December 1999

An Analysis of Teacher and Student Leadership and Gender Differentiation Within Academic Divisions at Three Virginia and Tennessee Liberal Arts Colleges

Mary L. Cole
East Tennessee State University

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AN ANALYSIS OF TEACHER AND STUDENT LEADERSHIP AND GENDER DIFFERENTIATION WITHIN ACADEMIC DIVISIONS AT THREE VIRGINIA AND TENNESSEE LIBERAL ARTS COLLEGES

A Dissertation
Presented to
the Faculty of the Department of Educational Leadership and Policy Analysis
East Tennessee State University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Mary Lou Cole
December 1999
APPROVAL

This is to certify that the Graduate Committee of

MARY LOU COLE

met on the

eighth day of November, 1999.

The committee read and examined her dissertation, supervised her defense of it in an oral examination, and decided to recommend that her study be submitted to the Graduate Council, in partial fulfillment of the requirements for the degree Doctor of Education.

Signed on behalf of the Graduate Council

[Signatures]

[Names]

Chair, Graduate Committee

Dean, School of Graduate Studies

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ABSTRACT

AN ANALYSIS OF TEACHER AND STUDENT LEADERSHIP AND GENDER DIFFERENTIATION WITHIN ACADEMIC DIVISIONS AND CLASSROOMS AT THREE VIRGINIA LIBERAL ARTS INSTITUTIONS

by

Mary Lou Cole

This quantitative study investigated a range of leadership behaviors by teachers (teacher characteristics) and students (student characteristics) inside their higher education classrooms and various aspects of those environments (classroom characteristics). The behaviors and environmental aspects examined are those determined by research findings to foster and enhance participant growth and development.

Cluster sampling was used for this study of 25 classes representing 5 divisions of the curriculum at 3 institutions. The instruments were administered to 277 students and 25 teachers during the spring of 1999. The null hypotheses for main effects of teacher, student, and classroom characteristics were tested on the two instruments’ items at the .05 level of significance using a Univariate ANOVA.

According to student responses, overall, a main effect of teacher gender was found on teachers’ characteristics and approaches to student learning. A main effect of teacher gender was also found on students’ characteristics and overall orientations to learning.

According to teacher responses, a main effect of teaching style was found for both male students and female students, on teachers’ approaches to student learning, and on students’ characteristics and overall orientations to learning. A main effect of teacher gender was found for both male students and female students on students’ characteristics and overall orientations to learning.

A main effect of teacher gender and an interaction of teacher gender and teaching style was found for male students on students’ characteristics and overall orientations to learning.
Dedication

This dissertation project is dedicated to my son, Victor Alan Cole ("Vic") who prematurely moved from this life to another on August 15, 1984 at 16 years of age. He is greatly missed by his mother, father, sister, and brothers, and he is especially remembered at this time. His love and support was felt throughout the completion of this endeavor.
Acknowledgments

Much time and effort was expended in completing this project. I wish to take this opportunity to acknowledge the help of others, and to extend them a heartfelt thanks.

First, much guidance and support was provided by four outstanding committee members. Each one made a unique contribution to this document. Dr. Patricia Robertson increased my understanding of women’s rights and their struggles for equality with men. Her insight in the area of victimization and all that it encompasses was invaluable to the completion of this project.

Dr. Louise MacKay exemplifies scholarship and excellence in her teaching. Her expertise in writing style was essential for the successful completion of this project.

Dr. Gunapala Edirisooriya assisted me greatly in understanding quantitative research. His quiet and gentle teaching manner was a pleasure to experience.

Dr. Terry Tollefson, my committee chair, has continually directed and encouraged me throughout my experience in the Educational Leadership and Policy Analysis (ELPA) program. The successful completion of this endeavor is due, in great measure, to his expertise in writing style. His helpful and supportive manner has renewed my appreciation for the profession.

Finally, a very special “thank you” is extended to my husband, Hugh. This venture would not have taken place without his encouragement and reassurance. The many meals he cooked and floors he polished communicated his support throughout the days, months, and years consumed in the completion of the program and dissertation project.
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CHAPTER 1
INTRODUCTION

Historically, studies have confirmed the model of leadership in the U. S. to be predominantly white and male (Rosenbach & Taylor, 1993). However, recently, an increase has been realized in the number of women employed as leaders and managers. In addition, Owens (1995) stated that, as the twenty-first century approaches, we are able to celebrate the idea that “as we are equals, then we may be different from one another (p. 34).”

Yet, as late as 1996, women held only 1 in 10 of the most senior jobs at the 500 largest U. S. companies and filled only 2.4% of the highest positions: chairperson, CEO, president, and executive vice-president (Himelstein, 1996; Wellington, 1996). In addition, women’s progress in election to political office still failed to be consistent, and change in the Congress remained modest (Kunin, 1996). Strengthening the likelihood that women would continue to experience such discrimination for some time to come, both when seeking managerial and leadership positions and assuming such positions, is the continuing push in many states to end racial and gender preferences (Tracy, 1998).

In 1996 Madeleine Kunin, Deputy Secretary for the U. S. Department of Education, asked “Why are women still largely invisible on the evening news, in the morning paper, in board rooms, and conference rooms where the important decisions of our time are being made in finance, politics, and social policy (p. 1)?” Why is this the case if we
genuinely have made so much progress in educating women, adding them to the work force, and affording them protection under the law (Kunin)?

**Access to Education**

By 1992, indeed, women had earned more four-year degrees than had men. Also, between 1960 and 1993 they earned a greater percentage of professional degrees: (a) law degrees rose from 2% to 42%; (b) medical degrees increased from 6% to 38%; and (c) dentistry degrees grew from 1% to 34% (Kunin, 1996). Similarly, between 1970 and 1991 women earned a greater percentage of doctoral degrees, with the numbers climbing from 22% to 61%: (a) political science and government degrees rose from 11% to 25%; (b) economics degrees grew from 5% to 20%; and (c) sociology degrees increased from 19% to nearly 50% (Tolbert, Simons, Andrews, & Rhee, 1995).

**Composition of the Work Force**

In 1996 women comprised 46% of the total work force (Himelstein, 1996), holding one-third of all managerial jobs (Kunin, 1996; Whitley & Staples, 1997); filling 20% of senior manager positions at service firms, such as savings institutions, publishers, and food-service operations (Himelstein, 1996); and owning one-third of American businesses (Adler, 1997). Women held 25% of the corporate offices at Paine Webber, Gap, and Merck, and the top 10 executive positions at Pitney Bowes Incorporated (Himelstein, 1996). They directed 43% of all foundations in the U. S. and occupied 67% of all positions in nonprofit organizations (Whitley & Staples, 1997).
Legal Protection

In 1963 the Equal Pay Act was passed by Congress, requiring that women be paid equally when doing the same jobs as men (Barr, 1988). Title VII of the Civil Rights Act of 1964, the equal employment section, also included women (Barr, 1988, Leonard, 1994). Similarly, the Supreme Court's 1971 decision in *Griggs v. Duke Power Company* expanded the reach of Title VII to include racially neutral practices that adversely impacted women (Leonard, 1994).

In addition, Title IX was introduced into the Education Amendments of 1972, specifically prohibiting gender bias in admissions to vocational, professional, and graduate schools and public institutions of undergraduate higher education (Barr, 1988; Marshall & Reinhartz, 1997). Finally, in 1974 the Women’s Educational Equity Act was enacted, providing funds for research and development to undergird women’s efforts in gaining equality in education.

Leadership Ability Demonstrated

All indications are that the status of women has never been better, and this probably is the case. The growth of women-owned businesses from 1987 to 1996 outpaced overall U. S. business growth by nearly two to one (The National Foundation for Women Business Owners, 1999). Female-owned businesses constituted 36% of all U. S. companies and employed 26 % of U. S. company workers (The National Foundation for Women Business Owners, 1999). In fact, 75 % of the female-owned firms in existence in 1991 were still operating six years later, compared to 67 % of the firms started by men.
(Whitley & Staples, 1997). In 1997, according to the Internal Revenue Service, women constituted 41.2% of the 3.3 million Americans reporting incomes of $500,000 or more (Whitley & Staples, 1997). In 1999, Carleton Fiorina became the nation's highest-ranking female executive when she left the global services group at Lucent, the $30 billion telecom giant, to become the first female chief executive officer at a Fortune 100 company, Hewlett-Packard, and one of only three female executives in the entire top 500. Also in 1999, Eileen Collins became the first woman to command the U.S. shuttle Columbia, on its 26th mission.

By 1999, 8 million women owned their own businesses; employed 10 million people; and were starting new businesses at the rate of 1 every 11 seconds (Peters, 1999). At the beginning of 1999, women held the top five elected offices in the state of Arizona: governor, secretary of state, attorney general, treasurer, and superintendent of public instruction (Raab, 1999). Many other states experienced similar election occurrences, although on a smaller scale. Later in 1999, politicians began reaching out to women in the realization that they had a new clout in politics—were becoming a driving force. Tipper Gore helped to define her husband's presidential campaign, as Elizabeth Dole and Hillary Rodham Clinton set up exploratory committees to investigate their potential for election to office (Shapiro, 1999).

Women Underrepresented

At the beginning of 1999, however, the scarcity of women on the floors of the U.S. Senate and New York Stock Exchange, in governors' seats, corner offices, police
departments, and even the pulpits of our churches continued to be evidence that women are still underrepresented at many levels. Women who occupied leadership positions constituted a small percentage of the total population of women and were a meager number when compared to the number of men holding such positions.

**Women in Higher Education**

Although social institutions continue to erect barriers to gender equity, the postsecondary community can choose to adopt practices that serve to reduce rather than reinforce them. However, that opportunity has not yet been seized by many institutions. Women continue to be underrepresented on many campuses, particularly in teaching and higher-level administrative positions (Cunanan & Maddy-Bernstein, 1993; Isfahani, 1998; U. S. Department of Education, 1995).

