Learning Mode

The collaborative teaching-learning mode has been the focus of much discussion in literature on adult education (Conti, 1978, 1979, 1983a, 1983b, 1985a, 1985b, 1989, 1998; Jarvis, 1995; Knowles, 1970; Merriam & Caffarella, 1998; Vella, 2002). The collaborative teaching-learning mode is a continuum with the teacher-centered style on one end and the learner-centered style on the other end. This mode assumes that the learner-centered style is the most appropriate and desirable teaching style.

The learner-centered style refers to a “method of instruction in which authority for curriculum formatting is jointly shared by the learner and the practitioner” (Conti, 1985a, p. 7). It is a process in which the focus is on the activity of the learner, and the instructor is charged with organizing and maintaining an environment where learning is facilitated (Conti, 1985a; Sherron & Boettcher, 1997). Furthermore, a relationship exists between a learner-centered teaching style and positive learning outcomes (Conti, 1985b; Miglietti & Strange, 1998; Post, Carussetta, Maher, & Macintosh, 1998). Regardless, Conti’s definition focuses on the desirable end of the continuum. In doing so, he fails to completely acknowledge the mix of styles which are highly possible and more realistically used.

Even though a variety of teaching styles exists, a majority of the adult education literature supports the learner-centered style as the most helpful and suitable style for teaching adults (Conti, 1985b). For example, Conti found that students made the greatest academic gains with instructors who used a more learner-centered style. A significant difference between teaching style upon student academic achievement occurred with the covariates of learner entrance level and learner attendance ($F = 4.93$, $df = 4/805$, $p = .001$). His findings were based on a study of 29 instructors and 837 learners. The
The purpose of his study was to determine the relationship between teaching style and learning style. Data was collected from the instructors through their self reports on PALS. Data from the learners was based on student records. Analysis of covariance was the primary means of analysis. The research controlled for attendance, learner gender, course of study, and learner age. Overall, Conti determined that teaching style does make a difference in student achievement and a variety of teaching styles may be more desirable to the learners.

Similarly, Miglietti and Strange (1998) concluded that an effective teaching style varies within a range depending upon a variety of factors including the course, the needs of the students, and the nature of the material being taught. In a study of 10 instructors and 156 learners, Miglietti and Strange found that learner grades were higher in courses where instructors used a more learner-centered style \( F = 4.44, p = .037 \). In order to determine the existence of a relationship between academic achievement, sense of accomplishment, overall course satisfaction and teaching styles, Miglietti and Strange collected data from the instructors using PALS. To collect data from the learners they used numerous instruments including the Adult Classroom Environment Scale, the Adaptive Style Inventory, and the Evaluation of Instruction Questionnaire.

In a qualitative study, Post, Carusetta, Maher, and Macintosh (1998) confirmed previous findings and reported an overall mean of 1.7 for items related to teaching strategies, and in 24 percent (19 of 80) of the open-ended questions learners “indicated that teaching style had the most positive effect” (p. 27) on their learning. The purpose of Post et al.’s exploratory study was to identify factors that learners perceive to have affected their learning. This was accomplished through exploring three different disciplines that used three different technologies. The researchers were guided by phenomenology which is a descriptive, qualitative method used to describe the actual experiences of participants. Researcher-designed questionnaires were used to collect data from 52 participants. In addition, six focus groups were conducted with a total of 42 participants.

Contradictions to the learner-centered style that is touted in the literature as the most appropriate style for meeting the needs of the learners may be noteworthy in certain environments. The use of a teacher-centered style is common in various settings including community colleges (Grubb, 1999), distance education (Parisot, 1997), and other environments (Dupin-Bryant, 2000; O’Brien, 2001; Spoon & Schell, 1998).

In an effort to fully understand the collaborative teaching-learning mode, a brief review of adult education as a field is warranted. Malcolm Knowles, considered the father of adult education, noted the differences between teaching children and adults using the terms pedagogy and andragogy, respectively. Pedagogy means “the art and science of teaching children,” whereas andragogy is “the art and science of helping adults learn” (Knowles, 1970, p. 37).

More recent theorists (Jarvis, 1995; Tennant, 1988) critiqued the theories supporting adult education. Tennant acknowledged the need for a field focused on adult learning because it differs from the way children should be taught. Other theorists such as Vella (2002) applied quantum concepts to the field of adult education emphasizing twelve principles for effective adult education. The principles are (a) needs assessment, (b) safety, (c) sound relationships, (d) sequence of content and reinforcement, (e) praxis—action with reflection, (f) respect for learners as decision makers, (g) ideas,
feelings and actions, (h) immediacy, (i) clear roles and role development, (j) teamwork, (k) engagement, and (l) accountability. These principles relate to the factors of the learner-centered teaching style which will be explained in a subsequent section.

Knowles also outlined four critical assumptions of adult education upon which the collaborative teaching-learning mode is based. The assumptions include:

1. Adults are self-directed.
2. They have a wealth of experience that can be a resource for learning.
3. Their readiness to learn is related to their social roles.
4. Their orientation towards learning has more immediate application to solving problems in their lives.

Based on these assumptions and the assumptions that the curriculum is learner-centered and instructors should act as facilitators, Conti (1983a) stated that PALS is viable for use in a variety of settings to measure support of the collaborative teaching style. Consequently, PALS has been used in numerous settings, including the online environment, to determine whether instructors are using a more learner-centered or teacher-centered teaching style (Chanchaem, 2001; Dupin-Bryant, 2000; Hughes, 1997; Neuhauser, 2002; O'Brien, 2001; Scotney, 1986; Totin Meyer, 2002).

The Community College as an Adult Education Setting

Teaching style is affected by many issues including demographics and the needs of the learners, the demographics of the faculty, and the environment in which learning takes place. As the age of community college learners has increased, their needs as learners have changed by aligning more with the needs of adult learners. “The context of adult life and the societal context shape what an adult needs and wants to learn and, to somewhat lesser extent, when and where learning takes place” (Merriam & Caffarella, 1998, p. 1). Additionally, the diversity of the learners calls for a variety of ways to access education along with a teaching style that meets the needs of the learners.

Whether or not the community college environment is an adult education setting has been the topic of some debate (Jarvis, 1995; Moulton, 1992). Adults have been defined not only by their age but also by their characteristics as learners. In reviewing the age of community college learners, a recent report shows 29 as the mean age of community college students, 23 as the median, and 19 as the mode (National Center for Education Statistics, 2001b). Cohen and Brawer (2002) defined an adult as one who is past the age of compulsory school attendance and who has either completed or interrupted his or her formal education. Similarly, Jarvis noted that one may be considered an adult when one has reached social maturity based on treatment by others or based on one’s own perceptions. In our society, it could be argued that eighteen is considered adulthood as it is usually the time at which one graduates from high school, is granted voting privileges, and may be eligible for the draft. Twenty-one is also an age which can be considered adulthood because one is legally allowed to drink alcohol, thus having access to all the responsibilities of society. However, using social maturity to determine whether a learner is an adult is rather ineffectual (Jarvis, 1995).

Turning to the characteristics of learners, Knowles’ (1970) assumptions and those purported by Conti (1978; 1979; 1983a; 1983b) are reasonably applicable to community college learners. Generally speaking, community college learners are self-directed and they have worldly experience which can be linked to the learning process. They typically
are motivated to seek education related to a social role in the sense that they are trying to better themselves through education. For example, a single mother may go back to school with the specific motivation of finding a better job in order to provide a higher standard of living for her children. Also, some of what community college students learn can be applied to solve problems in their lives. To illustrate, an older learner may go back to school to learn computer skills.

For the purposes of this study, the discussion related to determining whether community colleges are adult learning settings must be taken further in order to consider the online distance education environment. Of the 9.6% undergraduate students in higher education who took a distance education class in 1999-2000, just over half (55%) participated in an online distance education course and the majority were over 24 years of age (National Center for Education Statistics, 2001c). Thus, the online environment can be considered an adult setting. One obvious assumption is that the learners are self-directed. At the very least, they must be willing to turn the computer on, link to the course, and participate in the learning process. Further discussion of the teacher-centered style and the learner-centered style, which are at opposing ends of the collaborative teaching-learning mode, will solidify the community college and online environment as adult education settings.

Teacher-Centered Style

Although the majority of the literature on adult education and distance education focuses on the learner-centered style, the teacher-centered style, closely linked to traditional teaching, has been discussed as a point of departure. The teacher-centered style is closely associated with pedagogy in the sense that the main purpose of using this type of teaching style is to transmit knowledge. It is characterized by using a traditional skilled teaching technique to transmit a selection of knowledge to the learners (Jarvis, 1995). Lecturing is a primary means of controlling the learning environment, although other means can also be used to maintain control of the learning environment (Grubb, 1999). Instructors are the main source of knowledge and authority (Grubb). Outcomes are evaluated by the learner’s ability to reproduce the selected portion of material and are reinforced by the instructor’s approval and good grades. Jarvis noted that this maintains the status quo, which may be appropriate for children, but it does not work as well with adults.

Using the teacher-centered style is a common practice in settings such as community colleges (Grubb, 1999), universities (Dupin-Bryant, 2000), rehabilitation education (O’Brien, 2001), adult basic skills environment (Spoon & Schell, 1998) and distance education (Parisot, 1997). These results are somewhat surprising considering that the literature touts a learner-centered teaching style (Grubb; O’Brien; Parisot; Spoon & Schell). “Although the literature suggests that adults often learn best when collaborative teaching and learning methodologies are used, situational factors may influence the degree to which the collaborative mode can be advantageously applied” (Spoon & Schell, p. 54). The next section reviews the learner-centered teaching style.
Learner-Centered Style

The learner-centered style is defined 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) (McCombs & Whisler, 1997, p.9).

In a learner-centered environment the focus is on the learner, and the role of the instructor changes from that of a traditional style (Grubb, 1999; Jarvis, 1995; McCombs & Whisler, 1997; Sherron & Boettcher, 1997; Vella, 2002). While the instructor is still responsible for organizing and maintaining the learning environment (Grubb; Vella), the shift is towards becoming a “learner among learners” (Vella) with the specific purpose of enhancing the dignity and humanity of the learner (Jarvis).

Recent research has made the connection between teaching styles and learning outcomes (Conti, 1985b; Miglietti & Strange, 1998; Post et al., 1998). Conti investigated the relationship between teaching style and learner achievement using PALS and teacher assessment. The study included 29 instructors and 837 adult basic education students. Contrary to the literature, the majority of the instructors favored a teacher-centered style. Conti found a relationship between teaching style and the nature of the course in that learner achievement was greater for students in a teacher-centered environment (F = 16.94, df = 4/239, p < .001).

Miglietti and Strange investigated issues similar to Conti’s but in a different environment and using different methods. Miglietti and Strange’s study included 10 instructors and 156 remedial learners at a two-year branch of a regional Midwestern institution. Using PALS, they examined the relationships among academic achievement, accomplishment, overall course satisfaction and teaching styles, classroom environments, and learning styles. Their findings were contrary to Conti’s work considering that learners had higher grades in classes where a learner-centered style was used (F = 4.44, p = .037). Additionally, learners reported a greater sense of accomplishment in learner-centered classes (F = 11.5, p = .001).

Post et al. (1998) conducted a qualitative study exploring distance education learners’ perceptions of the factors that influence their learning in a university setting. The areas examined included pedagogical strategies, the learning process, the learning environment, personal factors, and the technology. They found that teaching style appeared to have the greatest impact on learning. To illustrate, in 24 percent of the open-ended responses learners indicated that teaching style had the most positive impact on their learning. Overall, the learners were positively affected by the characteristics of the instructors and the teaching strategies they used.

One study found that instructors tended towards an overall learner-centered style (Totin Meyer, 2002). Other studies discovered that instructors may use a mix of learner-centered and teacher-centered teaching styles (Conti, 1983b; O'Brien, 2001). This mix of teaching styles and activities will be covered in the following section on the factors of the collaborative mode.
Factors of the Collaborative Teaching-Learning Mode

Through a factor analysis, Conti (1983a) divided the collaborative teaching-learning mode into seven factors: (a) learner-centered activities, (b) personalizing instruction, (c) relating to the learner’s experience, (d) assessing learner needs, (e) climate building, (f) learner participation in the educational process, and (g) flexibility for the learner’s personal development. The factors provide a more detailed understanding of teaching style by identifying specific groups of practices and behaviors. Low scores on the individual factors indicate more of a teacher-centered style in that area whereas high scores show a more learner-centered style. The following is a description of each factor, and a discussion of research related specifically to the factors.

Factor 1: Learner-centered activities. This is the most significant of all the factors as it encompasses a broad understanding of the instructor’s authority in the learning environment (Conti, 1985b). Instructors who incorporate learner-centered activities in their teaching style tend to implement practices such as well-designed group discussion, individual research papers, and presentations. These practices encourage the learners to take initiative and responsibility for their learning experiences. Factor 1 consists of 12 negative items and the norm is 38 (Conti, 1983a).

Factor 2: Personalizing instruction. Personalization of instruction “refers to professors’ attempts to create or preserve the personal, caring, human elements in their interactions and relationships with students” (Statham et al., 1991, p. 88). This factor is composed of nine items and the norm for this factor is 31 (Conti, 1983a). Personalization is accomplished by using examples from private life, acknowledging students’ experiences, supporting student contribution, empathizing verbally with students, chatting informally with students, consulting during office hours, and listening to personal problems and concerns. The needs, abilities and motives of the learners are used to create the learning objectives and learning is often self-paced (Conti, 1985a). Consequently, instructors who personalize their teaching typically do not use lecturing as a primary method of instruction. According to Conti (1983b), personalizing instruction is directly related to the first factor, learner-centered activities. Basing the learning objectives on the needs and motivations of the learner facilitates self-pacing which in turn allows the learner to take ownership and responsibility for learning.

Factor 3: Relating to the learner’s experience. Conti (1989) suggested that connecting to learners’ prior experiences is one means of enhancing participation. Relating to learners’ experiences takes place when instructors use activities and practices that allow the learner to problem solve, use prior experiences, and relate learning activities to everyday life (Conti, 1983a). Connecting to learners’ previous experiences also has the potential to enhance personalization of instruction by allowing the instructor the opportunity to customize the learning episode by linking to what is of interest to the learners. Based on six items, the norm of the third factor is 21 (Conti, 1983a).

Factor 4: Assessing learner needs. Grubb (1999) noted that it is common practice in the community college environment to assess the learners and assign them to an appropriate starting point. Assessing the needs of learners enhances a perception of
being treated as an adult because the instructor is considering the ability and interests of the learner (Conti, 1983b). Instructors can assess learners through individual conferences and informal counseling, among other means (Conti, 1983a). In the online environment, assessing learner needs is beneficial and can lead to the personalization of instruction. Depending upon the design of the course, assessing learner needs determines what the student knows and may allow for students to move to parts of the course with which they are unfamiliar. In cases where learners need refreshers or remediation in order to begin working on the material in the course, links to the appropriate instruction may be included. The fourth factor comes from four items and has a norm of 14 (Conti, 1983a).

**Factor 5: Climate building.** Climate building is commonly acknowledged as an essential element in creating an effective learner-centered environment (Conti, 1983b). The four items that form this factor have a norm of 16 (Conti, 1983a). Instructors can create an appropriate environment by encouraging learners to interact with one another, removing barriers to learning, encouraging risk-taking, and accepting errors as part of the learning process (Conti, 1983a).

**Factor 6: Learner participation in the educational process.** With regard to learner participation, instructors create self-direction in the learners by encouraging the learners to be involved in selecting the content, evaluating their performance, and identifying their problems (Conti, 1983a). In other words, this factor depicts the quantity of involvement the learner has in deciding the content of the material and how evaluation will occur. Learner participation is critical in creating a successful working relationship (Conti, 1989; Sherron & Boettcher, 1997). For example, in a face-to-face classroom, learner participation in discussion allows an instructor the opportunity to understand what the learners know, what their experiences are, or what questions they have. Consequently, the instructor can answer questions or provide feedback to improve the learning process. In an online course, learner participation becomes even more critical because of the lack of visual cues. Additionally, this factor demonstrates whether an adult-to-adult relationship exists between the learner and the instructor (Conti, 1985a). It is based on four items with a norm of 13 (Conti, 1983a).

**Factor 7: Flexibility for the learner’s personal development.** Instructors are considered to be flexible in relation to the learner’s personal development when they view themselves as more than primarily a provider of knowledge (Conti, 1983a, 1985a). In other words, the instructor becomes more of a facilitator in the learning process. This final factor consists of five negative items with a norm of 13 (Conti, 1983a). The following section reviews research findings regarding the seven factors.

**Research Examining the Factors of the Collaborative Mode**

Four studies provide research findings highlighting the factors of the collaborative mode. Conti (1983b) conducted a factor analysis of PALS, resulting in the delineation of the factors. The research of Chanchaem (2001), O’Brien (2001), and Totin Meyer (2002) provided a more in-depth understanding of the factors in a variety of educational settings. Chanchaem studied online instructors, O’Brien reviewed the teaching styles of
rehabilitation instructors, and Totin Meyer focused on nursing instructors. Each of these studies is detailed below.

Chanchaem investigated how teaching styles change when an instructor moves a course from a traditional face-to-face environment to an online distance education environment. PALS was used to assess the teaching style of 35 instructors at a Midwestern land-grant university. In addition, Chanchaem examined teaching experience, professional development regarding teaching, and intrinsic and extrinsic motivational factors. Chanchaem found that when instructors shift their teaching from face-to-face to online, they exhibit more of a learner-centered style in some factors such as building a learner-centered climate and more of a teacher-centered style in other factors including assessing student needs.

O’Brien described the teaching styles and educational philosophies of 104 rehabilitation instructors using the Philosophy of Education Inventory (PEI) and PALS. No relationships were noted among demographic variables and teaching style. O’Brien noted significant differences based on the factors, which are discussed below.

Similarly to Chanchaem and O’Brien, Totin Meyer assessed the teaching styles of instructors using PALS. Specifically, she investigated the teaching styles of 198 clinical nursing instructors and determined that the practices of participants in the study were congruent with teaching styles promoted in the adult education literature. Differences were apparent between the teaching styles of male and female community college instructors.

The first factor in the collaborative teaching-learning mode is the presence of learner-centered activities. Using learner-centered activities is quite a common practice among instructors (Conti, 1983b; O’Brien, 2001; Totin Meyer, 2002). However, some instructors may not value the second factor, personalizing instruction, as much as other instructors do (O’Brien, 2001). In some disciplines, outside factors including national standards may be an impetus in creating a more teacher-centered style in terms of personalizing instruction because national accrediting boards mandate particular activities (Totin Meyer). For example, in nursing, national standards dictate specific components of the curriculum which tend towards a teacher-centered style. A review of the literature relating to the learner’s experience, the third factor, indicates instructors often recognize the importance of connecting to the prior experiences of learners (O’Brien). Additionally, some instructors assess students’ needs (Totin Meyer) which is the fourth factor. Instructors are likely to respect the learners as adults and rely on individual interactions with the learners in order to assess students’ needs (O’Brien). Other instructors may not be as likely to assess student needs. For example, a study exploring the transformation of teaching styles from a face-to-face-classroom to an online environment determined that when instructors taught online they were less likely to assess learner needs, indicating a more teacher-centered approach in the online environment (Chanchaem, 2001).

With regard to climate building, the fifth factor, instructors who taught online were more likely to build a learner-centered environment which indicates a more learner-centered style in this area (Chanchaem, 2001). Other instructors focused on building an appropriate climate by being friendly and informal (O’Brien, 2001). Regardless, the majority of the instructors in O’Brien’s study did not encourage learner involvement which is the sixth factor. Therefore, learner participation was limited and this signifies a teacher-centered style in this domain. Contrary to their overall teacher-centered style
uncovered in one study (Conti, 1983b), adult education instructors were supportive of allowing learner self-direction in selecting content, evaluating performance, and identifying problems.

In terms of the seventh factor, flexibility for learner’s personal development, some instructors operated from a more learner-centered style (Chanchaem, 2001; O’Brien, 2001; Totin Meyer, 2002). These instructors adopted the role of facilitator while striving to be flexible and sensitive to the learners.