**Women in Upper-level Administrative and Teaching Positions**

Based on a 1995 survey of 3,021 college and university presidents, by the U. S. Department of Education, 83.5% of the presidents were male, and 16.5% were female (The Chronicle of Higher Education Almanac, 1998). Although women comprised nearly 35% of the higher education teacher population, they represented less than 18% of the full professors, whereas men represented more than 82% of the full professors. In addition, as the rank decreased the percentage of women represented increased (Table 1) (U. S. Department of Education, 1995; The Chronicle of Higher Education Almanac, 1998).
Table 1

**Full-Time Teachers by Rank and Gender, Fall, 1995**

<table>
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<th>Rank</th>
<th>All</th>
<th>Male</th>
<th>Female</th>
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</thead>
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<tr>
<td>Professor</td>
<td>159,333</td>
<td>130,940 (82.2%)</td>
<td>28,393 (17.8%)</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>125,082</td>
<td>85,313 (68.2%)</td>
<td>39,769 (31.8%)</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>129,682</td>
<td>73,141 (56.4%)</td>
<td>56,541 (43.6%)</td>
</tr>
<tr>
<td>Instructor</td>
<td>66,708</td>
<td>33,067 (49.6%)</td>
<td>33,641 (50.4%)</td>
</tr>
<tr>
<td>Lecturer</td>
<td>12,874</td>
<td>5,889 (45.7%)</td>
<td>6,985 (54.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>550,822</td>
<td>360,150 (65.4%)</td>
<td>190,672 (34.6%)</td>
</tr>
</tbody>
</table>

According to a report released in March 1999 by the Committee on Women Faculty in the School of Science at The Massachusetts Institute of Technology (MIT), senior female professors received lower salaries and fewer resources for research than their male counterparts and were excluded from significant roles within their departments (Hopkins, 1999). An outpouring of e-mail messages to administrators and female faculty members involved in the study at MIT suggested that "gender bias is widespread in academe, and they raise the possibility that it is present in medicine, the law, and business as well" (p. B5). In addition, in a meeting at the White House with President and Mrs. Clinton and
Labor Secretary Alexis M. Herman, statements made by women who worked in diverse occupations suggested that "the problem may be universal in the workplace" (p. B5).

**Obstacles to Women’s Success in Higher Education**

Kaplan and Tinsley (1989) stated that women would advance only after they and college and university presidents and governing boards made an active commitment to their advancement. Making campuses hospitable to other women, contended the researchers, involved all members of the college community working together.

**The Earnings Gap.** According to the Association for American University Personnel (AAUP), decades after passage of the federal Equal Pay Act mandated equity, women holding teaching positions in academic year 1996-97 still earned only 85 to 96 cents for every dollar earned by men holding teaching positions, depending on their respective ranks (Moses, 1997). Similarly, according to data from the College and University Personnel Association, the record on equal pay for academic administrators showed that women holding administrative positions in 1996 earned from 1 to 39 cents less for every dollar earned by men holding administrative positions (Moses, 1997).

**Work and Family Conflict.** Schwartz (1992) found that nearly one-half of the women who stayed in academe remained either single or childless. Women who did choose to have children often were pursuing tenure during the peak of their childbearing years (Hensel, 1991; University of Virginia, 1988).
Furthermore, the careers in higher education are demanding, with the average teacher working 55 hours per week. Women can work 70 or more hours per week when child care and home responsibilities are included (Hensel, 1991; Justus, Freitag, & Parker, 1987; University of Virginia, 1988). In addition, although administrative policies, and our nation’s laws promote equal opportunity for women, LeBlanc (1993) found that social beliefs regarding women’s roles as nurturers and keepers in families still continue to prevent women from progressing to the highest levels of academic administration.

**Less Capable, Competitive, and Effective.** Some educators have contended that women are less capable, less competitive, and less effective than men, adding that it is these characteristics that account for the scarcity of women in education’s higher ranks (Hensel, 1991). Indeed, women have been found to struggle in assuming the role of intellectual authority and the identity of a scholar (Creamer, 1995). Bearing this out are the books and journal articles that show men to be the most frequently-cited and prolific scholars (Schneider, 1998).

Creamer, author of *Assessing Faculty Publication Productivity*, stated that in looking at “the top 3% of producers—even in fields where women have been awarded the majority of Ph.Ds for a long time—the lists are almost entirely male” (Schneider, 1998, p. A14). Creamer, an associate professor of women’s studies at Virginia Tech, stated that “It’s as if every characteristic of the prolific scholar...is not generally a characteristic of women” (A14). Schneider (1998) stated that “topping the list of explanations [is the fact that] most women work in jobs in which publishing is an anomaly....at teaching colleges...
or in non-tenured slots at universities” (A14). At M.I.T., before the formation of the Committee on Women Faculty in the School of Science, and following 25 years of affirmative action, there were only 15 tenured female faculty members in the six departments of science, compared with 194 tenured men (Hopkins, 1999).

However, this gap in productivity between men and women in science has closed somewhat, according to the results of a new study by Xie and Shauman to be published soon in the *American Sociological Review* (as cited in Schneider, 1998). Whereas women published only 60% as much as men in the 1960s and 1970s, the numbers rose to 75% to 80% in the 1980s and 1990s. Xie stressed that “All things being equal, women are just as productive as men” (as cited in Schneider, p. A14). Yet, all things are not equal, the professor of sociology emphasized.

**Gender Differences in Development.** Gender differences in development affected women’s adjustment to male-dominated work cultures (Gilbert, 1981). Whereas women’s focus was more relationship- and intimacy-oriented, men’s focus was more egocentric or separate and achievement-oriented (Belenky, Clinchy, Goldberger, & Tarule, 1973; Gilligan, 1982).

Moreover, effectively assuming a university position may necessitate being at a particular developmental stage, one that (a) permits the questioning of personal identity and professional competency, and (b) facilitates formation of an identity, fostering feelings of professional competency. Women typically may not be content with such a
variety of roles and range of responsibilities (American Psychological Association, 1987; Good, 1992).

In addition, when women enter male cultural systems, they often are at a distinct disadvantage. According to Case (1990), they may not know about political “rules” or “how to play the game,” and may be unaware of the importance of “fitting in” (Case). Women may not realize that areas such as promotion and tenure are frequently tied to politics in a hierarchically organized university.

The Importance of Employing Women

Women have been found to create classroom situations in which (a) students report greater confidence, comprehension, interest, and participation (Fassinger, 1995); (b) gender parity is achieved (Hutchinson & Beadle, 1992); and (c) questions and discussions are esteemed, regardless of student gender (Crawford & MacLeod, 1990). However, although "Civil-rights laws and affirmative action got women in the door of the academy [at M.I.T.] and allowed a few to become highly successful scientists, women were seldom granted equality" (Hopkins, 1999, p. B5). Even progressive policies could not completely erase the "'subtle but pervasive' form of gender discrimination that "'stems largely from unconscious ways of thinking that have been socialized into all of us, men and women alike'", one professor wrote (p. B5). The losses in higher education classrooms include both the wasted potential of women and the availability of few role models for female students (Condravy, Skirboll, & Taylor, 1998; Schiff, 1997).
Teachers as Interventionists

Teachers are interventionists for students. Research has shown that teacher involvement with students contributes more than anything else to measurable student success (Astin, 1993). How teachers respond and relate to students is critical to how students perceive themselves and the institution (Schlossberg, Lynch, & Chickering, 1989). Teacher intervention has been shown to be influential in building student self-esteem, motivation, and communication (Barry, 1992). Specifically, Bonsangue and Drew (1995) found that success in postsecondary education was even more related to classroom experiences and expectations than to pre-college preparation.

Statement of the Problem

Women have demonstrated their leadership ability, motivation, and influence by starting and managing successful businesses. However, they have continued to be underrepresented in upper-level managerial and leadership positions in organizations (Gardels, 1998; Kunin, 1996). Women have been found to create effective classroom learning situations. Still, research findings have identified a climate within the higher education academic work environment that is personally and professionally “toxic” to many women (Steward et al., 1993).

Furthermore, some researchers indicate that a similar environment exists for women inside higher education classrooms. Prior studies have shown that some teachers treat the men and women in their classes differentially. Seemingly, it is a problem that is
exacerbated by the small number of women in senior faculty positions and administrative posts (Blum, 1991; Foster, 1994).

Moreover, women's participation in higher education classrooms has been determined to be both qualitatively and quantitatively different from men's participation. Interactive behaviors identified in the research to enhance personal growth and development are reported to occur less often in women than in men (Fassinger, 1995). This difference suggests that women's classroom participation and, therefore, academic potential is constrained by the same kinds of gender dynamics that one would find in the world at large (Condravy et al., 1998).

Finally, researchers have emphasized that teachers in higher education classrooms need to create environments that facilitate learning, providing challenges and supports that foster movements in all students from one stage of development to another (Daloz, 1986; Widick & Simpson, 1978). Yet, some findings have shown various aspects of the college classroom to thwart interaction (Fassinger, 1995).

Expansion Needed in Educational and Career Opportunities

Education is the foundation on which Americans rely to become productive and economically independent citizens, able parents, leaders, and full participants in a racially and culturally diverse society. Both male and female students must be equipped to maneuver the numerous workplace obstacles to be encountered inside and outside academe, as well as the increasing responsibilities they will assume as they advance to the highest echelons of those organizations (Cunanan & Maddy-Bernstein, 1993). Expanded
equity efforts by teachers inside higher education classrooms are crucial to the advancement of young women today, efforts that include influencing career planning, attitudes toward work, vocational and educational aspirations, and family role expectations (Cunanan & Maddy-Bernstein).