In summary, many instructors have implemented a teaching style that is balanced between teacher-centered and learner-centered (O’Brien, 2001). Creating a truly learner-centered environment requires attention to each of the factors previously mentioned (Conti, 1983b).

**Studies Employing PALS**

PALS has been used in research studies to assess the teaching styles of instructors who teach a variety of subjects in various environments (Chanchaem, 2001; Conti, 1979, 1983a, 1983b; Dupin-Bryant, 2000; Hughes, 1997; Miglietti & Strange, 1998; O’Brien, 2001; Premont, 1989; Scotney, 1986; Totin Meyer, 2002). The scope of studies employing PALS includes assessments of instructors’ teaching styles to determine relationships with teaching philosophies (Hughes; O’Brien) and how teaching style was affected by the distance education environment (Chanchaem; Dupin-Bryant). Furthermore, a variety of methods have been used to analyze the resulting data including basic descriptive statistics and more complex methods such as ANOVA (O’Brien; Totin Meyer).

Chanchaem (2001) employed PALS for the purpose of comparing the teaching styles of instructors in the traditional face-to-face and online environments. Even though Chanchaem used a relatively small sample (n = 35) as compared to some of the other studies employing PALS, the findings are important because they demonstrated no significance difference between face-to-face and online PALS scores (t = -.040, p = .968). Significant differences were found based on three of the factors. A higher teacher-centered style was indicated with regard to the fourth factor, activities related to assessing student needs (t = 2.862, p = .008). The two other factors, the fifth factor, climate building, and the seventh factor, flexibility for personal development, demonstrated a stronger learner-centered style (t = -2.675, p = .011 and t = -3.005, p = .004, respectively).

Like Chanchaem, Dupin-Bryant (2000) also used PALS to investigate the teaching styles of instructors in a distance education environment, although she explored interactive television instead of online distance education. Dupin-Bryant studied 203 instructors at nine land-grant universities and found an inclination towards a teacher-centered style with a mean of 128.08 (SD = 20.26). A relationship between PALS and demographic variables also existed. To illustrate, a positive relationship existed between a doctoral degree and a learner-centered style with a slightly positive correlation (r = .23), and instructors holding a master’s degree demonstrated a slightly negative correlation (r = -.24), leaning more towards a teacher-centered style. Similarly, years of overall teaching experience had a slightly positive correlation with overall PALS score (r = .20).
The following section reviews gender and teaching styles in an online environment, by exploring gender theories, by highlighting the relationship between gender and computers, and by investigating research on gender and teaching styles.

Gender

The instructor comes to the environment with many additional roles besides that of instructor. One of the most evident roles in a face-to-face classroom is gender. In an online environment, gender may not be readily determined. Some information such as the instructor’s name or a posted photo may give the instructor’s gender. Nevertheless, gender remains a role from which the instructor operates. Thus, the following review of gender theories outlines the influence of gender in an educational environment among others.

Theory

Men and women have different ways of structuring relationships (Gilligan, 1982). Men lean more towards viewing relationships in terms of hierarchical structures. Women view relationships as networks. Decisions made by women regarding their relationships to others often center on the conflict between selfishness and sacrifice (Belenky, Clinchy, Goldberger, & Tarule, 1986; Statham et al., 1991). The structuring of relationships has the potential to influence how instructors interact with learners and can be critical in working with an adult student population.

Belenky, Clinchy, Goldberger, and Tarule (1986) conducted in-depth interviews of 135 women for the purpose of reviewing the past histories of women in order to understand their changing self-concepts and relationships with others. Their population included 90 students and 45 women from family agencies. Their work was based on the theoretical and empirical work of Perry, Kohlberg, and Gilligan. They analyzed the interviews in two primary ways, blind coding and contextual analysis. From their analysis, and building on Perry’s scheme, they described five epistemological perspectives: silence, received knowledge, subjective knowledge, procedure knowledge, and constructed knowledge. From the contextual analysis, the researchers noted the voices which emerged from the meaning women made of their experiences.

The woman-centered perspective theories provide a background for understanding the world as women see it. Men and women experience relationships differently (Gilligan, 1982). Women tend to have a strong tendency for experiencing the feelings and needs of others. According to Gilligan, this trait stems from the fact that mothers, more often than fathers, raise children in their early years. Therefore, girls tend to experience life through the eyes of someone of the same gender. “Since masculinity is defined through separation, while femininity is defined through attachment, male gender identity is threatened by intimacy while female identity is threatened by separation. Thus, males tend to have difficulty with relationships, while females tend to have problems with individuation” (p. 8).

Gilligan (1982) based her conclusions and theories on three studies—a college student study, an abortion decision study, and a rights and responsibilities study. The studies are based on interviews regarding conceptions of self and morality and experiences of conflict and choice. The purpose of the college student study was to
investigate the issues related to moral conflict and the making of life choices in the early adult years. The sample consisted of 25 randomly selected students who had enrolled in a course on moral and political choice. They were interviewed as seniors and five years after graduation. The abortion study sampled 21 women between the ages of 15 and 33. Participants were referred through pregnancy counseling services and abortion clinics. They were interviewed during the first trimester of a confirmed pregnancy when they were contemplating abortion and a year after they had made their decision. This study was designed to explore the moral conflicts women face in their lives. The third study, the rights and responsibilities study, was designed to compare the issues related to self and morality through experiences and hypothetical moral dilemmas. The total sample consisted of 144 males and females who were matched at nine ages. Of this sample, 36 participants were involved in more intensive interviews. Gilligan combined the self-reported findings from these three studies and concluded that women take different approaches than men in dealing with conflict.

Conflicting responsibilities affect the moral development of women, whereas competing rights influence the moral development of men (Gilligan, 1982). Therefore, the resolution of a problem requires more of a personal perspective from women and more of an abstract one from men. When women do not conform to the male-based standards of psychological development, professionals and society in general often conclude that something is wrong with them (Gilligan).

Belenky et al. (1986) found that at lower levels of development women learn that they can strengthen themselves by empowering others. “Women typically approach adulthood with the understanding that the care and empowerment of others is central to their life's work” (p. 48). This process often occurs through helping others, listening, or teaching.

At another level of development women commonly focus inward (Belenky et al., 1986), providing them with a sense of working from their femininity. In the classroom, this is the point at which female instructors operate using a style more in tune with their preferred ways of communicating and interacting with others, which often tends towards a more learner-centered style.

“Many men are used to being the expert, while many women are used to consulting others; many men are interested in how experience is generalized and universalized, while many women are interested in what can be learned from the particular; and the work of men frequently involves maintaining or increasing the status differential between persons, while the life work of many women focuses on maternal practice, where the main goal is to bring the smallest, least members up into relations of equality” (Belenky et al., 1986, p.184).

Communicating online is challenging because it is mostly based on written exchanges, which removes tone, pitch, and tempo typically notable when the instructor can be seen and heard. Men and women communicate differently and this difference influences the teaching style of the instructor. Women communicate in a more indirect, polite and personal manner than do men (Gmelch, 1998). Men have more freedom in our society to omit polite expressions and syntax, thus opting for a more forceful expression of their opinions through strong language, including commands and direct questions (Gmelch). Of course, communication patterns can vary by the context of the situation (Tannen, 1990), regardless of one’s gender.
Possible changes in teaching style are a part of the new role that instructors take on as they move from a face-to-face course to the online distance education environment. Interactionist role theory, another gender theory related to how men and women organize their worlds, explains how people interpretively create new roles. Interactionist role theory is comprised of three areas—the individual, the interaction, and the social structure (Statham et al., 1991). At the individual level, new roles are personalized and the actor begins to interpret, react, and make accommodations in order to accept the new role. At the interaction level, the individual's rules for dealing with the distribution of power among various roles are seen. This is a continual negotiation of roles and psychological adjustments. A broadly defined role such as gender has the potential to affect the adoption or modification of additional roles (Statham et al.). The third component, social structure, is based on the importance society places on other roles, especially those which are more primary, more broadly defined, and more readily apparent. Actors must reaffirm cultural ideals when assuming new roles in addition to paying attention to expected ways of filling a role.

To illustrate, gender, a primary role, may have greater influence on teaching style than a secondary role such as becoming an online instructor. Thus, roles like gender may be more potent than secondary roles such as that of being an instructor. For example, when shifting from a traditional face-to-face classroom to the role of an online instructor, one would assume the adoption or change in one’s role as an instructor. Thus, changes in teaching styles may be expected.

Other gender theories and models further explain how gender interacts with teaching style. Feminist pedagogy may be an influence for using a more learner-centered approach because it encourages equal emphasis on all learners and an individualization of instruction (Grubb, 1999). Consequently, feminist pedagogy supports the personalization of instruction and relating to learners’ life experiences which are factors of the learner-centered teaching style.

Other influences may include models such as the relational model. Based in the development of women and feminist pedagogy, the relational model places an emphasis on the learner-centered style by recognizing the significance of relating to others along with realizing the feelings associated with fostering relationships (Merriam & Caffarella, 1998). The relational model also supports the factors of the learner-centered teaching style.

Unlike university professors who must balance research, teaching and service, community college instructors do not suffer from conflict among their professional activities because their primary focus is teaching (Huber, 1997). Instead, the conflict stems from opposition between personal and professional roles such as those of gender and being an instructor (Caplan, 1994; Huber).

“Men and women might appear more similar at some points in their careers and more divergent at others” (Statham, Richardson, Cook, 1991, p. 19). Various situations influence how individuals respond. For example, when faced with conflict between others and self, men tend to choose self and women lean toward others (Belenky et al., 1986). Women may have more challenges in this area than men, because in the most recent past the role of the instructor has been more characterized by male attributes. One study supporting this theory proposes
that the woman professor's ability to create a classroom atmosphere where relationships can be formed and can influence learning will determine in large measure her ability to negotiate the complex array of competing role expectations that she faces: the demands that she be feminine and professorial, personally likable and competent. We expect that her concerns with connection and with nurturing these relationships will not serve as ends in themselves but will become the mechanism for accomplishing the task at hand, namely teaching effectively (Statham et al., 1991, p. 17).

The researchers expected these results to be most pronounced at lower ranks where identity is being established and competing roles are being negotiated (Statham et al., 1991). Women are not the only ones who are challenged by conflicting roles. Men can also suffer from role conflict. Male instructors who use a more learner-centered style often are judged more harshly, especially by female students (Swafffield, 1996).

Research Examining Gender and Computers

Sixty-one percent of community college instructors are male, whereas at universities 70% of the instructors are males (Huber, 1997). At community colleges, where women instructors are predicted to increase in numbers, women instructors were more open to distance education (Clark, 1993). In terms of general attitudes towards distance education, female community college instructors were significantly more positive (N=25; M=2.84) than men (N=46; M=3.72) (Clark).

Clark’s study was a national survey of higher education instructors’ attitudes towards distance education. Participants in the study included 317 instructors from research universities, comprehensive institutions, and community colleges. Overall, Clark determined that instructors were cautiously optimistic in their attitudes towards distance education. Despite little or no experience with teaching in a distance education environment, a substantial number of instructors held positive attitudes toward distance education. These findings contrast with the more cautious attitudes and perceptions held by female students with regard to computers (Proost et al., 1997).

Proost, Elen and Lowyck conducted a study of 1,368 traditional and open and distance learning university students. The purpose of the investigation was to explore differences in male and female students’ perceptions and preferences for computer learning environments. In Proost et al.’s study, women held more negative perceptions (M=2.846) towards computers and preferred traditional face-to-face teaching more than men (M=2.749). Proost et al. eventually concluded that computer experience is more responsible for this difference than gender. Other variables such as time and the population being studied may have had a greater impact than gender.

In general, computing is still dominated by men (Clegg et al., 2000) and the Internet is consider a masculine environment (Proost et al., 1997; Sullivan, 1999). Consequently, online classes are often based on a framework that presents itself from a male perspective. Characterization of the Internet as a masculine environment may influence the attitudes and perceptions of instructors towards online teaching (Sullivan). Although instructors have taken numerous steps towards creating a female-friendly environment, some of the more subtle issues remain, including those related to teaching styles and practices (Sullivan). Often, a more masculine style of teaching is prevalent.
Adams (2002) found a difference in the integration of computers into teaching based on gender. Women were more likely than men to integrate technology into the teaching process. This higher level of use by women is contradictory to earlier research demonstrating that women hold more negative attitudes towards computers than do men (Proost et al., 1997).

**Research Examining Gender and Teaching Style**

In a study probing the relationship between gender and teaching, Statham, Richardson, and Cook (1991) used a triangulated research design which integrated quantitative and qualitative data. They interviewed and observed instructors. They surveyed learners. They choose to analyze teaching based on instructional activities, authority management, and personalizing the teaching environment. They proposed there would not be great differences in overall teaching style based on gender because males and females are socialized in the same academic culture and both are attempting to clearly communicate knowledge. Although men and women are socialized in the same academic environment, the way they are treated differs greatly (Caplan, 1994). Research (Berge, 1997; Gmelch, 1998; Robin & Harris, 1998; Stickney-Taylor & Sasse, 1990) demonstrated that women tend to use a more learner-centered teaching style which is in opposition to Statham et al.’s (1991) proposition that men and women would not differ greatly in their teaching styles because the were exposed to the same educational environment.

Overall, the major differences between male and female instructors were their attitudes toward students (Statham et al., 1991), which greatly impacts teaching style. For example, Statham et al. found that women were more likely than men to place emphasis on learner participation. Thus, their teaching styles would differ greatly in terms of the activities they are using, the climate they are building, and the involvement they expect from learners.

A number of researchers have looked at gender and teaching styles. Conti (1983b), Hughes (1997), and O’Brien (2001) found no significant differences between total PALS scores and gender, but Moulton (1992), Scotney (1986) and Totin Meyer (2002) did. Numerous researchers determined that women were more likely to implement a more learner-centered teaching style than men (Scotney; Stickney-Taylor & Sasse; Totin Meyer). Scotney found that women had higher scores on the following factors: learner-centered activities, personalizing instruction, climate building, learner participation, and flexibility for the learner’s personal development. Hughes and Scotney both found a significant difference based on gender and personalizing instruction, in which case female instructors were more likely to personalize the instruction for the learners. Hughes also found significant differences on gender and the following factors: relating to the learner’s experience, assessing learner needs, and climate building. These results revealed that women demonstrated more of a learner-centered style than men. While the research regarding the relationship between genders and teaching style is inconclusive, the next two sections will summarize what has been discovered about the teaching styles of women and men.
The predominant teaching style of women. Women are more learner-centered in their approach to teaching (Robin & Harris, 1998; Statham et al., 1991) and they are more interpersonally oriented (Statham et al.). Gmelch (1998) discovered that women tend to “decenter the classroom” or “move away from an authoritarian, teacher-centered classroom in order to allow students' voices to be heard and to more actively engage them in learning.” She also observed that “women are more likely than men to stress cooperation rather than competition in the classroom. They are more likely to adopt a democratic, give-and-take discussion style rather than using Socratic questioning or a strict lecture format” (Gmelch, 1998). These practices denoted a more learner-centered style.

Researchers have also noted that female instructors were more likely to follow process or motivation paradigms, ask students to collaborate, and spend more time on all aspects of students' work (Robin & Harris, 1998). Women are more likely than men to provide personal information in class as a means of bridge building between students’ experiences and their own (Statham et al., 1991). Female instructors felt they should listen to students’ personal problems if brought up…even if the issues were time-consuming or inappropriate (Statham et al.). Female instructors also noted that students' academic performances may be affected by personal problems (Statham et al.). Thus, as Statham et al. found, women are more likely to listen to students’ personal problems and chat with students informally.

Female instructors may be able to manage the aspect of their teaching role related to promoting student participation because of their adeptness at interpersonal communications (Statham et al., 1991). Women tend to create more involving situations for the learners. Women are more likely than men to place an emphasis on learner participation (Statham et al.). Women are interested in connecting with the knowledge the students have and in assisting them with enhancing their experiences. Furthermore, female instructors are inclined to understand the learner’s perspective (Belenky et al., 1986).

The predominant teaching style of men. Men prefer a more traditional teacher-centered approach (Statham et al., 1991). They tend to be more technically oriented towards teaching. A typical male teaching style includes highly assertive speech, impersonal and abstract styles, and competitive exchanges (Sullivan, 1999), characteristics which appear as more of a teacher-centered style. Also, men are more interested in espousing information to students (Belenky et al., 1986).

The next section builds on an understanding of teaching styles of instructors in an online distance education environment by exploring distance education theories and research related to teaching styles in the online environment.

Distance Education

In the field of distance education, there is a need to move beyond trial and error efforts, and progress toward theories and empirical research that form a foundation for distance education (Saba, 2000; Simonson, Schlosser, & Hanson, 1999; Wolfe, 2000). Researchers originally developed theories within the framework of practice, which established the discipline of distance education and provided a means for assisting
instructors in improving their distance education teaching. Overall, these theories (e.g. Holmberg, 1986; Keegan, 1995) are models of how distance education functions and they provide a conceptual framework for anchoring decisions related to practice (Clegg et al., 2000; Saba).

Traditionally, theories of distance education have been derived from classical European or American models based on correspondence study. Recently, telecommunications systems have significantly altered the practice of distance education in the United States and have produced a uniquely American approach to this field (Simonson et al., 1999).

Although a significant amount of literature is dedicated to explaining and extolling the virtues of distance education, it has only begun to focus on online distance education (Grubb, 1999; Jarvis, 1995; White & Bridwell, 1998). Literature focused on online distance education and learner-centered teaching styles is mostly anecdotal (Chanchaem, 2001; Knowlton, 2000). Regardless of the progress in developing theory in distance education, it is lacking in two areas, first, as a framework for research (Simonson et al.) and secondly as an impetus for practice (Saba). For now, attention will be given to reviewing the literature related to the online environment and teaching styles.

The Online Environment and Teaching Styles

In order to truly understand what teaching styles are being used in online distance education, it is first useful to understand the media, the communication features of the media, and the goals which can be accomplished with these tools. The current generation of distance education technologies consists of electronic mail, chat sessions, and bulletin boards, which are available through computers and computer networks using a high bandwidth for transmission. Use of these technologies may be individualized, customized or carried out through synchronous interactive video sessions delivered through computers. Additionally, computer programs and resources, available through packaged floppy disks, CDs, or the Internet are some of the media available for teaching via distance education. Other media include audioconferencing, desktop videoconferencing through satellite, cable, and telephone technologies along with fax and print. Two-way interactive real-time audio and video, asynchronous and synchronous communication between instructors and learners and among learners, full 30-frame-per-second digital video transmission, and lengthy digital video programming on demand can occur through this media. One of the main functions of computers is to provide a convenient way of storing information and sharing it with the learner (Grubb, 1999), which is especially important in an online environment. Computers are only part of the technology used in teaching an online course. In an enriched online environment, instructors also interact with students using the telephone, fax, and by meeting face-to-face.

These media and their communication features allow for the implementation of a variety of teaching styles which, in the online environment, may enhance communication between instructors and learners, the development of learning communities, and allow for more communication among learners in the course (Sherron & Boettcher, 1997; Sullivan, 1999). If a traditional course is taught in a distance education environment it must be altered significantly in order for it to be delivered effectively (Schrum, 1998).
Dillon and Cintron (1997) argued that the majority of technology in distance education is aimed at supporting lectures, even though the lecture, noted for being an effective means of transmitting information, is not, according to Dillon and Cintron, an effective way of encouraging critical thinking. Berge (1997) found that most instructors use the Internet, computer conferencing, discussion lists, and bulletin boards in the online class environment. The majority of respondents used two or more of these practices and email to teach their courses. Additionally, the majority of the participants stated that they created an interactive course through the following teaching practices: experiential learning, projects, practices, hands-on activities, and inquiry experiences. Although Berge’s study is not generalizable to other populations because of its small, selected sample, it does provide a glimpse into practices of online distance education instructors.