**Purpose of the Study**

Educators are daily challenged to make their institutions hospitable to persons of both genders in varying stages of development. The purpose of this study was to investigate the range of motivational factors that facilitate individuals’ assuming leadership roles in the postsecondary classroom and, thereafter, making themselves available for senior faculty positions and administrative posts, or other higher-echelon positions. The factors were (a) teachers’ characteristics and teaching approaches, specifically, actions to encourage students’ interjections and strengthen overall adaptation to learning; (b) students’ characteristics and orientations to learning, specifically, interjections made and overall adaptation to learning; (c) classroom characteristics, course design, and peer expectations and influence, specifically the level of influence on students’ willingness to interact by various aspects of the classroom environments in which they were currently being surveyed.

**Research Questions**

This study provides quantitative data regarding leadership by teachers and students inside higher education classrooms to increase learning at three small private liberal arts colleges in southwest Virginia. The research questions, involving perceptions of teacher
characteristics and teaching approaches, student characteristics and orientations to learning, and various aspects of the classroom environments are as follows.

1. According to student perceptions, is there a main effect of teacher gender, student gender, or an interaction of the two on students' characteristics and orientations to learning in the higher education classrooms in which they are currently being surveyed at three small, private, liberal arts institutions in Virginia?

2. According to student perceptions, is there a main effect of teacher gender, student gender, an interaction of the two on teachers' characteristics and approaches to student learning in the higher education classrooms in which they are currently being surveyed at three small, private, liberal arts institutions in Virginia?

3. According to student perceptions, is there a main effect of teacher gender, student gender, or an interaction of the two on classroom characteristics, course design, and peer expectations and influence in the higher education classrooms in which they are currently being surveyed at three small, private, liberal arts institutions in Virginia?

4. According to teacher perceptions, is there a main effect of teacher gender, teaching style, or an interaction of the two on students' characteristics and orientations to learning in the higher education classrooms in which they are currently being surveyed at three small, private, liberal arts institutions in Virginia?

5. According to teacher perceptions, is there a main effect of teacher gender, teaching style, an interaction of the two on teachers' characteristics and approaches to student learning in the higher education classrooms in which they are currently being surveyed at three small, private, liberal arts institutions in Virginia?
6. According to teacher perceptions, is there a main effect of teacher gender, teaching style, or an interaction of the two on classroom characteristics, course design, and peer expectations and influence in the higher education classrooms in which they are currently being surveyed at three small, private, liberal arts institutions in Virginia?

Limitations

Limitations of this study must be considered. These particular schools are unique institutions with their own special histories of commitment to education. Despite individual, departmental, and divisional differences, these types of institutions do influence teaching in particular directions. For this reason, differences here cannot be generalized to other settings.

The teachers were surveyed during a single class period at each of the three schools as a means to avoid duplicate selections of teachers and students. The researcher does not purport that this selection method provided a faculty and student body representing maximum diversity. However, in the three schools investigated, the time periods designated were those that made available for selection the greatest numbers of classes, and classes consisting of the greatest numbers of students, between 8:00 a.m. and 2:00 p.m.

This is a perception study. The researcher does not allege that the results would necessarily parallel the results of an observation study.
Definition of Terms

Androgynous Teaching Styles

Androgynous teaching styles are viewed as styles that have both masculine and feminine characteristics. Masculine characteristics, here, refer to being more (a) apt to confront students or openly admonish them; (b) teacher-focused, with teachers portraying themselves as authority figures; and (c) direct, or straightforward, in approach (Brophy, 1985; Statham, Richardson, & Cook, 1991). Feminine characteristics, here, refer to being more (a) student-focused, accepting that students have knowledge also and sometimes need to be brought to that realization; (b) indirect; and (c) supportive of students (Brophy, 1985; Statham et al.).

Care Voice

"The care voice may be characterized as emphasizing relationships between persons and seeing self and others as embedded in their specific situations....[seeking] to understand what the other needs and then to respond to these needs as defined by the other and not by the self" (Creamer & Associates, 1990, 36). "Moral dilemmas are seen... in terms of relationships, collaboration, maintaining and restoring relationships, and preventing psychological or physical harm, and are resolved through actions of support, healing, and care. For example, on the night before he died, "Jesus of Nazareth is reported to have ministered to his disciples....[and concurrently] claimed that one disciple would deny and another betray their relationship" (36).
Challenge

Challenge, here, is viewed as the creation of classroom situations in which "interpersonal interactions and self-questioning occur" (Weathersby, 1981, p. 73). Students are encouraged "to participate in classroom discussion" (Boyer, 1987, 145) and to "come to know their own minds" (151). One aspect of facilitating change and fostering movement from one developmental stage to another involves exposing students to the thoughts and ideas of teachers and fellow students, thoughts and ideas that may challenge their own beliefs.

Cognitive-Developmental Theories

"Cognitive-developmental theories attempt to describe the increasing degrees of complexity with which individuals make meaning of their experience with moral questions, questions of knowing and valuing, questions of faith, and questions of what is self and object" (Creamer & Associates, 1990, 35).

Differential Behavior

Differential behavior, here, is viewed as female student behavior that is different from male student behavior, in this case, behavior comprised of initiating fewer interactions in college classrooms than do male students: (a) fewer interactions in all classes; (b) only in classes taught by men; or (c) only in classes where differential treatment has occurred.

Differential Treatment

Differential treatment, here, is viewed as failure on the part of teachers to carry out particular interactive behaviors equally with men and women, behaviors identified in the literature to foster student interaction, for example, engaging student as a full partner in
the learning process, and providing like treatment in granting time, attention, and support; asking direct analytical questions, and allowing appropriate response time; using “reacting moves,” such as repeating, highlighting, amplifying, or encapsulating responses; seeking elaboration; providing positive, definitive feedback; and providing an environment free of gender stereotyping in instruction, interaction, materials, and activities (Hall, 1985; Hall & Sandler, 1982; 1984).

**Divisions of the Curriculum**

Divisions of the curriculum are viewed as the various departments of the academic organization: Business, Education, Fine Arts, Health, Physical Education, and Recreation; Division of Humanities; Division of Science; Division of Social Science.

**Gender-Specific Behavior**

Gender-related behavior is viewed as student behavior characteristic of, or limited to, either male or female students. Here, it involves leadership behavior as evidenced in women.

**Gender-Specific Treatment**

Gender-related treatment is viewed as student treatment characteristic of, or limited to, either male or female students. Here, it involves leadership behavior by teachers that favors men.

**Identity-Achieved Women**

Identity-achieved women were those who had experienced an identity crisis, separated from families, explored options, and chose their identities and lifestyle (Josselson, 1987).
Interactive Behavior

Interactive behavior is viewed as teacher-student, or student-student reciprocal behavior, effect, or influence, verbal and/or nonverbal.

Justice Voice

"The justice voice...is characterized as emphasizing the effects of moral choice on the self or on the other as the self would see it. Moral dilemmas are analyzed in terms of issues and conflicting claims among competing individuals or options. Duty and obligation are the result of impartial analysis using rules and principles of justice" (Creamer & Associates, 1990, 36). In contrast to Jesus, Socrates and his friends, on the night before Socrates' death "engaged in a dispassionate analysis of the competing options open to him" (36) with Socrates concluding that it was his duty to "stay in prison and die" (36).

Learning Style

Learning style is viewed as the student’s characteristic pattern or strategy for acquiring and processing information.

Personal Orientation

Personal orientation is viewed as student commitment to and responsibility for contributing to personal learning and development, as well as to the development of a campus climate in which all can grow and learn.

Psychosocial Development

"Psychosocial development refers to the developmental issues or tasks and life events that occur throughout the life span, and to a given person’s pattern of resolution of the issues and tasks, and adaptation to the events" (Creamer & Associates, 1990, 55).
Support

Support is viewed as creating a classroom environment that is hospitable to students of both genders in varying stages of development. Teachers in a supportive environment are sensitive to the similarities and differences in learners and knowledgeable about research on effective teacher-student relationships as well as effective teaching methods. Both challenge and support are necessary in the resolution of developmental tasks. When "appropriate support is available, the amount of challenge or dissonance can increase" (Rodgers, 1980, p. 41).
CHAPTER 2

LITERATURE REVIEW

Although much progress has been made over the years in ensuring women's equality of education, representation in the work force, and protection under the law, women continue to be underrepresented in managerial and leadership positions in U. S. organizations, particularly in the upper-levels (Adler, 1997; Gardels, 1998; Kunin, 1996).

Women have continued to demonstrate that they possess the necessary leadership qualities and skills, starting and successfully managing 8 million businesses by 1999 (Adler, 1997; Peters, 1999). Yet, they still are not represented in significant numbers in many organizations. Similarly, women's teaching styles have been found to be more person-oriented and student-centered than those of most men (Grossman & Grossman, 1994; Statham et al., 1991). Still, they continue to be underrepresented on many campuses.

The majority of research studies over the past 25 years examining the effect of gender on college classroom dynamics focuses on differential treatment by teachers. The literature review that follows examines studies that explore (a) differential treatment by teachers based on gender (teacher characteristics and teaching styles); (b) differential behaviors by students based on gender (student characteristics and learning orientations); and (c) classroom environments, course designs, and peer expectations and influence.

Discussion in the professional literature emphasizes the need to examine, understand, verify, and support that which happens in the teacher-student interaction process and the
effects of gender on the process. Various studies exist regarding the quality and quantity of teacher and student interaction in the higher education classroom.