Theorists and researchers (Berge, 1997; Knowlton, 2000) have argued that the online environment is appropriate for implementing a learner-centered teaching style. Creating a teacher-centered environment is challenging because of the lack of visual and audible cues that typically occur between the instructor and the learners (Dillon & Cintron, 1997; Knowlton, 2000; Sullivan, 1999). In an online course the teacher-centered components are transformed into text and the emphasis is often on the interaction and dialogue of the instructor and the learners. The contributions and active involvement of the learners are the only visible clues that exist. Essentially, if students do not post their work or their responses, then it is impossible to gauge their involvement or their reactions to the learning situation (Knowlton).

Instructors may be challenged by the online environment because they feel as if their well-developed teaching skills go by the wayside. “They can not use their presence and their classrooms skills to get their point across. Nor can they use their oral skills to improvise on the spot to deal with behavior problems or educational opportunities” (Smith, Fergusn, & Caris, 2002, p.64). On a positive note, when instructors transform a course from the classroom to the online distance education environment, they must consider the material in new and different ways. One of the benefits of the online environment is the ease with which learners are instantly linked to a wealth of information and resources. Regardless, instructors often spend a significant amount of time creating an “online presence” which assists the learners in feeling more secure and connected to the course (Smith et al.).

An additional reason for supporting a learner-centered approach in online courses is the nature of the Internet. Because such a vast amount of information is at the finger tips of the learners through hyperlinks, there is a tremendous amount of material to be reviewed. Thus, the learners must be self-directed and active in seeking out information. With this in mind, the role of the instructor leans more towards that of a facilitator who gathers information from the learners and assists them with their needs, interests, and goals (Knowlton).

Teaching styles and the online distance education environment have the potential to impact learner outcomes and their perceptions. In DiBiase’s (2000) opinion, some teaching styles may be more effective in an online environment than others. In terms of social interaction and program quality, Muilenburg & Berge (2001) noted that learners may feel isolated in the distance education environment. Others may not be comfortable with a learner-centered approach because it changes what is traditionally expected in education, namely the interaction which occurs between learners and instructors.
Additionally, issues with the quality of courses (Clark, 1993; Muilenburg & Berge), programs, and learning are concerns along with testing and assessment of learner outcomes in an online environment (Muilenburg & Berge).

Allen, Bourhis, Burrell, and Mabry (2002) conducted a meta-analysis comparing learner satisfaction in distance education and face-to-face classrooms. Overall, they found that learners have a slight preference for the face-to-face classroom, but there is little difference in learner satisfaction. Learners demonstrated a greater preference for video over text in the distance education environment. Video allows the transmission of more information including visual cues from the instructor. The type of interaction or activities does not have a significant impact on student satisfaction. The researchers concluded that offering classes in a distance education environment does not diminish student satisfaction. Other research corroborates this conclusion. For example, in comparing learner satisfaction between face-to-face and distance education courses, of those participating at two-year public institutions, 46% were equally satisfied, 24% were more satisfied and 30% were less satisfied with distance education classes (National Center for Education Statistics, 2001a). This finding indicates that the majority of the learners are equally or more satisfied with their distance education classes.

On a similar note, a quantitative study (Neuhauser, 2002) comparing two sections of the same course, one online and one face-to-face, showed no significant difference in learning outcomes. Learning outcomes were determined by studying test scores, assignments, participation grades, and final grades. The online learners had higher grades than the face-to-face learners, although not significantly so. Neuhauser concluded that similar learning activities maybe used effectively in an online class and a face-to-face class. This research supports a growing body of literature which affirms the quality of online distance education. The following section highlights community colleges as the setting for this study.

**Community Colleges**

During the 1970s, community colleges were young institutions and they were distinguished by adopting a variety of new functions causing shifting focuses, altered directions, and new intentions (Cohen & Brawer, 1972). The number, size, and scope of community colleges were growing so quickly that they had to change continually in order to address the barrage of issues confronting the colleges (Cohen & Brawer, 1972). The limited history and lack of entrenchment allowed community colleges the flexibility to meet the needs of a new era. Today, community colleges are facing three significant challenges—a shortage of qualified instructors to meet the increasing student population, a shift towards a learning paradigm, and the effects of technology (Gibson-Harmon et al., 2002). Meeting these challenges is possible due to the flexibility with which community colleges are able to adapt quickly to new challenges, such as that of adopting new technologies including online distance education. Furthermore, the success of community colleges has been attributable to their dynamic mission (Wesiman & Marr, 2002), which will be discussed next.
Mission and Purpose of Community Colleges

There are more community colleges in higher education than any other type of institution (Cohen & Brawer, Dillon & Cintron, 1997). More institutions led to greater enrollments in this type of higher education institution than in other types (Cohen & Brawer, Dillon & Cintron). Therefore, a greater number of people will have access to higher education through community colleges and the ways in which these institutions choose to offer education including online distance education. “As distance education plays an increasingly dominant role in community college education, it stands to alter the function of the community college at a time when the community college is poised to challenge traditional conceptions of higher education” (Dillon & Cintron, p. 93).

In 2000-2001, 90% of public two year institutions offered distance education (National Center for Education Statistics, 2003). To illustrate the increase in distance education at community colleges, in 1997-98, 62% of community colleges offered distance education. The greatest number (48%) of enrollments in distance education courses occur at community colleges, which was more than at any other type of higher education institution (National Center for Education Statistics, 2003). The type of distance education offered is dominated by the Internet. The majority (90%) of postsecondary institutions offering distance education in 2000-2001 reported using the Internet (National Center for Education Statistics).

Community colleges occupy several important niches in higher education (Cohen & Brawer, 2002; Grubb, 1999; Huber, 1997). Essentially, these niches involve meeting the needs of a variety of students. Although community college instructors have academic concerns about their students, they are comfortable with the students they teach and are committed to the educational mission of their colleges (Huber, 1997). “Distance learning may not be best for every student or for every college, but is it one means of ensuring access to higher education for many, and access is a goal at which community colleges have excelled” (Inman, Kerwin, & Mayes, 1999, p. 590). Similarly, distance education may not be for every instructor, but it is another option for instructors to teach and to meet their personal instructional goals.

Teaching and Community Colleges

Few researchers have actually investigated what teaching in community colleges is like (Grubb, 1999). Grubb takes the stance that teaching in community colleges is invisible and there is a need to understand what instructors do and what shapes their teaching. Without the heavy emphasis on research, community colleges appear to have the opportunity to experiment with various approaches to teaching (Grubb).

Grubb (1999) conducted a qualitative study based on the interviews of over 300 community college instructors and administrators. From his research findings, Grubb argued that although teaching is important to community colleges, it is severely neglected. A national study supports the importance of teaching with results that depicted nearly 95% of community college faculty feeling that their interests are primarily in or focused on teaching (Huber, 1997).

Grubb recognized that teaching is often considered an individual activity when in reality it is influenced by many people and items including the learners, available resources, other instructors, and the culture and incentives fostered by the community college. Although many innovative pedagogical methods have been implemented and the
interest in using computers has been discussed, limited attention has been given to how instructors use computers. The use of computers is an important consideration when exploring teaching styles and online distance education.

Grubb concluded that quality teaching is essential to the success of community colleges and, most importantly, that quality teaching must be demonstrated by community colleges. In his opinion, community colleges fail in doing all they can to enhance teaching.

Distance Education and Community Colleges in Florida

A descriptive study conducted by the Florida Community College System State Board of Community Colleges (2000) provides a backdrop for delving deeper into teaching style in distance education. The purpose of this program review was to describe the activities occurring in the areas of interactive teleclasses and online courses.

Florida's postsecondary education institutions, particularly its community colleges, have been involved with distance learning since the 1970s by offering correspondence courses, educational television courses, and have increasingly made use of the recent technological advances such as interactive teleclasses and Internet courses” (State Board of Community Colleges, p. 2).

In looking at online distance education in Florida, the report demonstrated that community colleges in Florida mirror national trends (State Board of Community Colleges). The details of this report will be discussed in the following section on the instructor.

The Instructor

The behavior of the instructor is most likely the single greatest factor impacting the learning climate. The mission of the adult educator, according to Knowles (1970), is “to operate successful educational activities for mature men and women, success being defined in terms of the numbers and enthusiasm of the participants” (p. 22). He went further by noting that the literature points out that adult educators serve the needs of the individual, of the institution, and of society.

Instructors have the greatest control over their teaching style. Instructors’ teaching philosophies (Conti, 1985a, 1989; Simonson et al., 1999), perceptions, attitudes (Wilson, 1998), skills, and practices impact their teaching styles. The demographics of the instructor, including teaching environment, gender, age, teaching experience, discipline, and level of education, may also play a role in the teaching style an instructor tends to favor (Conti, 1985a, 1989). Other factors also influence teaching style including characteristics of the environment, such as the media and type of software used to manage the course.

Instructors often use methods and means of teaching with which they are most comfortable. These are frequently the practices they experienced as learners (Weston & Cranton, 1986). Teachers tend to teach the way they liked to learn which is apparent from the significant relationship existing between preferred learning style and preferred teaching style for community college instructors (Moulton, 1992). Furthermore, instructors believe that effective teachers do things differently from non-effective teachers (Moulton, 1992).
Teaching Philosophy

Considering that teaching style is a range of behaviors, educational philosophy affects the variance of teaching style in different situations. The tenets of the instructor's philosophy and the strength of his or her loyalty to those tenets will dictate the variance of the teaching style from one situation to the next (Conti, 1989). In the online environment, the selection of goals and curricular focus is influenced by instructors’ teaching philosophies, as is how they view themselves as instructors (Simonson et al., 1999).

Instructors’ Perceptions

When surveyed about the personal importance of teaching, 82 percent of community college instructors in a study by Huber (1997) ranked it very high. Instructors demonstrated the importance of teaching effectiveness by the fact that four-fifths of them believed that teaching effectiveness should be the significant criterion for promotion (Huber).

In terms of teaching in a distance education environment, instructors perceived it to be challenging or threatening (Parisot, 1997; State Board of Community Colleges, 2000). Many felt intimated by the new environment and they were anxious about the diminished control and their lack of comfort with the technology.

The Florida report on distance learning and the community colleges (State Board of Community Colleges, 2000) established that although the majority of instructors felt that distance learning courses were equivalent to learning experiences in traditional classrooms, 35% felt that the distance learning environment was worse or ineffective. Course development and preparation time, according to the majority of the respondents, is greater for distance education courses. Even so, just over half of the respondents perceived their distance teaching experience to be positive and 85% said they would be willing to teach another distance education course with the majority of the instructors confirming that teaching a distance education course improved the quality and effectiveness of their teaching.

Instructors perceive that they alter their role when teaching in a distance education environment (Dillon & Walsh, 1992; Parisot, 1997). They feel that teaching in this type of environment enhances and improves their teaching in a traditional classroom (Dillon & Walsh; Grubb, 1999; State Board of Community Colleges, 2000)(Dillon & Walsh, 1992; Grubb, 1999; State Board of Community Colleges, 2000). Similarly, Parisot found that “technology was viewed primarily as an enhancement of teaching rather than a vehicle for changing the ways of teaching” (p. 6).

Instructors’ Attitudes

Instructors’ concerns may affect their teaching style (Wilson, 1998). In a few studies, instructors participating in distance education tended to be more positive while instructors with less experience in distance education held less positive views (Beaudoin, 1990; Dillon & Walsh, 1992). Clark (1993) conducted a national study that examined the attitudes of instructors towards distance education at two-year and four-year institutions and confirmed these findings. His study focused on general receptivity to distance education, the relationship between professional characteristics and attitude
toward distance education, previous distance education experience and familiarity, and attitudes toward various distance education media and practices. Clark used a survey questionnaire to collect data from instructors who were and were not participating in distance education. The results portrayed the instructors as holding very complex and cautiously optimistic attitudes towards distance education. Some of the concerns focused on the quality of the learning environment and the quality of interaction. “At community colleges, the sites of greater distance education activity at present, faculty are more familiar with and experienced in distance education, and this experience is reflected in their more positive attitudes toward teaching at a distance” (Clark, p. 32).

In a much smaller study, Inman, Kerwin and Mayes (1999) confirmed Clark’s findings and concluded that the community college instructors in their study held conflicting attitudes regarding distance education. They were still willing to participate even though most of the instructors did not feel that the distance education environment was of the same quality as face-to-face education. Another study found that instructors were ambivalent about teaching in a distance education environment (State Board of Community Colleges, 2000). More specifically, they were struggling with the demands of teaching in a distance education environment and some of the issues related to teaching in this type of environment.

**Instructors’ Skills**

Jarvis (1995) stated that instructors who teach adults require certain characteristics and skills to work with adults including basic knowledge and experience, knowledge of the educational process, appropriate philosophy and attitudes towards teaching and a variety of skills. Considering these requirements, there is a need to train instructors how to teach in the online environment and it is surprising that so little currently takes place in this area. Jarvis concluded that the role of the instructor is to assist adults in learning and to help them develop to their full potential. Thus, instructors need well-developed teaching skills.

It may appear that community colleges are investing in computers rather than instructors, assuming that polished multimedia presentations are more effective than instructors using a solid repertoire of pedagogical skills (Grubb, 1999). Grubb’s discovery that instructors were using computers to enhance their current teaching skills may have confounded the notion that community colleges should invest in computers instead of directly in human resources. Thus, community colleges may be funneling money towards the technology with little regard to the support instructors need to develop their skills for a computer-based environment.

Of the factors which are barriers to distance education, some are more of an issue in terms of impacting teaching style than others. For example, technical expertise, support and infrastructure issues will definitely impact what an instructor can and cannot do. Many instructors lack the skills necessary to teach at a distance. Further exacerbating the deficiency of skills is the lack of support organizations provided in terms of offering staff who can address technical problems (Muilenburg & Berge, 2001). The results of the study by Inman, Kerwin, and Mayes (1999) confirm previous research findings that the distance education environment requires instructors to develop a different set of skills and involves different responsibilities. Thus, instructors create a
different teaching style for online distance education in order to meet the challenges of the environment.

**Teaching Style and Teaching Experience**

The Florida study found that the majority of the instructors in Florida’s community colleges who were teaching distance education had 10 or more years of teaching experience (State Board of Community Colleges, 2000). According to Grubb (1999), community college instructors reported beginning their teaching experience from a traditional teacher-centered approach. Finding it ineffective, they moved to a more learner-centered approach or an approach balanced between the two. This transformation for most instructors took place through the experience of trial and error with very little formal training on ways to teach (Grubb, 1999). An earlier study (Stickney-Taylor & Sasse, 1990) found significant differences between teaching style and teaching experience. Those with 1 to 10 years of teaching experience operated from a pedagogical orientation which is closely linked to a teacher-centered style. Those with 11 to 20 years used an andragogical orientation or more learner-centered style. Those with more than 21 years of teaching experience implemented a pedagogical teaching style. Conti (1983b), in reviewing teaching experience, found responses were evenly distributed between those who lean towards a more teacher-centered style and those who prefer a more learner-centered teaching style.

Teaching experience also appears to be related to computer use. Instructors with 0 to 3 years of teaching have the highest use of computers in their teaching practices (Adams, 2002). Overall, those with 10 to 19 years of teaching experience were the least likely to integrate computers into their teaching practices, while instructors with less than 10 years or more than 20 years were most likely to use computers to teach (Adams). Thus, instructors in the middle of their teaching career tend not to use computers in their teaching whereas those in the early and later portions of their teaching career demonstrated a greater use of computers in teaching.

In shifting from teaching in a face-to-face classroom to an online environment, time is a factor in negotiating new role attributes, alignment of roles with others, and societal requirements for role stability (Statham et al., 1991). In other words, in order for instructors to assume the role as an online instructor, it takes time and experience for them to manage the details of their new role including an altered teaching style. Statham et al.’s findings show that resolving role conflict is a function of time, which translates into experience, as experience is based on time.

In terms of research related to teaching styles and teaching experience, Moulton (1992) and Dupin-Bryant (2000) found that teaching style was related to teaching experience, but Chanchaem (2001) found no significant difference between total PALS scores and teaching experience. Nor did Chanchaem find a difference between PALS scores and online teaching experience as defined by less than two semesters and more than two semesters of online teaching experience. Chanchaem suggested that the difference between less or more than two semesters of online teaching was not great enough to detect a significant difference.
 Discipline

In terms of discipline, the majority of instructors teaching in community colleges are in applied fields including education, business, nursing and technical/vocational fields (Huber, 1997). Teaching style may be related to discipline (Biglan, 1973a, 1973b; Braxton, 1995; Hughes, 1997; Moulton, 1992; Palmer, 2002). Differences in teaching style are impacted by variations among academic disciplines which have been characterized as significant and far-reaching (Braxton; Palmer). These variations limit the generalization about teaching from one discipline to others.

Categorization of disciplines. Biglan (1973a) categorized discipline into three different typologies. For this study, two of these methods were applicable for investigating online teaching styles—hard or soft and pure or applied. Biglan’s (1973a) most prominent typology for categorizing disciplines, is into hard and soft disciplines. Classification into hard and soft disciplines is important because instructors in different disciplines regard teaching in different ways (Biglan; Braxton, 1995). Variations among the hard and soft disciplines occur in teaching practices including course planning, approaches to teaching and pedagogical methods (Braxton). Instructors in soft courses are more prone toward using teaching practices which implement discussion, an activity characterized as a function of learner-centered teaching. Instructors in hard disciplines tend to be less committed to teaching as compared to those in the soft disciplines (Biglan, 1973b). Thus, they may not be willing to take the time to learn and implement a relatively new teaching style such as the learner-centered style.

Pure or applied categories were the second typology that was used for this study. Once disciplines were typed, first based on hard and soft disciplines and then pure and applied disciplines, the categories were combined to create four dimensions: hard/pure, hard/applied, soft/pure, and soft/applied. These dimensions were used to analyze the data. Figure 2.1 shows how disciplines were categorized.

<table>
<thead>
<tr>
<th>Applied</th>
<th>Soft</th>
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<tbody>
<tr>
<td>• Mechanical Engineering</td>
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<td>• Ceramic Engineering</td>
<td>• Finance</td>
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<td>• Horticulture</td>
<td>• Accounting</td>
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<td>• Computer Science</td>
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<th>Hard</th>
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<td>• Astronomy</td>
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<td>• Math</td>
<td>• English</td>
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<td>• Biology</td>
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Figure 2.1 Categorization of disciplines into four
Research regarding disciplines and teaching style. Braxton suggested that instructors can improve their work by understanding how academic disciplines vary. Braxton concluded that instructors teaching in soft disciplines favor activities that typify a learner-centered style. Braxton coined the term “affinity disciplines” which is the ability of soft disciplines to focus on the quality of teaching. He also suggested that soft disciplines are more sympathetic towards embracing practices that may enhance college teaching. Furthermore, teaching style has been found to vary by disciplines in areas including teaching goals, teaching practices, and course examination questions (Braxton, 1995).

To illustrate, Moulton (1992) found that instructors in math and computer science used a more teacher-centered style than all other areas. In other words, these instructors were less likely to use a teaching style that met the needs of adults, which is critical in the community college environment where the age of the learner is typically higher than the traditional age of learners (Moulton). Hughes’ (1997) research resulted in similar findings. Those instructors teaching classes such as chemistry, geology, math, and biology had the greatest tendency towards a teacher-centered style. He also discovered that instructors in English, communications, and foreign languages used a more learner-centered approach than those in education. Instructors in the division of applied technologies were characterized by a teaching style more teacher-centered than those in the education division, but less than those who taught science and math (Hughes). All in all, these results depicted clear relationships between discipline and teaching style.

While a relationship between discipline and teaching style exists, another item to note is that women are more likely to teach in the soft disciplines including humanities, social sciences, and education. They are less concentrated in law, medicine, mathematics, physics, biology, and other hard sciences (Hagedorn, Nora, and Pascarella, 1996 as cited in Hagedorn & Laden, 2002)

Palmer (2000) noted that community college instructors in the discipline of humanities were more likely than instructors in other disciplines to primarily implement teaching methods characterized as more learner-centered, including essay exams, term papers, peer evaluation, discussion, role-playing, group projects, or cooperative activities. On the opposite end of the spectrum, instructors in the natural sciences were more likely than other instructors to use lecture as their primary method of teaching. Overall, discipline demonstrated the greatest relationship with teaching, more so than length of time in current job and teaching methods.

Computers were originally designed as computational devices most useful in disciplines dealing with math, science, and technology (Adams, 2002). Consequently, instructors in these areas may be more comfortable using computers as a teaching tool. Because computers have recently become more of a communication tool, instructors teaching other disciplines may become more comfortable with computers.

Disciplines create distinctions in which instructors are more likely to teach in a distance education environment (Palmer, 2002). Palmer found that instructors in the areas of engineering and computer science were more likely to teach via distance education than their counterparts, which was significant when compared to all other disciplines except business and education. With these variations in mind, Palmer stated that future research on teaching style must control for discipline.
Level of Education

A few studies (Conti, 1983b; Dupin-Bryant, 2000; Moulton, 1992; Totin Meyer, 2002) point to a possible relationship between highest degree held and teaching style. Those instructors holding a bachelor’s degree or less gravitated towards a more teacher-centered style (Conti). This may be a function of the way they were taught. Undergraduate education on the whole tends to be characterized by a teacher-centered style. Those with graduate credits used a more learner-centered style (Conti; Totin Meyer, 2002). Similar to the experience of those with a bachelor’s degree, those with some graduate work may have experienced learning situations where they were encouraged to take responsibility for their own learning, where instructors implemented more of a learner-centered style. Interestingly, Totin Meyer found that males with doctoral degrees implemented a style that was more teacher-centered. Education through a doctoral degree may influence the socialization of community college instructors as they assume their teaching roles (Bayer & Braxton, 1998). This level of education may, however, detract from the teaching role because of the heavy emphasis that is often placed on research (Bayer & Braxton). Other studies, including those of Scotney (1986) and O’Brien (2001), found no significant difference between total PALS scores and level of education.

Employment Status

Community colleges tend to employ a significant number of part-time instructors, which is approximately 65 percent of the population of those teaching in community colleges (National Center for Education Statistics, 2002). Part-time community college instructors are as likely to be men as they are women (Leslie & Gappa, 2002). They are likely to be either older or younger than full-time community college instructors. On average, part-time instructors have taught five or six years whereas full-time instructors have double the teaching experience. Just over half of part-time instructors hold master’s degrees and about nine percent are working on a doctorate, a number equal to that of full-time instructors. In terms of education, 62% of full-time instructors hold master’s and 18% have a doctorates which is roughly seven percent more than part-timers (Leslie & Gappa, 2002).

Part-time instructors may have the same number of years of teaching experience as full-time instructors, but their teaching experience may not be equivalent (Leslie & Gappa, 2002; Schuetz, 2002) since they may not have taught a comparable number of courses. Regardless, the similarities and differences between full and part-time instructors have been discussed by Leslie and Gappa who concluded that part-time instructors are more similar to full-time instructors than previously assumed in terms of their interests, attitudes and motives. Leslie and Gappa analyzed data from a survey conducted by the Center for the Study of Community Colleges and determined that part-time instructors “appear to be more comfortable with conventional teaching practices” (p. 65). Similarly, Keim and Biletzky’s (1999) study found that part-time instructors appeared to use teaching methods which are very traditional. They used lecture 83% of the time and class discussion only 62% of the time (Keim & Biletzky). This research confirms that part-time instructors used more traditional teaching styles and, in doing so, overlooked the opportunity to use newer teaching strategies. Additionally, Keim and Biletzky concluded that participation in professional development activities can result in
the use of small group discussions, demonstrations, and teaching methods that promote critical thinking, activities characterized as part of the learner-centered style.

However, literature shows no major differences in the quality of teaching between full and part-time community college instructors (Cohen & Brawer, 2002; Grubb, 1999). In terms of differences in teaching methods, the research is inconclusive. Some research depicts differences (Keim & Biletzky, 1999) and other research found no differences in the methods instructors used to teach their classes, based on employment status (Schuetz, 2002).

Summary

Applying the principles of adult learning to the online distance education environment provides the primary component of the conceptual framework which was the foundation for this study. Gender theories, especially those related to the ways in which men and women approach relationships, also acted as a foundation for this study. This study determined whether differences existed between the teaching styles of male and female community college instructors who taught online by investigating overall teaching style and the seven factors as measured by the PALS (Conti, 1983b). The secondary variables of teaching experience, discipline, level of education, and employment status also impacted whether community college instructors implemented a teacher-centered or learner-centered teaching style in an online distance education environment. Instructors may use a combination of the two teaching styles. Essentially, teaching style can be located on a spectrum with the teacher-centered style on one end and the learner-centered style on the other end.

Community college learners and their optimal learning outcomes are affected by teaching style in an online distance environment. Community college learners in the online distance education environment can be characterized by a variety of attributes. In order to effectively participate in such a learning environment, learners must be self-directed. Since the online experience is not defined by meeting on a specific day and specified time, one must be motivated to participate in the course. Therefore, the community college online distance environment learner meets the assumption in the adult education literature that adult learners are self-directed. Additionally, these learners bring with them a wealth of experiences that serve as a foundation for building new learning experiences, which is also an assumption of an adult learner setting.

In concluding this chapter, the literature shows that “many factors influence teaching style. The teacher’s own experience, values, beliefs, educational philosophy, level of academic training, and age all could be influences” (Totin Meyer, 2002, p.47). Assessing instructors’ teaching styles can assist in understanding how these factors impact teaching behavior and, in turn, the learning environment. It can also provide a starting point for enhancing strengths and eliminating weaknesses (Conti, 1985b). A more learner-centered style lends itself to a focus on the students and their needs in the learning environment as opposed to a more teacher-centered style that emphasizes the dissemination of information to the learners. The gender of the instructor may also impact teaching style. Gender theories regarding the moral development of women as compared to men and how men and women approach relationships highlight some of the key elements in providing a background for this study.
In concluding the review of the literature, teaching styles may be impacted by many factors including the educational environment, gender, teaching experience, discipline, and employment status. The conceptual framework provided a foundation for exploring issues related to factors affecting teaching style. The next chapter will detail the methodology for conducting this study.
CHAPTER 3

METHODOLOGY

As outlined in the first two chapters, the purpose of this study was to compare the teaching styles of male and female community college instructors who are teaching in the online distance education environment. In order to appropriately answer the research questions posed in this study, I implemented a basic correlational research design. Conti’s (1983b) PALS was used to assess teaching style and related factors. The results will be presented in Chapter 4.

This chapter will discuss the design of the study. It includes a review of the research questions, population and sample, variables, research design, and the research instrument, including item development and validity, reliability, data collection, and methods of analysis.

Research Questions

As noted earlier, the research questions, based on the conceptual framework and a review of the literature, were as follows:

1. Is there a difference in the overall teaching style of male and female community college instructors who teach in an online distance education environment? Is this difference shown on the following factors: (a) learner-centered activities, (b) personalized instruction, (c) activities related to life experiences, (d) activities related to assessing student needs, (e) activities related to climate building, (f) encouragement of student participation in the learning process, or (g) flexibility for personal development?

2. Does teaching experience, subject discipline, level of education, or employment status affect teaching style in the online distance education community college environment?

Population

The population of interest for this study was all instructors at Florida’s 28 community colleges who were teaching in an online distance education environment. Full-time and part-time instructors were included in this study. In order to answer the research questions posed in this study, a sample was drawn from the population. Following is a description of the sample, the sample size calculations, and details on how the sample was selected.

Sample and Sample Size

The sample was selected from the Florida Distance Learning Consortium’s electronic catalog and a search of individual community college websites. One important issue to consider in collecting email addresses from the electronic catalog and individual community college websites is that part-time instructors are less likely than full-time instructors to have a campus email address. Thus, they may use a personal email address that was not readily accessible when the lists were compiled. Consequently, the part-time instructors who participated in this study
may hold differing beliefs and philosophies than those part-time instructors who did not participate.

The minimum required sample size for this study was calculated based on the following formula as provided by Ary, Jacobs and Razavieh:

\[ N = \left( \frac{1}{\Delta^2} \right) \left( z_\alpha^2 + z_\beta^2 \right) \]

- \( N \) = the number needed in the sample
- \( \Delta \) = the specified effect size
- \( z_\alpha \) = the z-score for the level of significance
- \( z_\beta \) = the z-score for the desired probability for rejecting the null hypothesis

A previous study exploring online teaching goals and using multivariate methods used an effect size of .50, a significance level of .05, and a power of .90 (Hardy, 2002).

Cohen (1988) operationally, or conventionally, suggested for multivariate methods, the use of .02, .15, and .35 as small, medium, and large effect sizes, respectively. Thus, with a medium effect size of .15, significance set at .05, and power at .90, the resulting sample size of 45 was the minimum sample size needed for conducting simple correlations. As MANOVA was used to analyze the data, my original hope was to garner a sample size of 212, which, according to Light, Singer and Willett (1990), is a “ballpark” estimate of a sample size with an anticipated medium effect size and a statistical power of .90.

Variables

The primary variables were overall teaching style and the seven factors: (a) learner-centered activities, (b) personalized instruction, (c) activities related to life experiences, (d) activities related to assessing student needs, (e) activities related to climate building, (f) encouragement of student participation in the learning process, and (g) flexibility for personal development. The primary variables were measured on the interval scale. The aforementioned variables were operationalized through the PALS, a survey where participants self-reported their responses. Gender was also a primary variable and it was collected as part of the additional survey questions.

The demographic variables, teaching experience, discipline, level of education, and employment status, were categorical. Teaching experience was divided into five categories: 0-4, 5-9, 10-14, 15-19 and 20 or more years. I categorized the discipline taught (see Table 3.1) as provided by the instructor into Biglan’s dimensions of hard and soft disciplines and pure and applied, resulting in four categories—soft/applied, soft/pure, hard/applied, and hard/pure (Biglan, 1973a). Level of education was organized into the following categories: less than bachelor’s, bachelor’s, bachelor’s plus some graduate work, master’s, master’s plus additional graduate work, and doctorates. Employment status was classified as either full-time or part-time. Data regarding the demographic variables was collected through additional survey questions.
Table 3.1 Categorization of disciplines by dimension.

<table>
<thead>
<tr>
<th>Soft/applied</th>
<th>Soft/pure</th>
<th>Hard/pure</th>
<th>Hard/applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Art</td>
<td>Anatomy and physiology</td>
<td>Computers</td>
</tr>
<tr>
<td>Business</td>
<td>Aviation</td>
<td>Animal behavior</td>
<td>Emergency</td>
</tr>
<tr>
<td>Career education</td>
<td>Criminal justice</td>
<td>Clinical lab science</td>
<td>Management</td>
</tr>
<tr>
<td>Child development</td>
<td>Drugs and society</td>
<td>Biology</td>
<td>Engineering</td>
</tr>
<tr>
<td>Communication</td>
<td>Economics</td>
<td>Chemistry</td>
<td>Fire science</td>
</tr>
<tr>
<td>Early childhood</td>
<td>English</td>
<td>Earth science</td>
<td>Health science</td>
</tr>
<tr>
<td>education</td>
<td>Government</td>
<td></td>
<td>Midwifery</td>
</tr>
<tr>
<td>Education</td>
<td>History</td>
<td>Ecology</td>
<td>Nursing</td>
</tr>
<tr>
<td>ESL</td>
<td>Humanities</td>
<td>Geography</td>
<td>Nutrition</td>
</tr>
<tr>
<td>Ethics</td>
<td>Modern language</td>
<td>Geology and oceanography</td>
<td>Physical therapy</td>
</tr>
<tr>
<td>Finance</td>
<td>Music</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funeral services</td>
<td>Philosophy</td>
<td>Math</td>
<td></td>
</tr>
<tr>
<td>Law</td>
<td>Political science</td>
<td>Math and physics</td>
<td></td>
</tr>
<tr>
<td>Law enforcement</td>
<td>Psychology</td>
<td>Physical science</td>
<td></td>
</tr>
<tr>
<td>Learning assistance</td>
<td>Religion</td>
<td>Physics</td>
<td></td>
</tr>
<tr>
<td>Library science</td>
<td>Social science</td>
<td>Science</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>Sociology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spanish</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Design

As mentioned previously, a correlation research design was used to conduct this study. Teaching style was assessed through PALS and demographics were collected via additional questions. The following sections explain the design of the research, including how it was implemented and analyzed.

Instrument

The PALS was used to collect data for this study (see appendix A). PALS was designed to measure the degree of an instructor’s use of a teacher-centered or learner-centered style of teaching (Conti, 1979). Conti stated that “PALS can be used in empirical studies to assess the credibility of the theories professed in the literature” (p. 11). He also suggested that the instrument is appropriate for examining the relationship of teaching styles to variables including situational factors such as various educational settings. Even though PALS was originally designed for use with adult basic education practitioners, no significant difference (p=.28) was apparent among various tested groups including hospital educators and training directors (Conti, 1983b). Conti concluded that although some of the wording may not be particularly appealing, the instrument is viable for use in a variety of settings to measure teaching style. PALS has been used to investigate teaching styles used in the online environment (Chanchaem, 2001). On inspection, it appears that two questions may not be appropriate for the online environment. Those questions are item 28, “I allow my students to take periodic breaks during class,” and item 29 “I use methods that foster quiet, productive deskwork.” Chanchaem noted two issues with
PALS including that item 28 had the potential to invert results and PALS was lacking because it did not address students’ needs for technical assistance from the instructor.

Issues with the instrument have been addressed in numerous ways. For example, Totin Meyer (2002) made slight modifications to eight of the 44 items to suit her research in a clinical education environment. Like Chanchaem (2001), I used PALS as is and was mindful of these issues in the analysis of the data.

PALS consists of 44 items that are rated on a six point Likert scale. Half of the items are worded positively and half are worded negatively. The negative and positive items are randomly arranged in the survey. Respondents note the frequency with which they practice the actions in the items.

A factor analysis resulted in the retention of every item as each item matched with a factor where it demonstrated the highest loading (Conti, 1983a). The factor analysis procedure resulted in seven factors (Conti, 1983b), which are as follows:

1. Learner-centered activities
2. Personalizing instruction
3. Relating to experience
4. Assessing student needs
5. Climate building
6. Participation in the learning process
7. Flexibility for personal development

An additional section I created to collect demographic information was included with PALS. Demographic information included questions regarding gender, teaching experience, level of education, discipline, and employment status.

**Item Development and Validity**

Conti established the face validity, the construct validity, the content validity, and the criterion-related validity of PALS through numerous methods (Conti, 1979). He developed the items and established the face validity of the instrument through grounding items in the applicable theory and literature. In order to determine the content validity of PALS, Conti used a jury of 13 experts. Three experts were local, and ten he described as national jury members. Seventy-eight percent of the national jury members confirmed that items were congruent with the constructs. Additionally, according to the jury, positive items and negative items were appropriately associated with the defined behavior (Conti, 1979).

Conti established content validity through three field tests with adult basic education practitioners. The field tests were used to discriminate between those who used a learner-centered style and those who used a teacher-centered style. After each test, the results were used to improve the items.

Conti used the Flanders Interaction Analysis Categories (FIAC) to determine criterion-related validity. He compared scores on the FIAC to PALS scores which were two standard deviations above or below the mean. Pearson correlations of .85, .79, and .82 were found between three possible ratio scores on the FIAC and PALS. Respectively, the ratio scores were teacher response ratio, teacher question ratio, and pupil initiation ratio. These high correlations show congruency between supporting a teaching-learning style and using teaching-learning behaviors (Conti, 1979).
Reliability

Conti conducted a reliability analysis for PALS. Reliability was established by using the test-retest method with 23 participants in the field testing. The Pearson correlation reliability coefficient was .92. A follow-up factor analysis of 78 cases demonstrated stable descriptive statistics (Conti, 1983b). An accurate mean was confirmed as 146, but the standard deviation was adjusted from 22 to 20.

Additionally, Premont (1989) established a maximized coefficient alpha for the PALS. The maximum alpha levels were .97 for adult education instructors and .96 for higher education instructors (Premont, 1989). The population included adult education (n = 593) and higher education (n = 809) instructors. The results suggested an internally reliable instrument (Premont, 1989). Regardless, a difference between adult education and higher education instructors suggested the use of an alternate norm (M = 129, SD = 21.6) for studies of higher education instructors. Previous studies of higher education instructors using PALS may have misinterpreted the results in finding the instructors use a more teacher-centered style when in actuality they may implement a more learner-centered style than their peers (Premont, 1989).

For this administration of PALS an internal consistency reliability analysis was conducted. The coefficient alpha measure of Chronbach’s alpha was used because item responses were listed on a Likert scale (Ary, Jacobs, & Razavieh, 1996). Additionally, Chronbach’s alpha is appropriate to use with a multiple item scale where several items are added together resulting in a composite or summated score, as was the case with the total scores on PALS and each of the individual factors. Chronbach’s alpha is commonly used because reliability can be determined from one administration of the instrument. Considering that this survey is designed to explore teaching styles in terms of groups and not individuals, a reliability coefficient in the range of .50 to .60 is acceptable (Morgan & Griego, 1998).

Data Collection

Human subjects approval was granted prior to the collection of data (see Appendix B). I developed a list of online community college instructors who were teaching credit courses at Florida’s 28 public community colleges during the fall of 2003. The basis of the list came from the Florida Community College Distance Learning Consortium. I enhanced the list by collecting from individual community college websites email addresses of instructors who were teaching online credit courses because some colleges do not list their courses in the Consortium’s electronic catalogue. Once duplicate names, “staff,” and “NA” were removed, 899 email addresses remained.

In order to distribute the survey to the participants, a cover letter email requested their participation in the PALS survey and directed them to the website (see Appendix C). The Associate Director of the Florida Community College Distance Learning Consortium expressed her support of the research, which was quoted in the cover letter email (See Appendix C). The first page on the website was an informed consent form (see Appendix B) where participants gave their consent by clicking on the link to the computerized self-administered questionnaire which was in HTML format.

PALS was placed online to collect data and garner an understanding of the teaching styles of male and female community college instructors who teach online. Conti has made PALS widely available, along with directions for scoring the instrument, as a means of assessing teaching style in a variety of settings (Conti, 1985a). Furthermore, other researchers have noted
Conti’s willingness to share this instrument. Conti granted permission to use and copy PALS for this research project (see Appendix D).

Using the Internet to conduct survey research simplifies the research process (O’Brien, 2001). Electronic surveys are being used more frequently in the field of education, and the use of such surveys reduces the cost and time necessary to complete the collection of data (O’Brien, 2001). I sent a second and third email requesting that those who had not responded do so by a specified date (see Appendix C). The second and third contacts were important because following up with the sample population produces a higher rate of return. Personal contacts were also made through phone calls and individual emails.

After sending the cover letter email, I received 195 errors regarding invalid email addresses which were compared to addresses on the individual college websites and checked for errors. Once invalid email addresses were removed, the usable list consisted of 804 instructors. The total number of completed surveys was 331 which was a return rate of 41%. After removing incomplete or invalid surveys the usable responses totaled 293. One additional survey response was removed because the respondent taught only at the four-year level instead of the community college level. Thus, the final number of completed and valid surveys was 292.

Once data collection was complete, the data was downloaded as an Excel file and converted to an SPSS file for analysis. Handling the data in this manner eliminated human error in entering the results from paper surveys and it saved time (Ramos, Serdvi, & Sweet, 1998). More specifically, it reduced the time between collection and analysis of the data.

**Online Survey Research**

Online questionnaires offer many benefits to the researcher in that they save time in data entry, ensure the timeliness of the data, reduce errors, and reduce printing and mailing costs (Ramos et al., 1998). Using HTML is another benefit in that it is a standard language for the Internet and it reduces problems with different interfaces. Although a new method of collecting data, an online survey is appropriate because the focus of this study is online distance education. Furthermore, responses regarding attitudinal surveys online are comparable to responses on paper surveys (Hancock & Flowers, 2001). Additionally, in an online environment, whether the person is anonymously taking a survey or identified when taking it, the responses are similar (Hancock & Flowers). A caveat is that, in the Hancock and Flowers study, the participants were told in both cases that their responses would only be used in an aggregate form. Thus, I did the same by letting participants know that I would not use the results in a manner where individuals could be identified.