Some studies have found that women initiated fewer interactions than men in classes where they were treated differentially (Blum, 1991; Burdenski, 1989; Constantinople, Cornelius, & Gray, 1988; Foster, 1994; Hall, 1985; Hall & Sandler, 1982, 1984; Hutchinson & Beadle, 1992; Karp & Yoels, 1976; Marshall & Reinhartz, 1997; Sadker & Sadker, 1995; Statham et al., 1991; Thorner, 1989). Certain studies have found that women initiated fewer interactions than did men in classes taught by men (Constantinople et al., 1988; Crawford & MacLeod, 1990; Kajander, 1976; Karp & Yoels, 1976; Statham et al., 1991; Sternglanz & Lyberger-Ficek, 1977). Particular studies have found that women were less involved in the exchange of ideas with teachers and other students overall than were men (Auster & MacRone, 1994; Banks, 1988; Canada & Pringle, 1995; Condravy et al., 1988; Constantinople et al., 1988; Crawford & MacLeod, 1990; Hall & Sandler, 1982; Karp & Yoels, 1976; Krupnick, 1985; O'Keefe & Faupel, 1987; Pearson & West, 1991; Sternglanz & Lyberger-Ficek, 1977; Wingate, 1984). Finally, some studies have found that women initiated interactions equally with men (Boersma, Gay, Jones, Morrison, & Remick, 1981; Constantinople et al., 1988; Crawford & MacLeod, 1990; Heller, Puff, & Mills, 1985; Johnson, 1984; Karp & Yoels, 1976; Krupnick, 1985; Nadler & Nadler, 1990; Pearson & West, 1991; Sternglanz & Lyberger-Ficek, 1977; Wingate, 1984).
**Differential Treatment by Teachers**

Adding to the loss, both in teacher excellence and available role models for female students in higher education classrooms, are research findings that have shown some existing teachers to differentially treat male students and female students (Blum, 1991; Burdenski, 1989; Constantinople et al., 1988; Foster, 1994; Hall, 1985; Hall & Sandler, 1982, 1984; Hutchinson & Beadle, 1992; Johnson, 1984; Karp & Yoels, 1976; Marshall & Reinhartz, 1997; Sadker & Sadker, 1995; Statham, et al., 1991; Thorme, 1989). The treatment provided is gender-specific: the use of particular interactive behaviors have been reported to be limited to male students. Researchers have argued for more than a decade that differentially treating men and women in the classroom negatively affects women's levels of confidence, academic goal setting, and career choices (Hall, 1985; Hall & Sandler, 1982).

**Differential Behavior by Students**

Prior research findings have shown women and men to behave differently in the classroom. Women's participation has been found to be both qualitatively and quantitatively different from men's participation. The behaviors occurring are gender specific; the use of interactive behaviors identified in the research to enhance personal growth and development have been reported to take place less often with women than with men (Auster & MacRone, 1994; Banks, 1988; Canada & Pringle, 1995; Condravy, et al., 1998; Constantinople et al., 1988; Crawford & MacLeod, 1990; Hall & Sandler, 1982; Karp & Yoels, 1976; Krupnick, 1985; O'Keefe & Faupel, 1987; Pearson & West,
1991; Sternglanz & Lyberger-Ficek, 1977; Wingate, 1984). This suggests that women’s classroom participation and, therefore, their academic potential as well are constrained by the same kinds of gender dynamics that one would find in the world at large (Condravy et al., 1998).

**Classroom Environments**

Some researchers have determined that particular aspects of the classroom environment, specifically course design and peer influence, make students unwilling to interact, thereby hampering development (Fassinger, 1995). Researchers have emphasized that teachers in higher education classrooms need to create environments that provide both the challenges and supports necessary to foster students’ movements from one developmental stage to another (Daloz, 1986; Widick & Simpson, 1978).

Students are encouraged to participate in classroom discussion, and challenged to come "to know their own minds" (Boer, 1987, p. 151). Teachers in a supportive environment are sensitive to the similarities and differences in learners and knowledgeable about research on effective teacher-student relationships and teaching methods.

One aspect of facilitating change and fostering movement from one developmental stage to another involves exposing students to the thoughts and ideas of teachers and fellow students, those that may challenge their own beliefs. Both challenge and support are necessary in the resolution of developmental tasks. When "appropriate support is available, the amount of challenge or dissonance can increase" (Rodgers, 1980, p. 41).
Teacher and Student Interaction

Teacher-student interaction in the higher education classroom has been shown to be crucial to student learning and development. Prior research has demonstrated that interaction fosters development. According to Weathersby (1981), development occurs when teaching methods include a verbal exchange of ideas and other forms of class involvement and facilitate student decision making.

Research also has shown that teacher-student and student-student interaction nurtures critical thinking (Smith, 1977). A positive relationship has been found between student participation in classroom discussion and learning, motivation, and problem-solving ability (McKeachie, 1970; Smith, 1980).

Processing of Material and Long-Term Learning

Cognitive psychologists (Ausubel, 1968; Gagne, Yekovich, & Yekovich, 1994; Gredler, 1992; Wittrock, 1978) established that long-term learning is dependent on the learner actively processing material. Bransford (1979) and Craik (1979) found that information not actively processed is harder to retrieve from storage, less available for application to new situations, and more easily forgotten.

Additionally, Bloom (1956) found that the higher cognitive processes (analysis, synthesis, and evaluation) required careful instruction and practice. Chickering and Gamson (1987) stressed that students must make the information to be learned a part of themselves. They must talk about it, write about it, relate it to past experiences, and apply it to their daily lives.
Differential Treatment by Male and Female Teachers

Research findings have shown that the type of leadership behavior exhibited by some teachers inside the higher education classroom often is dependent on student gender. Those interactive behaviors identified in the literature to encourage student interaction are not demonstrated as often in teacher interactions with women (i.e., asking direct, analytical questions, and allowing ample response time, and selecting textbooks that provide role models.)

Existence of Differential Teacher Treatment

Women have been found to initiate fewer interactions than men in classes where they are differentially treated (Blum, 1991; Burdenski, 1989; Constantinople et al., 1988; Foster, 1994; Hall, 1985; Hall & Sandler, 1982, 1984; Hutchinson & Beadle, 1992; Karp & Yoels, 1976; Marshall & Reinhartz, 1997; Sadker & Sadker, 1995; Statham et al., 1991; Thorner, 1989).

Karp and Yoels' (1976) study of 10 classes (48% women) determined that some men differentially treat women in the classroom by being less likely to call directly on them. In 1982 Hall and Sandler began to argue, using anecdotal reports supported by several empirical studies, that teachers call on men more than women, both directly and indirectly, interrupt women more frequently, and allow fewer women to respond to questions. In 1984 the two women began to stress that differential treatment of men and women inside the classroom was having a negative impact on women's levels of confidence, academic goal setting, and career choices.
In 1985 Hall cited two types of differential treatment. They are: (a) behaviors that single out women (i.e., using sexist humor; making belittling comments about women in general; addressing women with terms of endearment; and basing evaluation of women on their communication patterns [i.e., overly polite or hesitant speech]), and (b) behaviors that overlook women (i.e., frequent interruptions; providing minimal responses; ignoring questions and comments; crediting comments and ideas to men; treating them in an overprotective or patronizing manner, implying that they were not competent to cope on their own; leaving them out of discussions on the presumption that they did not want to speak and had to be shielded from class discussion; and using the generic "him," masculine examples, and other forms of language that excluded women).

In 1987 a Carnegie Foundation study found that men were expected to dominate classroom communication, a situation that persists despite the ascendency of women’s enrollments on most campuses (Burdenski, 1989). In 1988 Constantinople et al. found that men were slightly more likely to have their comments acknowledged or expanded upon than are women. In 1989 Thomer found continuing student anxiety due to a number of teachers' making sexist remarks in class.

In 1989 Burdenski examined a number of research studies, including those done by the Association of American Colleges, Harvard, MIT, and Michigan State. Findings were consistent that, in coeducational environments, men received more than twice the time and attention from teachers than women received. Findings also determined that women receive less eye contact during lectures, less attention when they speak, and more frequent interruptions by fellow students and teachers.
More recently, although differential treatment of men and women on college campuses was thought by many to be a thing of the past, administrators appointed special panels to assess the conditions in their colleges and universities and determined that differential treatment still existed. Blum (1991) reported, from those investigations, a lack of improvement since a 1973 report at Case Western Reserve University addressed an investigation of women's studies programs and other curricular concerns (Blum, 1991).

Still, in 1992 Hutchinson and Beadle examined the interactions of 26 students who attended two different seminars, one taught by a woman and the other taught by a man. The researchers found that the man more often allowed students to initiate discussions at will, providing greater opportunity for the more assertive students to make interjections.

In 1994 the "chilly climate" hypothesis was again confirmed, and continued action was recommended to reduce chilling practices by teachers (Foster, 1994). Even more recently, researchers found micro-inequities to occur daily in classroom interactions (Marshall & Reinhartz, 1997; Sadker & Sadker, 1995).

Schlossberg et al. (1989) stated that a cold and aloof environment leads women to conclude that they are not first-class citizens, their opinions are not important, and their presence is not significant. Research has shown not only that some teachers differentially treat men and women in this environment, but also that the entire educational community responds differently to men and women as administrators. "We live in a His World and a Her World," (p. 90) the authors concluded, where biases affect both men and women but seem to have a more negative impact on women.
**Time, Attention, Support, and Encouragement.** Teachers need to provide the same amount of time, attention, support, and encouragement, as well as like treatment for both men and women. Giving attention to such issues of equality will enable students of both genders to (a) gain confidence in their abilities, (b) raise their academic goals, and (c) remove the boundaries set concerning career choices, giving men and women more equal opportunities for success after postsecondary graduation.

**Providing Informal Guidance.** Moreover, women should not be advised either subtly or overtly to lower their academic standards or limit their career goals (Hall & Sandler, 1982). Insufficient informal guidance of women who are at crucial transition points for developing professional identities can be damaging. Insufficient informal guidance has been a significant factor in some women's lack of realistic career planning, avoidance of nontraditional fields, and lack of confidence in their potential for academic and career success (Hall & Sandler, 1984).

**No Differential Treatment by Teachers**

Other studies, however, have found no evidence of differential treatment of students based on gender (Boersma et al., 1981; Constantinople et al., 1988; Crawford & MacLeod, 1990; Heller et al., 1985; Krupnick, 1985; Sternglanz & Lyberger-Ficek, 1977; Wingate, 1984).