Some of the concerns related to using online surveys include coverage bias; various levels of experience with computers; comfort with computers; issues with Internet connection, hardware, and software; and ensuring valid data (Solomon, 2001). Coverage bias refers to populations where people do not, or choose not to, have access to the Internet. Populations where usage is extremely high and coverage bias is not an issue include college instructors and students. Because the population of this study was community college instructors who are teaching online, coverage bias was not a significant issue. Similarly, instructors teaching online are likely to be experienced and comfortable using the Internet. Consequently, comfort and experience concerns were diminished for this study because the population of interest teaches online. Unfortunately, issues with Internet connections, hardware, and software were the most challenging to address. Again, the assumption can be made that those who are teaching online at a community college have reasonable access to the Internet and appropriate hardware and
software. The security of the data was ensured through a password which limited access to the survey and prevented duplicate submissions of the survey.

Missing data, where participants have either accidentally or intentionally failed to respond to a question, is one of the most common data collection problems (Litwin, 1995). Missing data compromises the quality of the data. Constructing the survey so respondents must answer all of the items requires attention to several concerns. First, it must be easy for participants to find and select a response option where they essentially choose not to answer the question. In an online survey, the design can be such that an error message will appear when participants fail to complete an item or incorrectly complete one (Solomon, 2001). This warrants consideration in designing each item. In other words, researchers using online surveys must ensure that items include responses such as “not applicable,” “don't know,” “other,” “never,” “unable to rate,” or “none”. The PALS questionnaire allowed respondents to select “unable to rate.”

Secondly, the survey needs to be short enough to reduce participant frustration. Another consideration is to design a simple online survey that is easy to follow and loads quickly (Solomon, 2001). I believe the PALS survey with the demographic questions I used was responsive to both concerns.

Analysis

Analysis of Research Questions

The first research question was analyzed using multivariate analysis of variance (MANOVA). This technique accounts for multiple criterion or dependent variables such as those that exist in the first research question. MANOVA was the most appropriate method of analysis because it allowed for the inclusion of more than one dependent variable when investigating the significant difference of more than two groups (Bray & Maxwell, 1985).

Although numerous ANOVAs could have been conducted, MANOVA was the more appropriate statistical method in a case like this where multiple dependent variables were moderately correlated and the correlation was of interest. MANOVA provided a more powerful analysis than multiple ANOVAs because it also accounted for the relationship among the dependent variables (Bray & Maxwell, 1985).

In order to analyze the second research question, I used analysis of variance (ANOVA). ANOVA allowed for the comparison of means for each variable based on teaching style. In addition to testing the null hypotheses in Chapter 4, I will present descriptive statistics for each of the variables including tables and charts to illustrate the key points in answering the proposed research questions. I calculated effect sizes interpreted them based on an article and an Excel spreadsheet Thalheimer and Cook (2002) published. See Table 3.2 and 3.3 for interpretations used in the report of the findings.

I also noted additional findings including those related to the demographic variables.
Table 3.2 Interpretation of Cohen’s d.

<table>
<thead>
<tr>
<th>Relative Size of Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>negligible effect (&gt;= -0.15 and &lt;.15)</td>
</tr>
<tr>
<td>small effect (&gt;=.15 and &lt;.40)</td>
</tr>
<tr>
<td>medium effect (&gt;=.40 and &lt;.75)</td>
</tr>
<tr>
<td>large effect (&gt;=.75 and &lt;1.10)</td>
</tr>
<tr>
<td>very large effect (&gt;=1.10 and &lt;1.45)</td>
</tr>
<tr>
<td>huge effect &gt;1.45</td>
</tr>
</tbody>
</table>

Table 3.3 Interpretation of percentage difference.

<table>
<thead>
<tr>
<th>Relative Size of % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>huge decrease &lt;-75</td>
</tr>
<tr>
<td>very large decrease (&lt;=-50 and &gt;-75)</td>
</tr>
<tr>
<td>large decrease (&lt;=-30 and &gt;-50)</td>
</tr>
<tr>
<td>medium decrease (&lt;=-15 and &gt;-30)</td>
</tr>
<tr>
<td>small decrease (&lt;=-5 and &gt;-15)</td>
</tr>
<tr>
<td>negligible change (&gt;= -5 and &lt;5)</td>
</tr>
<tr>
<td>small increase (&gt;=5 and &lt;15)</td>
</tr>
<tr>
<td>medium increase (&gt;=15 and &lt;30)</td>
</tr>
<tr>
<td>large increase (&gt;=30 and &lt;50)</td>
</tr>
<tr>
<td>very large increase (&gt;=50 and &lt;75)</td>
</tr>
<tr>
<td>huge increase &gt;75</td>
</tr>
</tbody>
</table>

ANOVA and MANOVA Assumptions

Prior to analyzing the data, I explored a few assumptions based on the chosen statistical procedure. The preliminary assumption which was met required independence of observations. The administration of this survey was such that it was highly unlikely that participants had any interaction. Similar to ANOVA, MANOVA is founded on two assumptions—normality of distribution and homogeneity of dispersion matrices (Barker & Barker, 1984). Thus, I assessed normality and homogeneity.

First, I evaluated the normality of the data by examining skewness and kurtosis and checking for outliers. An examination of the histograms visually suggested the data was normally distributed. Further inspection of the numbers showed the skewness of the total score was .224 with a standard error of .143. This suggested an acceptable level of normality because the skewness is less than two and half times the standard error (Morgan & Griego, 1998). All of the factors exhibited accepted levels of skewness except for Factor 3 which had a skewness of -.407 which is slightly higher that two and half times the standard error of skewness. Consequently, this factor may not be normally distributed.

Similarly, kurtosis for total scores provided evidence of normality at .504 and a standard error of .284, resulting in an acceptable level. All of the factors demonstrated kurtosis below two and half times the standard error. A check for outliers also confirmed the normality of this sample because none of the scores were extremely high or low. Regardless of this assessment for normality, one of the procedures I used, Hotelling’s T², is reasonably robust with data that are
approximately normal (Srivastava, 2002) as are the other omnibus tests (Barker & Barker, 1984). Therefore, any concerns related to normality are unfounded. Figures 3.1 thorough 3.8 show the distribution of the factors and total scores.

![Figure 3.1 Distribution of Factor 1: Learner-Centered Activities.](image1)

![Figure 3.2 Distribution of Factor 2: Personalizing Instruction.](image2)

![Figure 3.3 Distribution of Factor 3: Activities Related to Life Experiences.](image3)
Figure 3.4 Distribution of Factor 4: Activities Related to Assessing Student Needs.

Figure 3.5 Distribution of Factor 5: Activities Related to Climate Building.

Figure 3.6 Distribution of Factor 6: Encouragement of Student Participation in the Learning Process.
Figure 3.7 Distribution of Factor 7: Flexibility for Personal Development.

Second, I investigated the homogeneity of variances, another underlying assumption of ANOVA and MANOVA (Barker & Barker, 1984). As shown in table 3.4, variances in the standard deviations were not exactly the same, but they were very small. In this case, the variances between the male and female groups were small enough to be considered equal. Box’s test of equality of covariance matrices indicated that the observed covariance matrices of the dependent variables were equal across groups. Thus, there was no evidence which suggested concern regarding the normality of the collected data.
Table 3.4 Means, standard deviations, and variances of dependent variables.

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Males (n=117)</th>
<th>Females (n=175)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Total PALS Score</td>
<td>124</td>
<td>19.16</td>
</tr>
</tbody>
</table>

**Factor**

1 Learner-Centered Activities 42 7.69 63.36 42 7.26 52.71
2 Personalizing Instruction 19 6.33 40.07 21 5.80 33.64
3 Relating to Experience 17 6.40 40.96 18 6.69 44.76
4 Assessing Student Needs 11 4.32 18.66 12 4.44 19.71
5 Climate Building 13 3.93 15.44 13 3.34 11.16
6 Participation in the Learning Process 8 3.99 15.92 8 3.96 15.68
7 Flexibility for Personal Development 13 3.69 13.62 14 4.15 17.22

Total PALS scores range from 0 to 220. Factor 1 ranges from 0 to 60. Factor 2 ranges from 0 to 45. Factor 3 ranges from 0 to 30. Factor 4 ranges from 0 to 20. Factor 5 ranges from 0 to 20. Factor 6 ranges from 0 to 20 and Factor 7 ranges from 0 to 25.

In addition to considering the homogeneity of variances, the correlations among independent variables were also considered. Roughly a third of the variables were negatively correlated and the vast majority of correlations were significant at p<.05 level (see Table 3.5). For the most part, the factors had a low level of correlation with one another, but they had a moderate to high relationship with the total except for the first and seventh factors which had low relationships to the total. A low level of correlation is that which is near zero, a high level of correlation is + or -.6 or greater, and a moderate level falls between the two (Morgan & Griego, 1998). A low to moderate level of correlation is preferable because it reduces the risk of multicolinearity which occurs at higher levels of correlation (Morgan & Griego). PALS was designed in such a way that some level of correlation is expected especially that which occurs with the total.

Table 3.5 Pearson product moment correlations r among dependent variables.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>1</td>
<td>-.004</td>
<td>-.181*</td>
<td>-.216*</td>
<td>-.183*</td>
<td>-.160*</td>
<td>.494*</td>
<td>.307*</td>
</tr>
<tr>
<td>Factor 2</td>
<td>1</td>
<td>.489*</td>
<td>.484*</td>
<td>.262*</td>
<td>.449*</td>
<td>.088</td>
<td>.751*</td>
<td></td>
</tr>
<tr>
<td>Factor 3</td>
<td>1</td>
<td>.532*</td>
<td>.437*</td>
<td>.507*</td>
<td>-.114*</td>
<td>.708*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 4</td>
<td>1</td>
<td>.434*</td>
<td>.529*</td>
<td>-.211*</td>
<td>.624*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 5</td>
<td>1</td>
<td>.399*</td>
<td>-.281*</td>
<td>.469*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 6</td>
<td>1</td>
<td>-.219*</td>
<td>.607*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 7</td>
<td>1</td>
<td>.240*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05
Multivariate Testing

Four omnibus tests, Pillai’s Trace, Wilks’ Lambda, Hotelling’s Trace, and Roy’s Largest Root, were conducted and all tests were significant at the p<.05 level indicating that male and female community college instructors who taught online differ significantly in their teaching styles. Pillai’s Trace and Hotelling’s Trace have been noted as the more intermediate tests on sensitivity when compared to Wilks’ Lambda and Roy’s Largest Root. As previously noted Hotelling’s Trace, along with Pillai’s trace are often considered more robust to lack of homogeneity, which is not an issue in this study. Roy’s Largest Root is most effective in confirming a hypothesis of one single dimension in the dependent variables while Wilks’ Lambda is maximally sensitive with dependent variables characterized by two or more dimensions and of a reasonably comparable importance in explaining the trace (Barker & Barker, 1984). All four of the classic MANOVA test criteria, Pillai’s Trace, Wilks’ Lambda, Hotelling’s Trace, and Roy’s Largest Root, are reported because their inclusion allows the reader to evaluate hypotheses other than those developed for this study (Barker & Barker).

Although all four of the omnibus tests were considered, the results were inherently similar because the degree of freedom was exactly one and this was a simple two-group comparison of males and females (Hand & Taylor, 1987). Table 3.6 lists the results of the omnibus tests. In order to completely understand the differences between the teaching styles of male and female online community college instructors, testing progressed to the univariate level.

Table 3.6 Multivariate analysis tests.

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai’s Trace</td>
<td>.056</td>
<td>2.419</td>
<td>.020</td>
</tr>
<tr>
<td>Wilks’ Lambda</td>
<td>.944</td>
<td>2.419</td>
<td>.020</td>
</tr>
<tr>
<td>Hotelling’s Trace</td>
<td>.060</td>
<td>2.419</td>
<td>.020</td>
</tr>
<tr>
<td>Roy’s Largest Root</td>
<td>.060</td>
<td>2.419</td>
<td>.020</td>
</tr>
</tbody>
</table>

Univariate Testing

A significant omnibus test led to further testing at the univariate level. The results of the univariate tests revealed that only one of the factors was significant at the p<.05 level as noted in Table 3.7. The Bonferroni method may be applied when multiple dependent comparisons are being made in order to control the Type I error (Barker & Barker, 1984). In this case, making the Bonferroni adjustment by dividing the alpha level of .05 by the total number of comparisons which was 7, resulted in p<.007. The Bonferroni method did not alter the interpretation of the results—only one factor was significant, the second factor, personalizing instruction. Further comparisons were made to understand the differences between the two groups and in order to complete the research hypothesis testing which is discussed in the following section.
Table 3.7 Univariate analysis tests.

<table>
<thead>
<tr>
<th>Factor</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner-Centered Activities</td>
<td>1</td>
<td>.264</td>
<td>.689</td>
<td>.407</td>
</tr>
<tr>
<td>Personalizing Instruction</td>
<td>1</td>
<td>5.035</td>
<td>11.253</td>
<td>* .001</td>
</tr>
<tr>
<td>Relating to Experience</td>
<td>1</td>
<td>.009</td>
<td>.008</td>
<td>.931</td>
</tr>
<tr>
<td>Assessing Student Needs</td>
<td>1</td>
<td>2.082</td>
<td>1.726</td>
<td>.190</td>
</tr>
<tr>
<td>Climate Building</td>
<td>1</td>
<td>.281</td>
<td>.349</td>
<td>.555</td>
</tr>
<tr>
<td>Participation in the Learning Process</td>
<td>1</td>
<td>.211</td>
<td>.214</td>
<td>.644</td>
</tr>
<tr>
<td>Flexibility for Personal Development</td>
<td>1</td>
<td>1.797</td>
<td>2.849</td>
<td>.092</td>
</tr>
</tbody>
</table>

*p<.007

Research Hypotheses

Hypotheses testing was conducted and analyzed as discussed below. For an explanation of which PALS questions composed each factor, see table 3.8:

Research Hypothesis #1: There is a difference in the overall reported teaching styles of male and female community college instructors who teach in an online distance education environment.

It is often assumed that using computers in an educational environment is connected to a learner-centered teaching style (Berge, 1997; Robin & Harris, 1998). Thus, one would expect the use of similar teaching styles when using computers, regardless of the instructor’s gender. However, the Internet is often portrayed as a masculine environment. Thus, one may expect the use of a teaching style more characteristic of men, such as a teacher-centered style. Men and women instructors use different teaching styles (Berge, 1997; Gmelch, 1998; Robin & Harris, 1998; Statham et al., 1991). With all of these opposing notions in mind, it was expected that differences may be apparent in testing the composite overall teaching styles measured by PALS.

Table 3.8 PALS survey questions and factor analysis (see PALS survey in appendix A).

<table>
<thead>
<tr>
<th>PALS factors</th>
<th>PALS items corresponding with factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Learner-centered activities</td>
<td>2, 4, 11, 12, 13, 16, 19, 21, 29, 30, 38, 40</td>
</tr>
<tr>
<td>Factor 2: Personalized instruction</td>
<td>3, 9, 17, 24, 32, 35, 37, 41, 42</td>
</tr>
<tr>
<td>Factor 3: Activities related to life experiences</td>
<td>14, 31, 34, 39, 43, 44</td>
</tr>
<tr>
<td>Factor 4: Assessing student needs</td>
<td>5, 8, 23, 25</td>
</tr>
<tr>
<td>Factor 5: Climate building</td>
<td>18, 20, 22, 28</td>
</tr>
<tr>
<td>Factor 6: Encouragement of participation</td>
<td>1, 10, 15, 36</td>
</tr>
<tr>
<td>Factor 7: Flexibility for personal development</td>
<td>6, 7, 26, 27, 33</td>
</tr>
</tbody>
</table>

Research Hypothesis #2: There is a difference in the learner-centered activities, the first factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Differences in learner-centered activities used by male and female instructors abound. Women are more likely to ask students to collaborate on their work (Robin & Harris, 1998). The level of learner-centered activities was determined by combining the items from PALS that
contributed to this factor. All of the items in this factor are negative and focused on the instructor’s use of particular activities and his or her beliefs regarding those activities. For example, one of the items asks the frequency with which the instructor uses one teaching method because the instructor has found that most adults have a similar style of learning. Another item asks how often the instructor gets “a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.” “Their opposition to these items implies that they practice behaviors which allow initiating action by the student and which encourage students to take responsibility for their own learning” (Conti, 1985a, p. 9).

Research Hypothesis #3: There is a difference in the personalized instruction, the second factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Another factor of PALS, personalized instruction, is based on the summation of relevant items including allowing “older students more time to complete assignments,” using “different techniques depending on the students being taught,” letting students work at their own pace despite the amount of time it takes to learn the new material, matching instructional objectives to the abilities and needs of the learners, and encouraging competition and using different materials with different students. A couple of the negative items in this subscale are giving learners the same assignment and using lectures as the best method for presenting subject material.

Research Hypothesis #4: There is a difference in the activities related to life experiences, the third factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Statham, Richardson, and Cook (1991) found that women are more likely than men to make connections with learners through their life experiences. The third factor, activities related to life experiences, is composed of six positive items. Instructors who support this factor build on the prior experiences of their learners to enhance the next step in the learners’ educational process. In general, instructors who favor this factor persuade learners to ask questions about society.

Research Hypothesis #5: There is a difference in the activities related to assessing student need, the fourth factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Assessing students is the fourth factor of PALS. It shows an instructor’s willingness to determine the needs and interests of learners. It is composed of four positively worded items focused on helping learners set goals, bridging the gaps between learners’ goals and their performances, and counseling learners.

Research Hypothesis #6: There is a difference in the activities related to climate building, the fifth factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Comparable to previously mentioned expectations, men and women differ in their efforts to build an appropriate climate. According to the research, women tend to operate from a motivational paradigm (Robin & Harris, 1998). The emphasis of the fifth factor is on creating an appropriate educational climate where learners can take risks and feel comfortable. Like the
previous factors it is calculated from PALS items. In this case, the factor consists of four positively worded items.

**Research Hypothesis #7:** There is a difference in the encouragement of student participation in the learning process, the sixth factor of PALS, of male and female community college instructors who teach in an online distance education environment.

As mentioned above, female instructors are more likely than male instructors to encourage collaboration and to motivate students (Robin & Harris, 1998). The level of learner participation in the learning process is concentrated on the amount of involvement the learner has in determining the nature and evaluation of the content material. This factor is based on four positively worded items.

**Research Hypothesis #8:** There is a difference in the flexibility for personal development, the seventh factor of PALS, of male and female community college instructors who teach in an online distance education environment.

In the literature, women demonstrated a propensity for listening to learners’ personal problems and acknowledged that these problems may impact the academic performance of the learners (Statham et al., 1991). This factor, as measured by PALS, consists of five negatively worded items. Opposition to these items demonstrates an affinity for being a facilitator, for being flexible, and for being attuned to the needs of the learners.

**Research Hypothesis #9:** There is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on teaching experience.

Teaching experience was measured categorically in years. Differences have existed in teaching styles based on teaching experience (Conti, 1983b; Stickney-Taylor & Sasse, 1990).

**Research Hypothesis #10:** There is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on discipline.

Information regarding discipline was collected along with PALS. According to the literature, those in the softer disciplines are expected to demonstrate a more learner-centered teaching style whereas those in the harder disciplines are more likely to show an affinity for a more teacher-centered style (Biglan, 1973b; Braxton, 1995; Hughes, 1997; Moulton, 1992; Palmer, 2002).

**Research Hypothesis #11:** There is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on level of education.

Level of education was self-reported at the same time the PALS was taken. In previous research, level of education also affected differences in teaching styles (Conti, 1983b; Dupin-Bryant, 2000; Hughes, 1997; Totin Meyer, 2002).

**Research Hypothesis #12:** There is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on employment status.

Teaching style may also depict differences as a function of part-time or full-time employment status (Berge, 1997; Gmelch, 1998; Robin & Harris, 1998; Stickney-Taylor & Sasse, 1990). Employment status, part-time or full-time, was collected in addition to PALS.
CHAPTER 4

RESULTS

The main focus of this study was to compare the teaching styles of male and female online distance education instructors. The study also compared teaching styles to assess whether instructors were or were not using a learner-centered style when teaching via online distance education. The demographic characteristics of interest, in addition to gender, included teaching experience, discipline, level of education, and employment status; variables which have shown an impact on teaching style in previous research.

The following research questions posed for this study were designed to address the problem stated in earlier chapters:

1. Is there a difference in the overall teaching style of male and female community college instructors who teach in an online distance education environment? Is this difference shown on the following factors: (a) learner-centered activities, (b) personalized instruction, (c) activities related to life experiences, (d) activities related to assessing student needs, (e) activities related to climate building, (f) encouragement of student participation in the learning process, (g) flexibility for personal development?

2. Does teaching experience, subject discipline, level of education, or employment status affect teaching style in the online distance education community college environment?

Demographic data

Of those respondents who completed the survey, more women than men participated in this study. The participants’ highest level of education was a master’s degree. A majority of instructors (81%) was employed full-time and had extensive experience teaching (20 or more years) at the college level and online. Almost 30% have taught at the college level for 20 or more years and most of the instructors have taught online for five or more years. Approximately one-third of the instructors taught soft/pure courses and the least percentage of instructors taught hard/pure courses (15%). Table 4.1 highlights the demographics of the sample.
Table 4.1 Demographic data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (n=292)</th>
<th>Females (n=175)</th>
<th>Males (n=117)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject Taught by Category</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft/applied</td>
<td>81</td>
<td>61</td>
<td>20</td>
</tr>
<tr>
<td>Soft/pure</td>
<td>94</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>Hard/pure</td>
<td>44</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Hard/applied</td>
<td>71</td>
<td>46</td>
<td>25</td>
</tr>
<tr>
<td><strong>Highest Level of Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than bachelors</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Bachelors</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Bachelors plus some graduate work</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Masters</td>
<td>112</td>
<td>78</td>
<td>34</td>
</tr>
<tr>
<td>Master plus additional graduate work</td>
<td>103</td>
<td>60</td>
<td>43</td>
</tr>
<tr>
<td>Doctorates</td>
<td>66</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-time</td>
<td>56</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>Full-time</td>
<td>236</td>
<td>143</td>
<td>93</td>
</tr>
<tr>
<td><strong>College Teaching Experience</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-4 years</td>
<td>43</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>5-9 years</td>
<td>69</td>
<td>38</td>
<td>31</td>
</tr>
<tr>
<td>10-14 years</td>
<td>54</td>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>15-19 years</td>
<td>41</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>20 or more years</td>
<td>85</td>
<td>51</td>
<td>34</td>
</tr>
<tr>
<td><strong>Online Teaching Experience</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year or less</td>
<td>39</td>
<td>29</td>
<td>10</td>
</tr>
<tr>
<td>2 years</td>
<td>58</td>
<td>39</td>
<td>19</td>
</tr>
<tr>
<td>3 years</td>
<td>68</td>
<td>37</td>
<td>31</td>
</tr>
<tr>
<td>4 years</td>
<td>58</td>
<td>35</td>
<td>23</td>
</tr>
<tr>
<td>5 years or more</td>
<td>69</td>
<td>35</td>
<td>34</td>
</tr>
</tbody>
</table>

**Reliability**

In this administration of PALS, the reliability of the total scores met an acceptable level as did most of the factors. The fifth, sixth, and seventh factors did not meet the desired reliability level which could be attributable to the small number of items which were compiled to create these factors. The fewer the items used to create a summed score, the less reliable the score may be (Ary et al., 1996). In comparison to previous administrations of PALS, the alpha coefficient reliabilities were fairly low. This may be related to issues in using PALS in the online environment as opposed to the face-to-face environment for which PALS was designed.
Some of the participants expressed frustration in applying face-to-face concepts to the online environment. See Table 4.2 for the results of the coefficient alpha measurements.

Table 4.2 Chronbach’s alpha coefficient reliabilities for PALS administration.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PALS Score</td>
<td>.7508</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor Name</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Learner-Centered Activities</td>
<td>.6060</td>
</tr>
<tr>
<td>2</td>
<td>Personalizing Instruction</td>
<td>.5330</td>
</tr>
<tr>
<td>3</td>
<td>Relating to Experience</td>
<td>.7398</td>
</tr>
<tr>
<td>4</td>
<td>Assessing Student Needs</td>
<td>.6985</td>
</tr>
<tr>
<td>5</td>
<td>Climate Building</td>
<td>.4092</td>
</tr>
<tr>
<td>6</td>
<td>Participation in the Learning Process</td>
<td>.4626</td>
</tr>
<tr>
<td>7</td>
<td>Flexibility for Personal Development</td>
<td>.4438</td>
</tr>
</tbody>
</table>

Research Hypotheses

Research Hypothesis #1

H1: There will be a difference in the overall reported teaching styles of male and female community college instructors who teach in an online distance education environment.

A significant difference was noted at the univariate level (F = 4.143, df = 1, p = .043). Consequently, the null hypothesis was rejected demonstrating a difference in the teaching styles of male and female community college instructors who taught online. The mean of females was 128 and the mean of males was 124 with standard deviations of 19.25 and 19.16, respectively as depicted in Table 4.3. The effect size between males and females is .21 which demonstrated a difference of 3% which is a “small” effect with a “negligible” difference. Results demonstrated a more learner-centered teaching style for women than men in terms of their overall teaching style.

Table 4.3 Means, standard deviations, effect size for males and females.

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Males (n=117)</th>
<th>Females (n=175)</th>
<th>Difference between males and females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PALS Score</td>
<td>124 19.16</td>
<td>128 19.25</td>
<td>0.21 3%</td>
</tr>
<tr>
<td>Factor Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Learner-Centered Activities</td>
<td>42 7.69</td>
<td>42 7.26</td>
<td>0.00 0%</td>
</tr>
<tr>
<td>2 Personalizing Instruction</td>
<td>19 6.33</td>
<td>21 5.8</td>
<td>0.33 10%</td>
</tr>
<tr>
<td>3 Relating to Experience</td>
<td>17 6.4</td>
<td>18 6.69</td>
<td>0.15 6%</td>
</tr>
<tr>
<td>4 Assessing Student Needs</td>
<td>11 4.32</td>
<td>12 4.44</td>
<td>0.53 15%</td>
</tr>
<tr>
<td>5 Climate Building</td>
<td>13 3.93</td>
<td>13 3.34</td>
<td>0.00 0%</td>
</tr>
<tr>
<td>6 Participation in the Learning Process</td>
<td>8 3.99</td>
<td>8 3.96</td>
<td>0.00 0%</td>
</tr>
<tr>
<td>7 Flexibility for Development</td>
<td>13 3.69</td>
<td>14 4.15</td>
<td>0.25 7%</td>
</tr>
</tbody>
</table>
Research Hypothesis #2

H₂: There will be a difference in the learner-centered activities, the first factor of PALS, of male and female community college instructors who teach in an online distance education environment.

For the second research hypothesis, the null hypothesis was retained indicating no evidence of significant differences in the learner-centered activities of male and female community college instructors (F = .689, df = 1, p = .407). Table 4.3 provides the means, standard deviations, and effect size for this factor.

Research Hypothesis #3

H₃: There will be a difference in the personalized instruction, the second factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Indication of a significant difference in the teaching styles of male and female community college instructors was noted based on the second factor of PALS (F = 11.253, df = 1, p = .001). Thus, the null hypothesis was rejected. As noted in Table 4.3, women exhibited a more learner-centered style of teaching in terms of personalizing instruction with a mean of 21 and a standard deviation of 5.80 than men who had a mean of 19 and a standard deviation of 6.3. The effect size between men and women on this factor was “small” at .33 with a difference of 10% which was also considered “small”.

Research Hypothesis #4

H₄: There will be a difference in the activities related to life experiences, the third factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Activities related to life experiences did not present significant differences in the teaching styles of male and female community college instructors (F = .008, df = 1, p = .931). Therefore, evidence suggested retaining the null hypothesis. Table 4.3 provides the means, standard deviations, and effect size for this factor.

Research Hypothesis #5

H₅: There will be a difference in the activities related to assessing student need, the fourth factor of PALS, of male and female community college instructors who teach in an online distance education environment.

The fifth research hypothesis was not significant in revealing differences in the activities related to assessing student needs (F = 1.73, df = 1, p = .190). In this case, I failed to reject the null hypothesis. Table 4.3 highlights the means, standard deviations and effect size for this factor.

Research Hypothesis #6

H₆: There will be a difference in the activities related to climate building, the fifth factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Similarly, to the majority of the other factors, there was no grounds for rejecting the null hypothesis (F = .349, df = 1, p = .555). Consequently, male and female community college
instructors who taught online did not vary in the activities they used related to climate building. See Table 4.3 for a comparison of the means, standard deviations, and effect size.

Research Hypothesis #7

H_7: There will be a difference in the encouragement of student participation in the learning process, the sixth factor of PALS, of male and female community college instructors who teach in an online distance education environment.

Encouragement of student participation did not demonstrate significant differences for men and women (F = .214, df = 1, p = .644). Once again, the null hypothesis was retained. Table 4.3 shows the means, standard deviations and effect sizes.

Research Hypothesis #8

H_8: There will be a difference in the flexibility for personal development, the seventh factor of PALS, of male and female community college instructors who teach in an online distance education environment.

The seventh factor, flexibility for personal development, did not indicate a difference in the teaching styles of male and female community college instructors (F = 2.859, df = 1, p = .092). Consequently, the null hypothesis was not rejected. The means, standard deviations, and effect size for this factor are also given in Table 4.3.

Research Hypothesis #9

H_9: There will be a difference in the teaching styles of community college instructors who teach in an online distance education environment based on teaching experience.

In considering the teaching experience of online instructors, there is no evidence of a significant difference in teaching style based on years of teaching experience (F = 2.10, df = 4, p = .081). The null hypothesis was retained. Means, standard deviations, and effect size are detailed in Table 4.3.

Research Hypothesis #10

H_10: There will be a difference in the teaching styles of community college instructors who teach in an online distance education environment based on discipline.

One way ANOVA presented a difference in teaching style based on the discipline taught by the instructor (F = 8.214, df = 3, p < .000). Table 4.4 presents a comparison of teaching style based on discipline. Instructors teaching classes in the soft/pure disciplines demonstrated the highest level of a learner-centered style when comparing instructors based on discipline and those in the hard/pure disciplines demonstrated a greater use of a teacher-centered style.

Table 4.4 Comparison of teaching styles based on discipline.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft/applied</td>
<td>81</td>
<td>131</td>
<td>20.00</td>
</tr>
<tr>
<td>Soft/pure</td>
<td>94</td>
<td>130</td>
<td>19.15</td>
</tr>
<tr>
<td>Hard/applied</td>
<td>71</td>
<td>124</td>
<td>18.50</td>
</tr>
<tr>
<td>Hard/pure</td>
<td>44</td>
<td>116</td>
<td>15.27</td>
</tr>
</tbody>
</table>

Discipline is significant at the p<.000
Further analysis based on Post Hoc comparison using Tukey HSD, demonstrated differences in the mean between the discipline categories. Significant differences occurred between soft/applied and hard/pure disciplines with an effect size of .82 which was “large” and demonstrated an 11% difference. Significant differences in the mean were also denoted between soft/pure and hard/pure with an effect size of .78 which was also “large” and demonstrated a difference of 11%. Table 4.5 shows the comparisons.

Table 4.5 Multiple comparisons of discipline.

<table>
<thead>
<tr>
<th>(I) Discipline</th>
<th>(J) Discipline</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>ES</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft/applied</td>
<td>Soft/pure</td>
<td>1.13</td>
<td>2.83</td>
<td>.978</td>
<td>.05</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Hard/pure</td>
<td>15.44.*</td>
<td>3.50</td>
<td>.000</td>
<td>.82</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>Hard/applied</td>
<td>7.48</td>
<td>3.04</td>
<td>.068</td>
<td>.36</td>
<td>5%</td>
</tr>
<tr>
<td>Soft/pure</td>
<td>Hard/pure</td>
<td>14.31*</td>
<td>3.41</td>
<td>.000</td>
<td>.78</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>Hard/applied</td>
<td>-7.96</td>
<td>2.94</td>
<td>.120</td>
<td>.32</td>
<td>5%</td>
</tr>
<tr>
<td>Hard/pure</td>
<td>Hard/applied</td>
<td>-7.96</td>
<td>3.59</td>
<td>.120</td>
<td>.47</td>
<td>7%</td>
</tr>
</tbody>
</table>

* p < .05

**Research Hypothesis #11**

H11: There will be a difference in the teaching styles of community college instructors who teach in an online distance education environment based on level of education.

For the eleventh research hypothesis, I failed to reject the null hypothesis. The data provided no evidence of significant differences in the teaching styles of community college instructors based on level of education (F = .985, df = 6, p = .436).

**Research Hypothesis #12**

H12: There will be a difference in the teaching styles of community college instructors who teach in an online distance education environment based on employment status.

In terms of the interaction between teaching styles and employment status, there was an indication of differences (F = 5.60, df = 1, p = .019). Part-time instructors exhibited a more learner-centered teaching style (n= 56, M = 132, SD = 17.79) than full-time instructors (n = 236, M = 126, SD = 19.48). The effect size is 5.91 which is a 90% difference between full and part time instructors.

**Additional Findings**

Although a direct comparison of norms is statistically inappropriate, an analysis of effect size provides a framework for understanding trends in teaching styles. A difference in the teaching styles of men and women depicted teaching styles that are below the original norms of PALS, highlighting a teaching style that is more teacher-centered. The established mean for PALS is 146 with a standard deviation of 20 (Conti, 1985a). The effect size calculated from Conti’s norm was 1.15 for males and .94 for women which is a difference from the norm of -15% and -12%, respectively. For men this was a “very large effect” with a “medium difference” from the norm. For women, this was a “large effect” with a “small difference.” These effect
sizes demonstrated teaching styles that are more teacher-centered than the norm. See Table 4.6 for a comparison of means, standard deviations and effect sizes for the current study and the norms.

Women exhibited a more learner-centered style of teaching in terms of personalizing instruction with a mean of 21, a standard deviation of 5.8, and an effect size of 1.73 which is a difference from the norm of -32% than men who had a mean of 19, a standard deviation of 6.3, and an effect size of 1.9 which was a difference from the norm of -39%. This was a “huge effect” for men and women when compared to the norm and a “large” difference for both.

For instructors in higher education, the norm mean was 129 with a standard deviation of 21.6 (Premont, 1989). Although the overall mean from this study on the total PALS score is 127 with a standard deviation of 19.32 which is within one standard deviation of the norm of 126 to 166, the mean of this study is more comparable to the higher education means which Premont determined in her study than to the original norms of PALS. The effect size of the total PALS score calculated between the results of this study and the higher education data (Premont, 1989) was .10 which was a “negligible” effect and demonstrated a “negligible” difference of 2% below the higher education norm. These results demonstrated a minuscule difference between the teaching styles of online instructors and face-to-face higher education instructors. Online instructors in this study and the higher education demonstrated a style that was more teacher-centered than the norm.

Table 4.6 Means, standard deviations, and effect sizes calculated with norm

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Total (n=292)</th>
<th>Males (n=117)</th>
<th>Females (n=175)</th>
<th>Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PALS Score</td>
<td>127 19.3 0.99</td>
<td>124 19.16 -1.10</td>
<td>128 19.25 -0.90</td>
<td>146 20</td>
</tr>
<tr>
<td>Factor Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Learner-Centered Activities</td>
<td>42 7.43 .54</td>
<td>42 7.69 .52</td>
<td>42 7.26 .55</td>
<td>38 8</td>
</tr>
<tr>
<td>2 Personalizing Instruction</td>
<td>20 6.12 1.8</td>
<td>19 6.33 1.9</td>
<td>21 5.8 1.73</td>
<td>31 6</td>
</tr>
<tr>
<td>3 Relating to Experience</td>
<td>18 6.57 .46</td>
<td>17 6.4 .63</td>
<td>18 6.69 .45</td>
<td>21 5</td>
</tr>
<tr>
<td>4 Assessing Student Needs</td>
<td>12 4.39 .46</td>
<td>11 4.32 .7</td>
<td>12 4.44 .45</td>
<td>14 4</td>
</tr>
<tr>
<td>5 Climate Building</td>
<td>13 3.58 .84</td>
<td>13 3.93 .77</td>
<td>13 3.34 .9</td>
<td>16 4</td>
</tr>
<tr>
<td>6 Participation in the Learning Process</td>
<td>8 3.97 1.26</td>
<td>8 3.99 1.26</td>
<td>8 3.96 1.27</td>
<td>13 4</td>
</tr>
<tr>
<td>7 Flexibility for Development</td>
<td>14 3.99 .25</td>
<td>13 3.69 0</td>
<td>14 4.15 .24</td>
<td>13 4</td>
</tr>
</tbody>
</table>
Summary

The research questions in this study explored the teaching styles of community college instructors who taught in the online environment. The data gathered for the first research question indicated a significant difference in the overall teaching styles of male and female community college instructors. The third research hypothesis also demonstrated a difference in the teaching styles of male and female community college instructors, specifically related to the personalization of instruction. Differences in teaching style were also significant based on discipline and employment status. Research hypotheses two, four, five, six, seven, eight, nine, and eleven were not significant and no further testing was conducted for these hypotheses.
CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS FOR FURTHER STUDY

The purpose of this study was to explore the differences between the teaching styles of male and female community college instructors who taught online distance education. Additionally, this research was designed to investigate the impact of a variety of demographic variables on teaching style in the online distance education environment. The results, which were noted in the previous chapter, will be discussed in this chapter along with conclusions, implications, and recommendations for further research.

With the literature touting a shift to a learner-centered environment (Berge, 1997; Flynn, 1999), many questions arise as to whether this has taken place in the online distance education environment. Instructors play an essential role in the learning environment. Their involvement in a shift to a learner-centered environment is critical. Consequently, they should be cognizant of what they do and why they do it (Conti, 1985a). Assessing and comparing teaching styles in the online distance education environment gives instructors the opportunity to understand their teaching styles and, thus, their roles in the learning environment. More specifically, instructors may become aware of philosophical assumptions at work in the learning environment or they may detect contradictions in their teaching behaviors (Conti, 1985a). Additionally, instructors should strengthen their teaching style by using a variety of methods, practices and strategies which enhance student learning and achievement. Overall, instructors and administrators may use this information to enrich the online learning environment.

Conti presented an effective way to assess teaching style through PALS (Conti, 1978). Although PALS has been used in a variety of settings, its use in the online distance education environment has been extremely limited (Chanchaem, 2001). Researchers used PALS to investigate teaching style in adult education, higher education, and training environments (Dupin-Bryant, 2000; Hughes, 1997; O'Brien, 2001; Totin Meyer, 2002). My study suggested that, at least with regard to teaching style, the online environment may be more similar to traditional higher education than educators have noted. Online instructors have demonstrated a preference for a teacher-centered style with men exhibiting a greater preference for this style than women. Although these results cannot be generalized to the overall online environment, they provided clues about the state of online distance education at Florida’s community colleges. The next section discusses conclusions based on the findings.

Discussions and Conclusions

This section will review and discuss each of the hypotheses in an effort to explain the significant findings in this study and to render a better understanding of online teaching styles in Florida’s Community Colleges.
Overall Teaching Style

A review of the literature led to an expectation of differences in teaching style. Thus, the first research hypothesis stated that there is a difference in the overall reported teaching styles of male and female community college instructors who teach in an online distance education environment based on overall PALS scores. The null hypothesis was rejected indicating a more learner-centered style for females (M=128) than males (M=124). The effect size was small at .21 and a difference of 3% was negligible. Although a significant different was found, the magnitude of the difference is relatively small.