Boersma et al. (1981) matched classes taught by women with classes taught by men at the University of Washington, classes similar in topic, size, and class level. Observational data from the 50 classes, made up of 2,163 students (54% men), showed no
gender differences in praise given to students, number of interactions with students, likelihood of responding to students, or number of questions asked of students. The study by Sternglanz and Lyberger-Ficek (1977) of 60 classes at State University of New York at Stony Brook also determined that neither men nor women responded differentially to students. Teachers were equally likely to recognize and continue interactions with both men and women. Krupnick's (1985) study at Harvard involving videotaped classes also found no evidence of significant differences in the ways teachers responded to students.

Constantinople et al. (1988) provided the most extensive proof of this. However, their methods of data analysis involved using classroom averages of men’s and women’s behavior. Consequently, they could not account for variances that might have existed among men and among women. Nevertheless, other researchers corroborate their findings, specifically Wingate (1984), who found teachers equally likely to give positive or neutral responses to men and women. Boersma et al., however, did find female teachers to offer longer responses to female students, whereas Constantinople et al., reported that teachers expanded upon male students’ comments more often.

The self-report study by Heller et al. (1985) surveyed 429 undergraduates at Franklin and Marshall College, with students in psychology, economics, and classics courses volunteering to complete the survey, with approximately equal numbers of men and women in each class sample. Data revealed no difference in the quantity and quality of interactions. In addition, the study completed by Crawford and MacLeod (1990) at two institutions showed that students perceived teachers to treat students alike when class sizes were similar.
Differential Teaching Methods

Prior research has examined teaching methods in higher education classrooms. Some findings indicate that women interact less in classes taught by men (Constantinople et al., 1988; Crawford & MacLeod, 1990; Kajander, 1976; Karp & Yoels, 1974; Statham et al., 1991; Sternglanz & Lyberger-Ficek, 1977).

Fewer Interjections in Classes Taught by Men

Boersma et al. (1981) found women's activity to be slightly increased in classes taught by men. Yet, Sternglanz and Lyberger-Ficek (1977) at State University of New York found the greatest responsiveness among men to be in classes taught by men. Pearson and West (1991), Krupnick (1985), Sternglanz and Lyberger-Ficek (1977), and Karp and Yoels (1976) found that men asked more questions than did women in men's classes.

Hutchinson and Beadle (1992) examined the interactions of students who attended two different seminars, one taught by a man and the other taught by a woman, and found that men spoke, both more often and for longer periods of time than did women in men's classes. Krupnick (1985) also found that men spoke much longer in the classrooms of men. The teaching approaches of men have been described as highly teacher- and subject-centered and direct (Brophy, 1985; Grossman & Grossman, 1994).
Greater Interaction in the Classes Taught by Women

Students in Crawford and MacLeod (1990) and Banks (1988) indicated that women encouraged more classroom interaction. Auster and MacRone (1994) found that classes taught by women were more likely to be identified by students as those in which they participated most.

Fassinger (1995) determined that teacher gender and style of relating to students significantly affected women's self perceptions and behaviors. Women reported greater confidence, comprehension, interest, and participation in classes led by women.

Hutchinson and Beadle's (1992) examination of student interaction in the two different seminars found that the women achieved gender parity by closely managing discussions, designating specific students to speak. Women in Crawford and MacLeod's (1990) study were found to be more effective than men at creating classroom situations where student questions and discussions were esteemed, regardless of student gender.

In addition, Krupnick (1985) determined that women spoke almost three times longer in women's classes than they did in men's classes. However, they still did not speak as long as did men.

Also, Constantinople et al. (1988) found that students volunteered more, made more follow-up comments, and responded to fellow students more often in the classes of women. However, higher participation in women's classes also has been traced to size of the classes, number of men in the classes, and to particular divisions of the curriculum (Fassinger, 1995).
Statham et al. (1991) found that women were more concerned than were men with involving students extensively in the learning process, encouraging more student participation, providing more positive and negative feedback, and acknowledging student comments. However, Statham et al. (1991) did not collect data on the gender of students he called upon.

Sears and Hennessey (1996) found that, overall, students felt closer to women in the classroom. Women were found to be better at making students feel that they were understood and that their participation was valued. The women also were found to more often call students by name.

A positive correlation also was found between the proportion of women teaching and the proportion of women achieving (Tidball, 1973). Rice and Hemmings (1988) suggested that the supportive environment and presence of same-sex role models were contributing factors.

Behrens' (1993) study concerning what teachers did to produce student success in the classroom found that women responded at levels higher than those of men in the areas of matching instruction to student ability, teaching students to think for themselves, and showing enthusiasm when teaching. Researchers also have examined the possible beneficial effects of particular characteristics of women's speech and behavior. Sandler (1988) concluded that such characteristics could be helpful in promoting an unbiased scholarly climate based more on collaboration than on competitiveness.
Limitations of Previous Research

This study will extend previous research by addressing the following concerns.

The Role of Student and Classroom Characteristics in Interaction

To date, little research has been done on the effects of (a) students' characteristics and orientations to learning on interactive behaviors, and (b) classroom characteristics, course design, and peers' expectations and influences on the frequency of classroom interjections. This study extends earlier findings by anticipating that both students' characteristics and orientations to learning and classroom characteristics play important roles in classroom participation.

Perceptions and Interpretations Concerning Interaction

Social scientists contend that perceptions and interpretations guide human conduct (Berger & Luckmann, 1966; Fassinger, 1995). Reports based solely on observational methods prevent examination of student and teacher perceptions of classroom climate issues (Fassinger, 1995). This study extends earlier studies by investigating teachers' and students' perceptions concerning student characteristics and classroom characteristics, anticipating that each possesses characteristics that affect students' willingness to interact in the classroom, for example, interest, comprehension, and confidence; course design; and peer expectations and influence.
Perceptions of Self, One Class, and One Teacher

Teachers and students are diverse in personal characteristics, teaching approaches, and the strength of their learning orientations. Classrooms are environmentally diverse in peer characteristics and course designs. This study extends earlier ones by investigating, only, each student's perception of his or her (a) personal characteristics and orientation to learning, (b) teacher's characteristics and teaching style, and (c) classroom's environment, the course design, and peer expectations and influence. It also investigates, only, each teacher's perception of his or her (a) students' overall personal characteristics and orientations to learning, (b) personal characteristics and teaching style, and (c) classroom's environment, the course design, and peer expectations and influence.

Differential Behaviors by Students

Research findings have shown that leadership behavior exhibited inside the higher education classroom is often gender-specific. Women's participation has been found to be both qualitatively and quantitatively different from men's participation.

Interactive behaviors identified in the literature to enhance personal growth and development do not occur as often with women (Fassinger, 1995). Such behaviors include asking questions and making comments; interjecting ideas in ways that elicit feedback; and responding to teacher's direct and indirect questions, both analytical and factual.
Existence of Differential Student Behavior

Prior research results have shown women to be less involved in the sharing of ideas with teachers and other students (Auster & MacRone, 1994; Canada & Pringle, 1995; Condravy et al., 1988; Constantinople et al., 1988; Crawford & MacLeod, 1990; Karp & Yoels, 1976; Krupnick, 1985; Pearson & West, 1991; Sternglanz & Lyberger-Ficek, 1977). Karp and Yoels (1976) determined that men were responsible for the majority of interjections that occurred in higher education classrooms, with 75.4% occurring in classes taught by men, and 57% in classes taught by women, even when the classes are made up of equal numbers of men and women. This study, however, failed to match classes by level or subject, excluding the possibility that age, class subject preference, or year in school could interact with gender to produce the observed differences.

Sternglanz and Lyberger-Ficek's (1977) study of 60 college classrooms also showed men to be disproportionately more likely than women to initiate and respond in most classes, even in those in which they were in the minority. Krupnick's (1985) observational analysis of student and teacher interaction in 24 undergraduate classes at Harvard University showed that women also spoke for shorter periods of time than men. However, men constituted a majority in the classes involved.

Pearson and West (1991) audiotaped a one-hour session of each of 15 classes in a study that involved asking questions, and discovered that whereas men and women did not differ significantly in the frequency of questions asked overall, men asked more questions than women did in classes taught by men. Constantinople et al. (1988), in an observational study of 48 classes at Vassar in the arts, social science, and natural science...
divisions of the curriculum, found women to be only slightly less active in the classroom than men. Men constituted a majority of those present in only a few of the classes.

Crawford and MacLeod's (1990) self-report study, involving 68 classes, at West Chester College and Yale University, found size of the classes, but not gender, at West Chester College to influence interaction. The researchers found women to be less involved in the verbal exchanges of the classroom at Yale University. Women, here, made up 52% of the sample, and women taught 38% of the classes.

One observational study of 46 all-female classes and 57 mixed-gender classes, done at an all-women's college that later became coeducational (Canada & Pringle, 1995), showed that, although women engaged in more initiations of interaction than did men in mixed-gender classrooms, both women's and men's initiations declined as the proportion of men in the class increased. Similarly, follow-up discussions by women outnumbered those of men in mixed-gender classes. However, as the proportion of men increased, the situation reversed itself with women's follow-up discussions decreasing and men's follow-up discussions increasing.

According to Condravy et al. (1998), a majority of teachers perceived that men interrupted other students more frequently than did women and assumed the role of leader when working in mixed groups. The researchers also perceived that women contributed more than men when called upon, sought more help outside of class, and were more open to constructive criticism.

Auster and MacRone (1994) interviewed 132 students about their participatory behavior in current classes and found that men were significantly more likely than women...
to report participating often in class and feeling very comfortable in class, especially
during the first three years of college. Both men and women identified classes taught by
women as those in which they participated most.