In general, theory and research supported the finding that men and women differ in their behaviors and the ways in which they interact with others (Belenky et al., 1986; Gilligan, 1982; Gmelch, 1998; Statham et al., 1991; Sullivan, 1999; Swaffield, 1996; Tannen, 1990). In the traditional face-to-face classroom men and women have also exhibited these differences (Statham et al.). Furthermore, a difference was suspected because the use of technology has shown little impact on how teaching is conducted and the impact of technology on enhancing learning effectiveness has not been consistently found (Clark, 1993).

As suspected, the results of this study confirmed gender theories that expressed differences in the ways men and women not only communicate but also interact. With women demonstrating a more learner-centered style than men, it holds true that women are more concerned with activities that are centered on the learner. Men, on the other hand are more likely to implement teaching activities that are teacher-centered, placing them in the role of expert. These differences are comparable to the face-to-face classroom specifying a need for faculty and administrators to consider whether these teaching styles meet the needs of students in creating an effective learning environment.

Although Belenky et al. (1986) provided some much generalized stereotypes, their arguments broadly explain differences in teaching style. In general, most men define their gender in terms of separation and the majority of women lean more towards attachment (Belenky et al.). These orientations respectively reflect the teacher-centered style and a learner-centered style. To illustrate, lecturing is a method associated most closely with a teacher-centered style. Lecturing provides an example of the separation between the learner and the instructor. Discussion is a method commonly associated with a learner-centered style. It demonstrates the attachment between the instructor and the learner because of the interaction and the dependency on one another to keep the discussion moving. Further supporting the differences in teaching style, men may be more comfortable as the expert whereas women may be more comfortable as the consultant (Belenky et al.). Men tend to focus on general overviews, whereas women seem to be more interested in the details. Men like to maintain or increase authority and women try to create more collaborative relationships (Belenky et al.). It is critical that these generalizations must be taken as just that. They provide a snapshot view of gender and teaching style. Similar to a snapshot, the generalizations do not provide a detailed or comprehensive point of view.

Communication differences between men and women support the differences in their teaching style. The more forceful expressions and strong language including commands and direct questions men often use (Gmelch, 1998) are congruent with the teacher-centered style. Similarly, the more indirect, polite and personal means of
communication often implemented by women (Gmelch) are more in line with a learner-centered style of teaching.

Another issue which may be peripherally related to women’s use of a more learner-centered teaching style in the online environment is women’s attitudes towards the integration of technology into the teaching process. If women are more likely than men to integrate technology into the teaching process (Adams, 2002), they may also support the learner-centered environment that is being encouraged along with the use of technology.

Since these trends replicate the uses of teaching style in the traditional face-to-face classroom, similar issues, although not investigated in this study, may be of concern. For example, previous research demonstrated that women tend to value learner participation more so than men. Thus, attitudes towards students likely impact teaching style (Statham et al., 1991). An analysis of the findings substantiates the core of the conceptual framework, but negates some components of the framework for the online environment. The results demonstrated that the teaching style continuum appeared to be congruent with the ways men and women approach relationships. The subsequent section reviews learner-centered activities, a key factor in overall teaching style.

Learner-Centered Activities

The second research hypothesis stated there is no difference in the learner-centered activities, the first factor of PALS, of male and female community college instructors who teach in an online distance education environment. In this case, there was no significant difference in the learner-centered activities used by male and female community college instructors. Learner-centered activities, as a concept, are the primary foundation for PALS. One would expect women to have a higher score on this factor than men. In this case, they did not, which may be attributable to issues with using this instrument in the online environment. In other words, differences may exist, but PALS may not include the appropriate concepts for determining this in the online environment.

Personalizing Instruction

The third research question assumed that differences exist between how male and female instructors personalized their instruction. Theory dictated that women would score higher in this area than men because they tend to be more concerned with personal interactions (Belenky et al., 1986; Gilligan, 1982; Gmelch, 1998; Statham et al., 1991; Sullivan, 1999; Swaffield, 1996; Tannen, 1990). Evidence suggested, in this case, that these theories are congruent with previous research.

Women scored significantly higher than men on the factor related to personalizing instruction. The effect size of .33 demonstrated a small difference of approximately 10%. Although well below the norm of 31, women (M=21) personalize instruction more than men (M=19) which mirrors trends in the traditional face-to-face classroom. Based on the second factor, personalizing instruction, women demonstrated more of a learner-centered teaching style than men. In other words, they were more likely to implement teaching behaviors that allow the students to tailor the learning environment to their own needs including more time to complete assignments, the use of different techniques, and different materials. Within this factor, it is expected that those who score higher are more
likely to use instruction that is self-paced, believe that lecturing is a poor method for presenting information to a student, and value cooperation more than competition.

**Life Experiences**

The fourth research hypothesis stated: There is a difference in the *activities related to life experiences*, the third factor of PALS, of male and female college instructors who teach in an online distance education environment. Evidence did not suggest a significant difference in teaching styles in terms of activities related to life experiences.

**Assessing Student Need**

The fifth research hypothesis presumed that there is a difference in the *activities related to assessing student need, the fourth factor of PALS*, of male and female community college instructors who teach in an online distance education environment. A significant difference in the activities related to assessing student need was not apparent in the evidence. Consequently, the results from PALS on this factor suggest a similarity in the teaching styles of male and female community college instructors based on this factor.

**Climate Building**

The sixth research hypothesis proposed that there is a difference in the *activities related to climate building, the fifth factor of PALS*, of male and female community college instructors who teach in an online distance education environment. Similar to the last two factors, no significant differences were noted in the activities related to climate building between male and female community college instructors who taught online. Reasons for this outcome may be related to the small number of items in this factor and to concepts which do not fit the online environment.

**Encouragement of Student Participation**

The seventh research hypothesis asserted: There is a difference in the *encouragement of student participation, the sixth factor of PALS*, in the learning process of male and female community college instructors who teach in an online distance education environment. Evidence failed to expose a significant difference in male and female instructor’s encouragement of student participation.

**Flexibility for Personal Development**

Research hypothesis eight contended that there is a difference in the *flexibility for personal development, the seventh factor of PALS*, of male and female community college instructors who teach in an online distance education environment. Like the majority of the previously reviewed factors, the seventh factor did not provide evidence of significant differences. Once again the small number of items and their lack of applicability to the online environment, may explain the similarities between men and women on this factor.
Teaching Experience

The ninth hypothesis alleged that there is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on teaching experience. Previous research conflicted on whether differences in teaching styles exist based on teaching experience. This conflict is what prompted the expectation that differences may exist. Regardless, findings did not support significant differences.

Prior research in the online environment supports the findings in this study. Chanchaem (2001) found no significant difference between total PALS scores and teaching experience. He concluded that teaching experience does not impact the use of a more learner-centered style when instructors teach online. My research supports Chanchaem’s findings in terms of teaching style and teaching experience.

Discipline

The tenth research hypothesis submitted that there is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on discipline. The results for this research hypothesis indicated significant differences in the teaching styles of community college instructors based on discipline, which was divided into four categories.

As theorized, discipline variances existed in the online environment. Instructors in the soft/applied disciplines had the strongest preference for the learner-centered style (M=131), followed by soft/pure (M=130), hard/pure (M=124), and hard/applied (M=116). Furthermore, significant differences were also found between soft/applied and hard/pure and soft/pure and hard/pure. Previous studies correspond with and support these findings (Hughes, 1997; Moulton, 1992).

Possible reasons for the observed outcomes include national standards, level of content in the discipline, and discipline identification. Discipline may impact teaching styles due to national standards. Although I did not collect open ended responses from the participants, some of them responded to my invitation to forward comments to me via email. In doing so, one of the participants stated, “I wanted to point out that my classes are developmental which means that we MUST teach to state norms or cut scores, as a result I can not totally focus my courses on student determined objectives”. Another instructor wrote, “I teach in Funeral Services which has a required teaching Curriculum and requires all students to pass a National Board Examination to become licensed funeral directors. This does require me to be more rigid in my teaching methods, than I am when I teach mathematics”. Thus, instructors may be forced to employ a teacher-centered style because of discipline or field specific requirements.

Level of Education

The eleventh hypothesis claimed that there is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on level of education. The data provided no evidence of significant differences in the teaching styles of community college instructors based on level of education. Although significant differences were expected based on prior research (Conti, 1983b; Dupin-Bryant, 2000; Moulton, 1992; Totin Meyer, 2002), the works of O’Brien (2001)
and Scotney (1986) who discovered a similar relationship between teaching styles and level of education support the results found in this study.

**Employment Status**

The last research hypothesis, number twelve, stated: there is a difference in the teaching styles of community college instructors who teach in an online distance education environment based on employment status. The analysis of this research hypothesis resulted in a conclusion, as suspected, that there was a significant difference in the teaching styles of community college instructors based on employment status. Part-time instructors (M = 132) gravitated towards a more learner-centered style than full-time instructors (M = 126). One of the most interesting aspects of this study is that part-time instructors exhibited a significantly greater preference for a learner-centered style than full-time instructors which can be noted in the effect size. The “huge” effect size is 5.91 which was also a “huge” difference of 90% between full and part-time instructors.

The differences in the teaching styles of full and part-time instructors were counter to the suspected results and prior research. Previous research is in disagreement on whether part-time and full-time instructors differ in their teaching styles. Full-time instructors in one study used lecture 83% of the time which alluded to a teacher-centered style (Keim & Biletzky, 1999). Similarly, Leslie and Gappa (2002) found differences in teaching practices in the traditional face-to-face classroom, even though they concluded that part and full-time instructors are not as different as assumed based on the similarities of their interests, attitudes, and motives. Discrepancies in the findings between this study and previous studies may be attributable to differences in the methods used to collect the data.

With part-time instructors exhibiting a significant preference for the learner-centered style over full-time instructors, the findings suggested some interesting issues for further consideration. Obviously, some factors, not investigated in this study, were impacting the teaching styles of instructors. For a change, the concerns regarding the effectiveness of the full-time instructor may be at issue instead of the effectiveness of part-time instructors. Another plausible speculation is an undiscovered or unexplored characteristic or behavior of the part-time instructors. For example, part-time instructors may be motivated to use more learner-centered styles in hopes of increasing responses on their student evaluations which is one component of maintaining their teaching position in future semesters.

Unlike the findings in this study, other research found no differences in the methods instructors used to teach their classes, based on employment status (Schuetz, 2002). Characteristics or personal activities of part-time and full-time instructors may account for these differences. Part-time instructors are typically professionals who are working in the field. These instructors may be more intrinsically motivated than full-time instructors because teaching is a new activity for them. Researchers have argued that part-time instructors are weakly linked to their students, colleagues, and their colleges. The limited time part-time instructors are engaged in the teaching process impacts their total teaching experience and their interactions with students, other faculty, and administrators. As a result, they have been thought of as less knowledgeable about campus resources and services which limits their ability to meet the needs of their students (Schuetz, 2002). In the past, concerns related to part-time instructors’ lack of
time and engagement surfaced as quality issues with the potential to negatively impact the learning environment.

Regardless, other factors have impacted part-time instructors’ implementation of learner-centered styles. For example, part-time instructors may have been specifically hired to teach online distance education courses. Thus, they may have a greater interest in online teaching. They may not have prior experience teaching in the traditional college classroom and this may alter their teaching style when compared to full time instructors. Also, they may have been hired with the understanding that a learner-centered approach was expected.

Full-time instructors may be distracted by increased teaching loads and service activities. These functions may reduce the time available to create a learner-centered environment. Sometimes full-time instructors teach online classes as a means of increasing their income. Consequently, full-time instructors may be carrying a heavy teaching load or be burnt out and looking for the easiest way to manage their courses which could be a more-teacher centered style. Additionally, in their face-to-face teaching they may have implemented a teacher-centered style which they carry over into the online environment.

Overloaded work schedules for full-time instructors’ limit their opportunities to focus on students and take advantage of professional development activities where they can learn more about different types of learner-centered activities and teaching styles. Often, distance education is not a part of a full-time instructor’s load. Instead, it is treated like an additional job, a second job. Essentially, full-time instructors when teaching online appeared to use the teaching styles typically exhibited by part-time faculty in the traditional classroom.

In the past, researchers have suggested that time was a factor in developing different teaching strategies. In other words, it was assumed that full-time community college instructors were able to try new strategies and practice them for two main reasons—one, they had the time to create more learner-centered techniques and two, because they were teaching more classes than part-time instructors, they had more opportunities to practice and experiment with different teaching strategies. Furthermore, full-time instructors are more integrated into the college’s infrastructure. The current findings suggested distinct changes in these assumptions. Instead, there are new factors related to other activities of part-time instructors which have not been determined. These other activities, including a full-time job or personal interests, may influence their teaching style.

Keim and Biletzky (1999) concluded that participation in professional development may enhance the use of learner-centered styles, which may be the case if part-time faculty are participating in professional development. Even if this were the case, such differences are highly unlikely to be attributable to professional development because full-time instructors traditionally have higher rates of participation than part-time instructors. Thus, other undiscovered factors may impact the relationship between teaching styles and employment status.

Upon completing the hypothesis testing, further analysis of the data provided additional insight into the teaching styles of online distance education instructors who taught at Florida’s Community Colleges as noted in the subsequent section.
Comparisons to Norms

As noted previously, PALS has been used in a variety of settings. These results replicated trends noted in other higher education settings. In the higher education setting, a more teacher-centered style was found. Furthermore, the results of this study, which compared teaching styles in the online environment, paralleled previous results from the traditional face-to-face environment. The results of this study were surprising because they do not support a learner-centered focus in the online setting. Much of the literature about online learning supports the use of a learner-centered style. Additionally, a fair amount of the literature on community colleges also supports the learner-centered approach.

Differences between the norms and the collected data may be attributable to the characterization of the Internet as a masculine environment. From their infancy, computers were viewed as a masculine environment. Proost et al. (1997) confirmed that men were more comfortable with the computer environment than women. They found that women held more negative attitudes towards computers than men. Perhaps the characterization of the Internet as a masculine environment influences an overall inclination towards a teacher-centered style (Proost et al., 1997; Sullivan, 1999). This characterization may influence instructor attitudes and perceptions towards online teaching (Sullivan).

Implications

The findings in this study present many implications for theory and practice for the community colleges in Florida. This study expands the literature in numerous ways. Practically, this study shed light on the distance education environment at community colleges in Florida by providing information on assessing teaching styles and areas which are viable for enhancing the online learning environment. The implications of these results will be discussed from three points of view—instructor, administrator, and student. Each point of view provides a vehicle for improving the online learning environment. Additionally, these implications present an opportunity to reconsider and reemphasize the shift to a learner-centered environment.

This study enhances the distance learning literature by explaining how the online learning environment functions, which provides more information for anchoring decisions related to practice. Furthermore, this empirical research is an effort in moving the online distance learning literature beyond the anecdotal. Findings from this study can function as a framework for research and an impetus for practice, which are areas that are lacking according to Simonson, Schlosser, & Hanson (1999) and Saba (2000). With these results, which provided more information about teaching styles, a better understanding of online teaching exists. Consequently, community college instructors and administrators can make adjustments to online program missions, priorities, goals, and objectives with this information in mind. If community colleges in Florida desire an online learner-centered environment, this study indicates a change is needed from current practices.
Implications for instructors

The results of this study have the potential to enhance the experience of instructors who are teaching online or considering it as a prospect. For the individual instructor the results of this survey highlight the types of teaching styles being used in the online environment. The relationship between instructor characteristics and teaching styles discovered in this study render a foundation for instructors to use as a comparison for their teaching styles.

Instructors benefit from assessing teaching styles for three reasons. First, assessment creates an awareness which leads to an understanding of strengths and areas for improvement. Second, understanding opens channels for exploration into various teaching methods, practices, and strategies. Third, exploration presents an opportunity to improve and enhance teaching which can have a positive impact on student achievement.

Assessing teaching styles allows for comparison to the norms and the possible expectations of instructors. If an instructor’s teaching style is not inline with teaching styles in the discipline, sharing this information with students can provide a better relationship and level of interaction between the student and the instructor. The same is true with the instructor’s gender as it relates to teaching style. This research shows that a more learner-centered style is typical of women instructors and the opposite is true with men in Florida’s community colleges. Since these styles hold true in the traditional face-to-face classroom and online, students may hold an expectation of a given style. If an instructor’s style differs from this, sharing this information with students can provide a more effective learning environment.

Becoming a reflective practitioner enhances the overall learning environment. With busy teaching schedules and the new challenges of distance education, taking the time to become a reflective instructor can be challenging, yet worthwhile. Once an instructor is aware of his or her strengths and areas that need improvement, he or she can create a plan for implementing new activities. Instructors who have assessed their teaching styles may consider trying new strategies, methods or practices which place the student at the center of the learning environment and use activities that engage and involve the student in the process of learning. Trying new methods and teaching practices can meet the needs of students and balance teaching styles for various learning styles.

A variety of learner-centered activities can be implemented based on an instructor’s roles or frames of reference. Not to limit an instructor’s use of a variety of activities, but to provide a means of considering activities that may fit with one’s roles and frames of reference, Table 5.1 lists suggested learner-centered activities based on an instructor’s gender and/or role or frame of reference. This is a starting point for instructors to consider exploring additional teaching strategies, methods or practices. Using this table requires additional self-assessment and reflection on the part of the instructor to determine which roles or frames of references apply. Additionally, when implementing any type of activity an instructor needs to analyze learner characteristics in an effort to offer the most appropriate activities.

A brief overview of roles and frames of reference as presented by Blenkey et al. will assist with selecting the appropriate student activities. Broadly speaking, men often prefer taking the role of expert and women gravitate towards the consultant role. Men focus on the general and women tend towards the details. Men have the desire to
increase their authority and women often strive to share their authority. Although these comparisons are extremely broad, they provide a starting point for implementing more learner-centered activities. Instructors may find that participation in professional development activities that emphasize and enhance a learner-centered environment is a worthy endeavor.

Table 5.1 Learner-Centered Activities Related to Roles and Frame of Reference

<table>
<thead>
<tr>
<th>Gender</th>
<th>Role or Frame of Reference</th>
<th>Student Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>Expert</td>
<td>Interview Instructor as expert</td>
</tr>
<tr>
<td></td>
<td>General</td>
<td>Apply experience</td>
</tr>
<tr>
<td></td>
<td>Authoritative</td>
<td>Debate, games</td>
</tr>
<tr>
<td>Women</td>
<td>Consultant</td>
<td>Problem solving, case studies</td>
</tr>
<tr>
<td></td>
<td>Detail</td>
<td>Online scavenger hunt, posting new and interesting articles or websites</td>
</tr>
<tr>
<td></td>
<td>Collaborative</td>
<td>Group projects</td>
</tr>
</tbody>
</table>

Instructors can use their results from a teaching style assessment to build a portfolio and demonstrate how their teaching style has improved. They can show what steps they have taken to improve their efforts and the learning environment through the implementation of a variety of teaching strategies, methods, and practices. Assessing teaching style can be used as another way of evaluating the instructor’s efforts.

Implications for administrators

Administrators are charged along with instructors in creating an environment which promotes excellence in teaching at community colleges. The efforts of administrators should include assisting instructors with assessing teaching styles, creating appropriate professional development activities, and using the resulting information to benefit instructors and learners through the development of appropriate policies. Each area requires planning, implementation, and evaluation in order to maximize efforts.

First, administrators must understand the impact of teaching style. Second, tools should be provided to assist instructors with assessing their teaching styles. Third, exposing instructors to a variety of teaching strategies, techniques, and methods can assist them with enhancing their teaching styles to improve student learning. Comparing the teaching styles of community college instructors who are teaching online, provides a wealth of information about the teaching styles of these instructors. This information can be used to develop effective professional development activities. Although the literature promotes a learner-centered style as the most effective style, there is not a single teaching style that fits every instructor, every learner, every discipline, or every environment.