Women's Rationales for Nonparticipation

Crawford and MacLeod (1990) found that women’s rationales for nonparticipation
involved numerous concerns including (a) ideas not well formulated, (b) not knowing
enough about the subject matter, (c) being perceived as unintelligent by fellow students,
and (d) other students not respecting their points of view.

Communication Style Differences. Hall (1985) contended that stylistic differences in
communication are often found between men and women (Hall, 1985). She argued that
women tend to (a) use less assertive speech; (b) use more personal styles with too much
self disclosure; (c) smile inappropriately when making important statements; and (d)
either avert their eyes or make direct eye contact for excessive periods of time.

Glaser and Smalley (1992) maintained that women undermined their authority in the
workplace by the way they communicated, specifically, by their use of language to seek
confirmation, create connections, and reinforce intimacy. Aisenberg and Harrington
(1988) stated that women often transferred the emotional attachment so necessary in
maintaining a family to the public sphere. As a result, they may have found it difficult to
set a monetary value on their work, and they may have taken rejection very personally.
The researchers used this potential for conflict to explain women’s different
communication styles, contending that their choices of style came from a fear of damaging relationships.

North (1991) found that women spoke less and listened more, and tended to speak using deferential speaking patterns that were often associated with being a subordinate. Hall (1985) stressed that women must learn to finish sentences, insist that their questions be answered, and not stop asking questions. According to Hall and Sandler (1984), women must not invite interruptions or inattention by displaying behavior that might lead teachers to perceive them as frivolous, uncertain, or less competent.

Women, in general, tend to wait longer to respond to questions in class, choosing their words carefully, reflecting on questions, and constructing answers before they speak. Men, on the other hand, tend to respond to questions more confidently, aggressively, and quickly, regardless of the quality of their responses; and tend to speak more freely and spontaneously, formulating their answers as they speak (The New England Consortium for Undergraduate Science Education, 1996).

Past socialization in elementary and secondary schools has been cited as playing a causal role in maintaining classroom inequality at the college level (Hall & Sandler, 1982). The very act of speaking signifies an avowal of equality and goes against the grain of the socialization of many women (Campbell, 1985). As a result, speaking up becomes difficult and threatening (Campbell, 1985). Though many women submit superior written work, even the brightest often remain silent in class and wait until the class is over to approach the teacher about issues raised in the discussion (Boyer, 1987).
Hall (1985) stated that women must learn to speak out, interacting with classmates. The quality of these interchanges can signal acceptance of women as true peers and potential partners in the wider professional world, communicating that women are viewed by men as intellectual equals.

Campbell (1985) stated that women have needed much encouragement to do this, however, because the very act of speaking, for them, may be an affirmation of equality and a violation of much traditional socialization. Crawford and MacLeod (1990) stressed that women seemed to feel that they need to know a great deal about subjects under discussion and to be very well prepared before expressing their ideas in class, possibly because they, more than men, fear the possibility of negative evaluations by teachers and other students.

Confirmation of Ability to Learn. Other researchers have concluded that female students simply need confirmation of their ability to learn. The researchers stressed that women have been taught for years that men are more able than women to reason, and to correct this misunderstanding, women need opportunities to observe teachers, both men and women, in situations where they solve and fail to solve problems (Belenky, Clinchy, Goldberger, & Tarule, 1986).

Learning is a process of discovery in which students are the main agents, not teachers (Boyer, 1987). Belenky et al. (1986) found that women in their study expressed (a) possessing latent knowledge; (b) needing teachers to help them articulate and expand that knowledge; and (c) needing confirmation of themselves as knowers. Boyer (1987)
discussed two teachers, both men: One believed it was his responsibility to bring out the potential that lay idle within each student, and the other believed his teaching style should include encouraging and coaching students. The second teacher emphasized that teachers, as a whole, need to help students come to know their own minds, becoming independent thinkers.

Perry (1972) described a developmental progression, from teachers' initially appearing to students to be authorities who know all of the right answers to teachers ultimately being revealed as learners also. Perry contended that this is a revelation that might occur earlier if teachers would begin to think aloud with their students in the classroom (Belenky et al., 1986).

**Fear of Competition.** Helmreich and Spence (1983) identified three components of achievement: (a) mastery, (b) competitiveness, and (c) lack of concern about others' reactions to one's achievement. However, in a study comparing men's and women's achievement, Griffin-Pierson (1986) found women's scores on competitiveness to be generally lower than men's scores. These two findings provide evidence in support of Gilligan's (1982) hypothesis that it is not achievement that women fear but the possible rift in human relationships brought about by the competition.

Studies have repeatedly shown that many intelligent and strongly motivated students left the sciences because they were discouraged by the competitive atmosphere (Astin, Green & Korn, 1987; Green, 1989; Seymour, 1992). Seymour (1993) found that more than one third of the students switching out of science, math, or engineering fields
indicated that one of their primary reasons for doing so was that their morale had been undermined by the competitive culture.

**Women Learn Differently.** Philbin, Meier, Huffman, and Boverie (1995) found that men and women had different learning styles. The researchers also determined that men found congruence between traditional education and their learning style, whereas women did not. Paterson and Hart-Wasekeesikaw (1994) determined that a distinguishing feature of teaching and learning in traditional aboriginal cultures, such as that of Native Americans, had been respect for the learner's unique way of knowing. Such practices could be appropriate for faculty mentors of women.

Chickering (1969) noted that the impact or effectiveness of a given learning experience depended on the characteristics of the person who encountered it. Such characteristics, he added, might include learning style, assumptions about knowledge and learning, self-confidence, and willingness to take personal and intellectual risks.

Teachers, instructional development personnel, and student advisors need to be aware of the vast array of student learning styles present in college classrooms (Pinto, Geiger, & Boyle, 1994). A variety of teaching techniques need to be used in an attempt to actively engage all students at some point.

In addition, individuals who work with college students, and the students themselves, should expect some degree of learning preference changes over the course of the college experience. Although the extent and actual direction of change is variant across
individuals, this research supports the contention that college student learning styles are metamorphic (Pinto et al., 1994).

Furthermore, educators need to determine if particular college courses or teaching approaches to subject matter are congruent with students’ actual stages of learning preference. If, for example, first- and second-year students are required to perform extensive amounts of active experimentation, they may not yet possess the necessary knowledge or familiarity with the subject matter to allow them to effectively take part in the “what if”-type scenarios required at this learning stage (Pinto et al., 1994).

Giving attention to learning-style preferences is important. Lenehan, Dunn, Ingham, Signer, and Murray (1994) provided an experimental group with homework prescriptions based on their identified learning-style preferences. Students in the experimental group achieved statistically higher science grades, grade-point-averages, curiosity about science scores, and lower anxiety and anger scores than students in the control group.

However, specific pedagogical approaches may have a more profound impact on the manner in which students attempt to acquire information than even personal cognitive growth needs (Pinto et al., 1994). Although upper-level college students seem to prefer active experimentation learning techniques over memorization, the shift may, in fact, be due to a necessary response to varying pedagogy encountered in upper-level college courses (Pinto et al., 1994).

Learning styles should be examined for their effects on equity and classroom climate (McCormick, 1994). Learning style is independent of the ability to learn and of intelligence (McCormick, 1994; Witkin, Moore, Goodenough, & Cox, 1977). According
to the National Task Force on Learning Style, it is the “composite of characteristic cognitive, affective, and physiological behaviors that serves as relatively stable indicators of how a learner perceives, interacts with, and responds to a learning environment” (Keefe & Languis, 1983, p. 1; McCormick, 1994)

Traditionally, students have been deemed successful when they used analytical, cognitive learning styles and when they were individualistic, independent, competitive, and able to engage in highly abstract, analytical, linear, and logical thinking (McCormick, 1994). Teaching methods and determinants of school success reportedly have been “fine-tuned” to benefit students with analytical learning styles, mostly white men (Cohen, 1968; McCormick, 1994).

Conceptions of Knowledge and Truth. One concern expressed by Belenky et al. (1986) was that “conceptions of knowledge and truth that are accepted and articulated... have been shaped throughout history by the male-dominated majority culture” (p. 486). Owens (1995) stated that the systematic development of knowledge in educational administration and in organizational behavior may be viewed as effectively describing the world as men have understood it, a description of the world as viewed through a “male prism” or a “male lens” (Shakeshaft, 1987, p. 150).

Shakeshaft (1987) posited an “androcentric” perspective, which was defined as the practice of viewing the world and shaping reality through a male lens. According to the researcher, androcentrism represents the elevation of the masculine to the level of the
universal and the ideal and, therefore, honors men and male principles above women and female principles (Shakeshaft, 1987).

Belenky et al. (1986) concluded that this perception created a belief in the superiority of men and a masculine value system in which women's values, experiences, and behaviors were viewed as inferior. This masculine bias may have existed in most traditional educational curricula and pedagogical standards.

**Men's Experience and Competence.** A second concern expressed by Belenky et al. (1986) is that developmental theory has established men's experience and competence as a baseline against which both men's and women's development is then judged, often to the detriment or misreading of women. Shakeshaft (1987) stressed that the theoretical frameworks that have emerged over the years in educational administration have been built around men's behavior. Shakeshaft asked if theories that prescribe action work just as well for women as for men; if theories that explain men's behavior also explain women's behavior; and if we can generalize from the world of male administrators to the world of female administrators?

**Need for Building Confidence in Intellectual Ability.** Women also need to build confidence in their intellectual ability. In Strenta et al. (1994), even when their grades were the same as those of men, women in science and social science felt less confident about their ability and more depressed about their progress than did the men. Between 70 and 80% of women who switched out of the science track felt discouraged and suffered a
loss of self-esteem, even though their grades were similar to the grades of men in the program (Seymour, 1993).

A survey of over 1,000 students in 51 classes to determine the impact of class norms and other qualitative dimensions of the classroom on student participation found that six variables significantly correlated with student participation. They were: confidence, interest in subject, gender, class size, student-to-student interactions, graded participation, and emotional climate, with confidence being the strongest (Fassinger, 1995).

Heilman, Simon, and Repper (1987) suggested that when individuals had doubts about their competence to perform a job effectively, nonwork-related preferential selection was likely to have adverse consequences on how they viewed themselves and their performance. Although the self-perceptions and self-evaluations of women in their study were negatively affected by the sex-based preferential selection method, men’s were not. Women in the study devalued their leadership performance, took less credit for successful outcomes, and reported less interest in persisting as leaders. Women also characterized themselves as more deficient in general leadership skills.

According to Schlossberg et al. (1989), women needed to gain confidence in their managerial ability. Results showed that men, as they grew older, became more concerned with interpersonal relations and with expressive rather than instrumental goals. Women, however, as they grew older, became more involved in the external world, moving from a passive to an active stance. The implication here was that some older women were at least as well suited as older men to positions that demanded executive ability.
Students as Leaders in the Postsecondary Classroom

Recent scholarship has emphasized the importance of student effort and involvement in their academic and co-curricular activities as the decisive elements in promoting positive college outcomes (Davis & Murrell, 1994). The researchers added that, as colleges struggle to extend opportunities, an accompanying expectation for students to assume responsibility for their own education often is lacking.

The Impact of Student Effort on Growth and Change

Some research findings have shown that active, self-directed learning by students contributes more than anything else to measurable student success (Astin, 1993). Cooper, Healy, and Simpson (1994), in a summary of studies and outcomes, supported the view that the quantity and quality of student effort (involvement) had a significant, positive relationship on growth and change in college. Involvement, here, is defined as occurring with teachers, fellow students, and in extracurricular activities.

Growth and change have been examined in intellectual, interpersonal, moral, and cognitive domains (Pascarella & Terenzini, 1991). Data presented support the importance of involvement on cognitive development, educational aspirations, persistence, education attainment, occupational choice and attainment, and interpersonal and social self-concept (Cooper et al., 1994).

has shown that students who were involved in cocurricular activities reported more positive educational and social experiences overall, increased intellectual and leadership development, and success in academic and career goals. They also were more likely to persist through graduation (Cooper et al., 1994).

Astin (1984) described the relationship between student involvement and learning through four postulates. They are (a) involvement is defined as the investment of psychological and physical energy in the student experience; (b) involvement occurs along a continuum, with students investing different amounts of energy in a given activity; (c) involvement has both quantitative and qualitative features; and (d) the amount of student learning and personal development associated with any educational program is directly related to the capacity of that policy or practice to increase student involvement.

Astin's (1984) involvement model underscored the importance of student connection to activities and structures of the institution. The value of joining an organization or group compatible with student interests is based on several assumptions grounded in theory: (a) that environmental attraction, personal satisfaction, and stability are enhanced in a congruent, differentiated environment (Holland, 1973); (b) that student likelihood for finding support is increased by joining a group (Skinner, 1953); and (c) that student involvement on campus positively affects persistence, self-esteem, and satisfaction with most aspects of college life (Astin, 1984).

Altruistic values and social concerns also have been found to increase with involvement in leadership activities (Pascarella, Smart, & Ethington, 1985). Boyer
(1990) and his colleagues concluded that if a balance can be struck between individual
interests and shared concerns, a strong learning community will result, providing
opportunity for students to both meet educational needs and prepare themselves for social
and civic obligations.

Need for Feedback. Women need to interject ideas in classes in a manner that brings
feedback from teachers. Research findings (Constantinople et al., 1988; Krupnick, 1985)
have shown that men received more feedback from teachers not because they were men
but because their participation was rewarding and carried the class in a direction that the
instructor saw as beneficial. Women must be taught to be more perceptive and observant
as they make decisions concerning what to interject, so as to receive similarly
constructive teacher and student feedback.

Sadker and Sadker (1992) revealed striking differences in college classroom
participation patterns across gender, race, and ethnicity. However, trained teachers could
change these patterns. According to the researchers, an American University
experimental equity-training program illustrated that trained faculty were 38 % more
interactive than the control group, giving more precise feedback to all students.

Personal Achievement. Gilligan (1982) stressed that women must place a high
priority on personal achievement. According to the researcher, men valued personal
achievement over personal relationships, whereas, women valued personal relationships
over personal achievement.
**Personal Orientation.** Fagenson (1986) conducted a survey of 260 female entrepreneurs and managers who had reached low, middle, or high levels in organizations, and found that when women finally were able to advance in their careers, it was due both to organizational opportunity and personal orientation (Bass, 1990). Indeed, institutions need to work to create climates in which all students feel welcome and able to fully participate. However, it is equally important that ethical standards be nurtured, standards that demand student commitment and promote student responsibility. Students can contribute to their own learning and to the development of a campus climate in which all can grow and learn.

**No Differential Behavior by Students**

Some studies have shown essentially no difference between male and female students in the numbers and types of interactions in which they have engaged (Boersma et al., 1981; Heller et al., 1985; Karp & Yoels, 1976; Krupnick, 1985; Nadler & Nadler, 1990; Pearson & West, 1991; Sternglanz & Lyberger Ficek, 1977).

Boersma et al. (1981) revealed no real difference in the quantity and quality of interaction in college classrooms. Men's activity was found to be only slightly increased in classes taught by women, and women's activity was found to be only slightly increased in classes taught by men. The study showed that men were not more likely than women to respond to teachers' initiating comments; nor were men more likely to start the interaction process with the instructor.
Heller et al. (1985) showed no differences in any of the behaviors that Hall and Sandler (1982) discussed. Women perceived less teacher usage of sexual humor than did men. Moreover, the reported frequency with which women were asked analytical questions requiring critical skills exceeded that reported by men, and the frequency with which women were asked simple factual questions was lower than that for men.

Karp and Yoels (1976) found that responses from men and women to teacher initiation attempts occurred in equal numbers in classes taught by women. The findings of Pearson and West (1991) and Krupnick (1985) reinforced those of Karp and Yoels. Sternglanz and Lyberger Ficek (1977) supported the findings that men and women did not differ significantly in the frequency of questions asked overall.

Nadler and Nadler (1990) surveyed 272 undergraduate students concerning perceptions of class-related interaction and reported that none of the predicted gender differences were supported. Men did not report initiating more interactions or receiving more supportive behavior than did women, and women did not report receiving more dominant behaviors than did men.

Creating a Learning Climate

Rodgers (1990) argued that intentional use of theory has to be anchored in person-environment interaction to ensure its most professional application. College environments (e.g., programs, relationships, policies), the researcher added, can be created appropriately, thereby facilitating the resolution of tasks and adaptations to events or inappropriately, getting in the way and hindering development.
Student Development Defined

"Student development comprises the ways that students grow, progress, or increase developmental capacities as a result of enrollment in an institution of higher education" (Creamer & Associates, 1990, p. 27). However, it can involve so much more than this.

One usage of the concept is programmatic. Student development in this context is "what teachers and student affairs staff do to facilitate learning and development" (Creamer & Associates, 1990, p. 27), including creation of the various environments, services, programs, and policies. This usage may or may not be based on the theories and research available concerning development (Creamer & Associates). Student development theories help to explain the complexities of student behavior, change, and growth.

Goals of Student Development

Chickering and Havighurst (1981) held that student development was the principal aim of higher education and that its accomplishment was the obligation of all college educators. The researchers stressed that the goal of student development should be to promote growth of the whole student. Brown (1989) contended that the role of the student development educator should be to encourage this growth.

Planning and Program Development

Chickering and Havighurst (1981) stated that many of the goals and much of the content of courses could be dealt with in ways that reinforced capabilities for accomplishment of the chief developmental tasks. Many of our standard teaching
methods, they stressed, could be used to foster students' individual development through direct learning experiences and teacher-student interaction.

Chickering and Havighurst (1981) stressed that educational planning and program development in colleges and universities needed to be rooted in theory and research. However, they said, the gap between theory and practice remained large, partly because too few educators had learned theory in depth.

Rodgers (1990) contended that educators, first, must learn how developmental change takes place in order to set appropriate goals and design practice to create environments that help students learn and mature. Educators, the researcher stressed, need to know how to create environments that facilitate the learning and maturation processes of all students. They must learn about the constructs and propositions of theory in order to use theory to understand and explain student behavior, environmental influences on behavior, and student-environment interaction, stated Rodgers.

Miller and Prince (1976) argued that "the intentional student development approach [sought] to meet the needs of all students, to plan change rather than react to it, and to engage the full academic community in this collaborative effort." (p. 21) Rodgers (1990) stated that intentional use of theory must be anchored in person-environment interaction to ensure its most professional application, and that assessment of both person and environment was essential to adequate developmental programming.

Katz (1988) theorized that further knowledge was necessary about how students learn. He also emphasized that information was needed concerning their motivations and aspirations and the conditions that inhibited learning or made it possible.
In trying to design an education appropriate for all students, faculty and administrators must take into consideration today’s university. It is one that presents many challenges due to the diversity of its student body (Statham et al. 1991).

**Formal Theories of Student Development**

Student development theories help to illuminate the complexities of students’ behavior, change, and growth (Creamer & Associates, 1990). They include the ways that students grow, progress, or increase their developmental capacities as a result of enrollment in an institution of higher education (Creamer & Associates; Rodgers, 1990).

More recently, student development has come to represent the body of research and theories on late-adolescent and life-span adult development, made up of works in the families of theory termed person-environment interaction, psychosocial, cognitive-structural, and typological theories of student development (Delworth, Hanson, & Associates, 1989; Knefelkamp, Widick, & Parker, 1978; Rodgers, 1980). The concept of student development can be used as a philosophy, the ideological basis for actions or the rationale for programs (Creamer & Associates, 1990; Rodgers, 1990). Finally, a third usage is programmatic; student development is what student affairs staff and teachers do to facilitate learning and development (Creamer & Associates; Rodgers).