Assessing teaching styles and evaluating their impact on the learning environment assists with creating personalized, just-in-time professional development that moves beyond one-size-fits-all. Factors, including discipline and employment status, need to be considered when creating professional development because these areas demonstrated relationships with teaching style. Understanding variances in teaching style based on disciplines reduces the tendency to consider community college faculty as a homogenous
The diversity among the disciplines discourages the singular application of faculty development initiatives emphasizing one way to teach (Palmer, 2002). However, extreme actions based on the diversity of disciplines should be avoided.

The wide spread use of a teacher-centered style in the online environment in this study shows that traditional styles prevail. Community college administrators need to rethink strategies for creating an online learner-centered environment. They should develop policies and guidelines that support a learner-centered environment while connecting their efforts to the mission of the community college, especially the mission of access. The online environment is an alternate means for students to access learning.

Creating professional development that assists instructors with placing learners at the center of the educational process is essential to moving towards a more engaging learner-centered environment. Improving the quality of courses offered in the online environment can increase the retention of students. Providing a variety of best practices and examples of learner-centered activities that are compatible with different gender roles and communication styles will give instructors options from which to select and enhance their teaching styles. Table 5.1 lists examples of activities administrators can emphasize through professional development that may appeal to instructors based on their frames of reference and gender.

One of the key components for community college administrators to consider in developing and promoting a learner-centered online environment begins with reviewing distance education policies. Three areas are ripe for improving online distance education policies: limiting overloads, providing release time for professional development especially projects focused on developing engaging learner-centered activities, and providing incentives for strengthening teaching and developing interactive strategies.

Practically, it is more convenient for community colleges to hire full-time instructors to teach online distance education courses. Full-time instructors are often already teaching the course face-to-face. They understand the community college student, and they are aware of the mission and policies of the institution. Regardless, such a policy may be economically unwise. If full-time instructors are using teacher-centered styles that do not fully engage students in the learning process, retention could suffer. Decreasing retention rates will have a negative impact on community colleges.

One means of combating decreasing retention rates is to hire instructors who are more likely to use a learner-centered style which, according to these results, are more likely to be part-time instructors. Engaging activities and behaviors which are characteristic of a learner-centered style are more likely to increase retention. Thus, hiring part-time instructors to teach online appears to have merit for community colleges in Florida.

**Implications for students**

Discussing a shift to a learner-centered environment must include a focus on the students and how they are impacted by the assessment and comparisons of teaching style. Although students do not typically review research, administrators can use implications for students to enhance the community college environment and provide them with tools to increase their success in the online environment.

Administrators need to inform students of the current similarities in teaching styles between the face-to-face classroom and the online environment. This information
may open the door for more students who have considered taking classes in the online environment, but were afraid to because of concerns about the differences in the environment. The similarities in teaching styles in the online environment and the norms imply that students will not necessarily have to adjust their learning styles. Their role as students does not change in the online environment in the sense that they are the receivers of knowledge. Thus, in an environment where there is no set time to “go to class” students will have to work to engage and actively participate in the learning environment. Being encouraged to make connections with other students is one way students can engage in the learning environment. The findings in this study are useful for community college learners in providing a broad overview suggesting the online environment, in terms of teaching styles, emulates the traditional face-to-face classroom. Thus, learners can anticipate some similarities and equivalency to the traditional learning environment.

Understanding instructors’ teaching styles and sharing this information can benefit students. In a general sense, sharing these results with advisors can open a discussion between advisors and students regarding what the students need. Advisors can discuss the possible differences in teaching style based on gender and disciplines. Furthermore, students may be able to select an instructor whose style is more congruent with their learning style.

Recommendations for Future Research

The online distance education environment has been an area in which educators and other stakeholders have placed an emphasis and expectation for a learner-centered environment. Thus, one would expect higher scores than those discovered in this study. Conducting a similar study using an alternate instrument designed for the online environment would be useful for providing a more in-depth understanding of teaching style in the online environment. Future research investigating teaching styles is needed to address some of the concerns that arose in this study. Using alternate instruments, exploring additional concepts, implementing supplementary models to the conceptual framework, expanding the population of interest, analyzing additional educational settings, and using other research designs should be the focus of subsequent research considering teaching style in the online environment. Numerous recommendations are offered because there is a great need for further research in distance education. Each of these recommendations is discussed in the following sections.

Alternate Instruments

Conti suggested that PALS may be appropriate for other educational environments. However, the online environment may not be the most appropriate environment because of validity issues with some of the items in PALS, as noted in the previous chapter. Chanceam (2001) also suggested the development of an instrument appropriate for determining the teaching styles of instructors who teach online.

Although not specifically requested, participants sent emails that commented on their experiences in completing PALS. Participants provided information which can be very useful in enhancing PALS for the online environment or creating an instrument specifically for studying the online environment. For example, they included online interaction as an important concept for understanding online teaching styles. They also
mentioned a need for studying strategies that appeal to visual, tactile, and auditory learners, while providing accessibility for all learners.

**Exploring Additional Concepts**

Future studies should encompass other areas including student observations and experiences with instructors’ teaching styles. Including the students’ perspectives in exploring teaching styles may provide a richer more in-depth understanding of teaching behaviors. The impact of teaching styles on student achievement and teaching styles which are desired by learners would be a useful expansion on previous research regarding teaching style. Previous research (Conti, 1985b) found that teaching style made a difference in student achievement and learners desired a variety of teaching styles in the traditional face-to-face classroom. Whether this holds true in the online environment is yet to be seen.

Additional concepts to consider include the number of courses an instructor teaches per semester and the instructor’s level of involvement in professional development. The recommendation to include the number of courses an instructor teaches stems from the differences in teaching style detected between full and part-time instructors. These differences could be related to full-time instructors’ overloaded schedules. Similarly, involvement in professional development will influence teaching style. Finding out more about these relationships could be useful.

Although learning outcomes, as impacted by teaching styles, was beyond the scope of this study, learning outcomes should be considered. Prior research demonstrated a relationship between a learner-centered teaching style and positive learning outcomes (Conti, 1985b; Miglietti & Strange, 1998; Post et al., 1998). Thus, the issue of quality in the online environment begins with teaching style because it is essential to the ways in which instructors frame and implement their online courses. The quality of online courses is very controversial and leaves much room for further consideration.

**Using a Supplementary Model**

In suggesting the creation of an instrument designed to assess the teaching styles of instructors in the online environment, the use of another model assists in developing a broader understanding of online teaching styles. Another model to consider is a conceptual framework for studying distance education (Vrasidas & Glass, 2002). This conceptual framework is particularly relevant because it is based on the concept of interaction, a topic of much discussion in terms of creating an engaging learner-centered environment online, including its components which are dialogue, learner control, feedback, and social presence.

**Analyzing Additional Educational Settings**

Considering the differences at the community college level, replicating this study at the university level would provide an interesting comparison for institutions with differing missions and focuses on teaching. Considering the similarity in the trends between the traditional face-to-face norms and online teaching styles discovered in this study, it would be interesting to explore whether these differences appear in a direct comparison.
Alternate Research Designs

Using other types of research designs such as a qualitative study could provide a more nuanced understanding of teaching styles in the online learning environment. Using qualitative methods as a part of this study could have added data for possible explanation as to why there are differences between full and part time instructors unlike those typically revealed in the traditional classroom. Additional study of online teaching style conducted from the perspective of qualitative research is needed to enhance our understanding of this topic.

Summary

This study investigated the teaching styles of online community college instructors in Florida for the purpose of comparing the teaching styles of men and women. In doing so, results indicated some differences in the teaching styles of male and female community college instructors. Women demonstrated a more learner-centered style than men. Additionally, differences in teaching styles surfaced based on discipline and employment status. The most notable finding in this survey was the differences between part-time and full-time community college instructors. Contrary to prior research, part-time instructors used a more learner-centered style. Future research using instruments designed specifically to assess online teaching styles may uncover even more unexpected findings.

When television was first introduced, great expectations regarding its impact on education existed. In terms of teaching styles not much changed. With online distance education similar ideals have emerged and it appears that not much has changed with respect to teaching styles. Online distance education has been promoted as a means to enhance the learning environment. However it has not yet evolved into a truly learner-centered environment. With additional research such as that conducted in this study, we will soon understand how to use the online environment to focus on the learner.
APPENDIX A

PRINCIPLES OF ADULT LEARNING SCALE

Please note that this survey was posted on the Internet. The actual address was http://www.custominsight.com/start/pals.asp
The following demographic questions are necessary to maximize the usefulness of your survey responses. Because there may be varying opinions from different respondent groups, breaking down the results for these groups will enable us to understand and address these differences.

1. **How long have you been teaching at the college level?**
   - [ ] 0 - 4 years
   - [ ] 5 - 9 years
   - [ ] 10 - 14 years
   - [ ] 15 - 19 years
   - [ ] 20 or more years

2. **What is your current level of education?**
   - [ ] less than bachelors
   - [ ] bachelors
   - [ ] bachelors plus some graduate work
   - [ ] masters
   - [ ] doctorate
   - [ ] other

3. **What is your employment status with your community college?**
   - [ ] Part-time
   - [ ] Full-time

4. **Indicate your gender.**
   - [ ] Female
   - [ ] Male

5. **Indicate the platform you use:**
   - [ ] Blackboard
   - [ ] Desired2Learn
   - [ ] WebCT
   - [ ] No Platform

6. **How long have you been teaching online at the college level (Round up to the nearest year)?**
   - [ ] 1 year or less
   - [ ] 2 years
   - [ ] 3 years
   - [ ] 4 years
   - [ ] 5 years or more

7. **In completing this survey, it is helpful to have one online course in mind. Please select a course you have taught or are teaching and indicate the course number (i.e. EDF1005).**

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<tr>
<td><strong>Principles of Adult Learning Scale</strong></td>
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<tr>
<td>If the item does not apply to you, select “unable to rate”.</td>
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<tr>
<td>1. I allow students to participate in developing the criteria for evaluating their performance in class.</td>
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<td>2. I use disciplinary action when it is needed.</td>
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<td>3. I allow older students more time to complete assignments when they need it.</td>
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<td>4. I encourage students to adopt accepted middle class values.</td>
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<td>5. I help students diagnose the gaps between their goals and their present level of performance.</td>
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<td>6. I provide knowledge rather than serve as a resource person.</td>
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<td>7. I stick to the instructional objectives that I write at the beginning of a program.</td>
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<td>8. I participate in the informal counseling of students.</td>
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<tr>
<td>9. I use lecturing as the best method for presenting my subject material to adult students.</td>
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<td>10. I arrange the classroom so that it is easy for students to interact.</td>
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<tr>
<td><strong>Principles of Adult Learning Scale</strong></td>
<td>Almost Never</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
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<tr>
<td>11. I determine the educational objectives for each of my students.</td>
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<td>12. I plan units which differ as widely as possible from my students’ socio-economic background.</td>
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<td>13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.</td>
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<td>14. I plan learning episodes to take into account my students’ prior experiences.</td>
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<td>15. I allow students to participate in making decisions about the topics that will be covered in class.</td>
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<tr>
<td>16. I use one basic teaching method because I have found that most adults have a similar style of learning.</td>
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<td>17. I use different techniques depending on the students being taught.</td>
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<td>18. I encourage dialogue among my students.</td>
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<td>19. I use written tests to assess the degree of academic growth rather than to indicate new directions for learning.</td>
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<tr>
<td>20. I utilize the many competencies that most adult students already possess to achieve educational objectives.</td>
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<td>Principle</td>
<td>Almost Never</td>
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<tr>
<td>21. I use what history has proven that adults need to learn as my chief</td>
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<td>criteria for planning learning episodes.</td>
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<td>22. I accept errors as a natural part of the learning process.</td>
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<td>23. I have individual conferences to help students identify their</td>
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<td>educational needs.</td>
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<tr>
<td>24. I let each student work at his/her own rate regardless of the amount</td>
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<tr>
<td>of time it takes him/her to learn a new concept.</td>
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<td>25. I help my students develop short-range as well as long-range</td>
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<tr>
<td>objectives.</td>
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<tr>
<td>26. I maintain a well disciplined classroom to reduce interferences to</td>
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<td>learning.</td>
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<td>27. I avoid class discussion of controversial subjects that involve value</td>
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<td>judgments.</td>
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<td>28. I allow my students to take periodic breaks during class.</td>
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<td>29. I use methods that foster quiet, productive deskwork.</td>
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<tr>
<td>30. I use tests as my chief method of evaluating students.</td>
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### Principles of Adult Learning Scale

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<tr>
<td>31. I plan activities that will encourage each student’s growth from dependence on others to greater independence.</td>
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<td>32. I gear my instructional objectives to match the individual abilities and needs of the students.</td>
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<td>33. I avoid issues that relate to the student’s concept of himself/herself.</td>
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<td>34. I encourage my students to ask questions about the nature of their society.</td>
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<td>35. I allow a student’s motives for participating in continuing education to be a major determinant in the planning of learning objectives.</td>
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<td>36. I have my students identify their own problems that need to be solved.</td>
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<td>37. I give all students in my class the same assignment on a given topic.</td>
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<td>38. I use materials that were originally designed for students in elementary and secondary schools.</td>
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<td>39. I organize adult learning episodes according to the problems that my students encounter in everyday life.</td>
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<td>40. I measure a student’s long term educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.</td>
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<td>41. I encourage competition among my students.</td>
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<td>42. I use different materials with different students.</td>
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<tr>
<td>43. I help students relate new learning to their prior experiences.</td>
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<tr>
<td>44. I teach units about problems of everyday living.</td>
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APPENDIX B

INSTITUTIONAL REVIEW BOARD – LETTER OF APPROVAL
APPROVAL MEMORANDUM

Human Subjects Committee

Date: 9/4/2003

Karinda Barrett
6835 Chisholm Court East
Tallahassee, FL 32311

Dept.: Educational Leadership and Policy Studies

From: David Quadagno, Chair

Re: Use of Human Subjects in Research

A Comparison of the Teaching Styles of Community College Instructors in Face to Face Classrooms and the Online Distance Education Environment

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be exempt per 45 CFR § 46.101(b) 2 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If the project has not been completed by 9/3/2004 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Beverly Bower
HSC No. 2003.431
INFORMED CONSENT FORM

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled "A Comparison of the Teaching Styles of Male and Female Community College Instructors In the Online Distance Education Environment".

This research is being conducted by Karinda Rankin Barrett, who is a doctoral candidate at Florida State University under the guidance of Beverly Bower, Ph.D. who is a professor in the Department of Educational Leadership and Policy Studies at Florida State University. I understand the purpose of her research project is to better understand the teaching styles of male and female community college instructors who are teaching in the online distance education environment. I understand that if I participate in the project I will be asked questions about my teaching style as well as general information about myself as an instructor.

I understand I will be asked to fill out an online survey. I understand my participation is totally voluntary and I may stop participation at anytime. All my answers to the questions will be kept confidential to the extent allowed by law and identified by a code number. My name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported.

I understand there are benefits for participating in this research project. First, my own awareness about my teaching style may be increased. Also, I will be providing educators with valuable insight into instructors’ acceptance and behaviors regarding teaching style. This knowledge can assist them in enhancing theory and providing services to help instructors with their teaching style.

I understand that I may contact Karinda Barrett, kbb2656@qarnet.acns.fsu.edu (850) 216-1909 or Dr. Beverly Bower bower@mail.coe.fsu.edu (850) 644-7084, for answers to questions about this research or my rights. Group results will be sent to me upon my request.

I have read and understand this consent form. By clicking on the following link, I am giving my consent to participate.
APPENDIX C

COVER LETTERS

REQUEST TO PARTICIPATE,
COVER EMAIL, SECOND, AND THIRD FOLLOW-UP EMAILS
Dear Online Community College Instructor,

My name is Karinda Barrett and I’m a doctoral candidate at Florida State University. I am in the process of collecting data for my dissertation titled, “A Comparison of the Teaching Styles of Online Community College Instructors”. Thus, I am conducting research to compare the teaching styles of community college instructors who are teaching in the online distance education environment.

You have been identified as an experienced online instructor and I would greatly appreciate your participation in the Principles of Adult Learning Scale developed by Gary Conti (1979). The scale was designed to determine your teaching style. Upon completion of the survey, you will have the opportunity to download a copy of the survey, along with a scoring sheet, and an information sheet for understanding your teaching style.

By completing the survey and a few demographic questions, you will contribute to a better understanding of the distance learning environment. As more and more instructors move their courses online, there is a greater need to understand the distance learning environment. The online survey takes approximately 10 - 15 minutes to complete. Your responses will be anonymous. Please complete the survey by October 27, 2003.

Susie Henderson, Associate Executive Director, Florida Distance Learning Consortium, encourages your participation in this survey. She stated, “Your participation in this survey is an opportunity for you to personally consider your teaching style and the kind of learning environment you are creating for your students. In addition, your responses will provide a better understanding of the teaching styles instructors at Florida's community colleges are using in the online learning environment. I hope you will take a few moments of your time to contribute to this research endeavor.”

If you have questions regarding this survey, please contact me, Karinda Barrett at 850-216-1909 or kbb2656@fsu.edu or you may contact my doctoral advisor, Beverly Bower, Ph.D. at 850-644-7084 or bower@coe.fsu.edu

To access the survey please point your browser to the following site by either clicking on the link below or by copying and pasting the address in your browser:


Thank you for your time and effort in completing this survey!

Sincerely,

Karinda Barrett
Doctoral Candidate
Department of Educational Leadership and Policy Studies
Florida State University
113 Stone Building
Tallahassee, FL  32306-4452
Kbb2656@fsu.edu
850-216-1909
Second Follow-Up Email

Dear Online Community College Instructor,

If you have already completed the PALS Survey, I would like to thank you for your time and effort! I greatly appreciate it!

If you haven't had time to complete it yet, there's still time left. Here's the website:


In case you deleted my first email and would like the details of my research, I have included my original email below.

Thank you so much for taking time out of your busy schedule to assist me with my research!

Sincerely,

Karinda Barrett
FSU Doctoral Candidate
Third Follow-Up Email

Dear Online Community College Instructor,

If you have already taken the time to complete the PALS teach styles survey, thank you so much for your time and input! I greatly appreciate it! If you haven’t had time yet, you can complete the survey by clicking on the following address or pasting it in your browser:


The deadline for completing this survey is quickly approaching. It is Monday, November 10 at 5pm.

Following is the original email I sent, in case you need more information. Thanks for your assistance with this! Best wishes with your teaching and have a great weekend!

Sincerely,

Karinda Barrett
APPENDIX D

PERMISSION TO USE PALS
September 26, 2003

Karinda Barrett
6835 Chisholm Court East
Tallahassee, FL 32311

Dear Karinda:

It is always exciting to hear of new ways that researchers have found to use the Principles of Adult Learning Scale (PALS). PALS has been published in ERIC, in several journals, and in Adult Learning Methods by Michael Galbraith so that researchers like you can use it at no cost. Therefore, feel free to use it in the ways you believe are most appropriate; since I am the copyright holder for PALS, you may consider this letter as your formal permission to reproduce PALS. Let me know what you find. Good luck.

Sincerely yours,

Gary J. Conti
Professor of
Adult Education
REFERENCES


Karinda Rankin Barrett was born in Lafayette, Indiana. She earned a Bachelor in Business Administration with a concentration in Marketing from the University of South Carolina. She also attended the University of South Carolina for her Masters in Student Personnel Services with a concentration in counseling. She holds a Ph.D. from Florida State University in Higher Education with a minor and certificate in Open and Distance Learning.

Dr. Barrett currently works at Tallahassee Community College as an Instructional Technologist. Her previous experience includes teaching for Florida State University, working for the Hardee Center for Women in Higher Education as the Associate Director, and advising at the Center Advising Undeclared Students. Dr. Barrett also worked for Tallahassee Community College as a Hardee Scholar with the College Reach Out Program, for Western Carolina University as an Area Coordinator in Residence Life, and as a Residence Education Coordinator at the University of South Carolina in Residence Life. She currently resides in Tallahassee, Florida with her husband Michael and her sons, Jensen and Marshall.