**Psychosocial Theories**

The foundations of psychosocial developmental research were laid by Jung (1954, 1961, 1969, 1971), Buhler and Massasrik (1968), Erikson (1950, 1968), Havighurst (1948), and Sanford (1956, 1962a, 1962b). Psychosocial development refers to the
developmental issues, tasks, or life events that occur throughout the life span, and to a
given person's pattern of resolution of the issues and tasks, and adaptation to the events
(Creamer & Associates, 1990; Delworth et al., 1989; Rodgers, 1984b).

Some of the issues, tasks, and events are age-graded (their timing, duration, and
nature are similar for many individuals of the same chronological age). For example,
most traditional-age college students are in the stage of identity vs. role confusion as
described by Erikson and detailed by Chickering. These 18 to 23-year-olds in our culture
struggle to determine who they are (identity), whom they will love (sexuality and
intimacy), and what they will believe (values and lifestyle) (Rodgers, 1990).

Some of the issues, tasks, and events are history-graded (normative for a given age
group due to the group's unique historical experience, such as the Great Depression or the
civil rights era). Some are unanticipated life events, such as the unexpected illness or
death of a parent. College environments can appropriately challenge and facilitate the
resolution of tasks and adaptations to events or get in the way and hinder development (as

Gilligan (1986a) contended that two kinds of identity formation existed, two different
processes for resolving psychosocial issues such as vocational choice, and two different
ways of constructing problems, making decisions, and resolving conflict. Identity
formation for a "care-voiced person," the researcher contended, could be best facilitated
within a framework of relationships and dialogue, dialogue placing emphasis on speaking
and listening, on being heard and making oneself understood, tying self-definition to
active engagement with others. Educating both voices requires educators to use processes applicable to both orientations, she emphasized.

Cognitive-Structural Theories

Cognitive-developmental (structural) theory refers to the sequence of meaning-making structures through which people perceive, organize, and reason about their experiences (Delworth et al., 1989; Rodgers, 1989), or the underlying thought processes that people use to understand their experiences (Creamer & Associates, 1990; Rodgers, 1990). More adequate constructions develop over time and in response to challenging learning opportunities (Creamer & Associates; King, 1990).

Cognitive-developmental theories attempt to describe the increasing degrees of complexity with which individuals make meaning of their experience with moral questions (Kohlberg, 1984), questions of knowing and valuing (Kitchener & King, 1981; Perry, 1970), questions of faith (Fowler, 1981), and questions of self and object (Kegan, 1982; Loevinger, 1976).

Because many cognitive-developmental theories resulted from studies using male subjects, the question has been raised concerning the possibility that cognitive-structural theories are gender-biased in favor of men (Rodgers, 1990). The issue of whether or not men and women make meaning in similar or different cognitive-structural ways was the focus of research and speculation throughout the 1980s.

Carol Gilligan determined that two structures of moral reasoning existed. Women, she stressed, used a “care voice,” and men used a “justice voice.” The “care voice” emphasizes relationships between persons and sees self and others as embedded in their specific situations. Within these situations care seeks to understand what the other needs and then to respond to these needs as defined by the other and not by self.

The “justice voice” emphasizes the effects of moral choice on the self or on the other as the self would see it from the other’s shoes (Kohlberg, 1984). These effects are evaluated through rules and principles of fairness and relationships of reciprocity. Kohlberg’s scoring system used justice-oriented dilemmas as stimuli to which subjects responded, and his scoring manual was based on justice criteria for assigning stages to protocols.

If such stimuli brought about more justice responses, even from care-voiced persons, and if such rating criteria generated scores representing care persons as lower in developmental level than comparable justice persons, then there may have been a systematic bias against the care voice in Kohlberg’s (1984) theory and measurement, Gilligan (1986a, 1986b) contended.

Kohlberg rejected Gilligan’s (1986a, 1986b) ideas, arguing that there was one justice structure of moral reasoning with two styles of expressing it. Furthermore, when age, occupation, and educational level were held constant, Kohlberg contended, the research did not support the conclusion that men scored higher than women.

Gilligan (1986a, 1986b) claimed that Baumrind (1986) and Haan (1985) controlled for educational levels and found women to score lower than did men. In addition, a third
study, she said, controlled for age, occupational level, and educational level and found persons with care orientations (86% women) to have significantly lower Kohlberg (1984) stage scores than did individuals with predominant justice orientations (69% men). This suggests that gender differences, reported in Kohlberg’s (1984) measure, emanated not from gender per se but from the greater care orientation, a finding reflecting the fact that Kohlberg conceived moral judgment within the single perspective of the justice orientation.

Gilligan (1986a, 1986b) was careful to point out that subsequent research indicated that all men and women used both voices, but everyone had a preference that was used most often, and probably was better developed. She said that approximately 80% of women preferred the care voice, and approximately 70% of men preferred the justice voice.

The debate is important, because the differences in the two voices have practical implications for higher education. Care-voiced persons seem to prefer dialogue discussions in which students rely on each other and their teachers for understanding, comfort, and support (Gilligan, 1986a). They prefer collaborative, supportive discussions instead of competitive debates; an interdependent atmosphere that facilitates the building of relationships; and learning by sharing and listening to each other (Gilligan).

On the other hand, is it possible that most college teaching, and even educational policies benefit the justice voice more than the care voice? For example, if classroom procedures focus only on the adequacy of a student’s justice reasoning, perhaps using debate as a forum for learning and as a stimulus for cognitive development, that design is
based on the assumption that care-voiced students learn best in the same environment as justice-voiced students. Such a design may not provide the optimal environment for facilitating the development of a care-oriented student (Creamer & Associates, 1990).

Seemingly, women start college slightly ahead of or equal to men; however, they finish college slightly behind (Creamer & Associates, 1990). Therefore, is it possible that institutions of higher education have a more positive effect on the intellectual or epistemological development of men than on the development of women. Baxter Magolda’s (1988a, 1988b) longitudinal study using the Measure of Epistemological Reflection (MER), normed using both men and women, found stylistic differences between her male and female students, but not structural differences.

Stylistic differences are important because of their implications for differential ways of teaching and offering programs. Because men seem to enter college behind or equal to women in intellectual development and leave college ahead, there is some support to conclude that college environments meet the learning needs of men more than the needs of women. If one voice, style, or type goes unheeded due to biased learning environments, everything we do in college teaching may need to be systematically redesigned to accommodate two voices, styles, or types (Creamer & Associates, 1990).

Astin et al. (1987) and Palmer (1987) seemed to agree. They characterized the environment of higher education as competitive rather than collaborative, individualistic rather than communal, objective rather than related, and exclusive rather than inclusive.
**Person-Environment Interaction Theories**

Person-environment interaction refers to various conceptualizations of the college student and the college environment and the degree of congruence that occurs when they interact (Delworth et al., 1989; Rodgers, 1989). Campus ecology examines the interaction of students and their campus environments or subenvironments (Creamer & Associates, 1990; Rodgers, 1990).

The intent of campus ecology studies has been to assess and, if necessary, redesign campus environments for increased satisfaction, better performance, and personal, intellectual, and social development (Creamer & Associates, 1990; Rodgers, 1990). However, most of the published works and dissertations on campus ecology seem to have used tailor-made, local, atheoretical environmental assessments or, when theories have been used, they have not been developmental theories (Creamer & Associates; Rodgers). Fortunately, in the 1980s developmental theorists began to ask how student development principles could be integrated directly into campus ecology methodologies (Rodgers, 1984a).

Given the same environment, some students may succeed and others fail; some may develop, whereas others do not. Students, their environments, and the interaction between the two, as well as the different student genetic heritages and histories, are involved in these differential outcomes (Creamer & Associates, 1990; Rodgers, 1990).

Students can experience the same environment differently. Similarly, when the environment is altered, development, performance, and satisfaction for students also may be altered differentially (Creamer & Associates, 1990; Rodgers, 1990).
Typological Theories

Typological theories refer to phenomena, such as cognitive styles, temperament, personality type, and patterns of socialization that may cause individual variations in the processes and patterns of outcomes in development (Delworth et al., 1989; Rodgers, 1989), permanent or semipermanent stylistic, temperament, or personality type preferences (Creamer & Associates, 1990; Rodgers, 1990). With the exception of Jung (1971) and Myers (1980), a single unifying theoretical perspective for these theories does not exist (Delworth et al.), and they are not developmental per se (as cited in Creamer & Associates).

Typological theories do relate to college student development, because both psychosocial and cognitive-structural development take place within a type or style, and type or style affects preferred ways of learning, being motivated, relating with others, and being satisfied (Creamer & Associates, 1989; Rodgers, 1990). For Jung and other typological theorists, type or style is a preferred or habitual pattern of mental functioning, consisting of preferred ways of taking in information, classifying information, making judgments, reflecting or interacting, and moving toward judgment or staying open to taking in information (Delworth et al., 1989; Lawrence, 1982; Rodgers).

In turn, these preferred patterns lead to dispositions, tendencies toward attending selectively to elements in a learning environment, seeking out environments compatible with one’s type and avoiding or leaving incompatible environments, as well as using certain types of learning tools and avoiding others (Delworth et al., 1989; Lawrence, 1982, 1984; Rodgers, 1990). If student development programs are to be appropriately
challenging and supportive, how students learn, are motivated, relate to others, and are satisfied should be taken into account (Delworth et al.; Rodgers). Specifically, these styles or preferences focus attention on the fact that stylistic differences need to be taken seriously if teaching is to be taken seriously at colleges and universities (Delworth, et al.; Rodgers).

Gilligan (1986b) described the type of activity that might lead women behaviorally to a care perspective, whereas Rodgers (1988) conceptualized the problem in terms of Jung/Myers personality types. Rodgers hypothesized that the underlying distinction between the two voices may have been Thinking (T) and Feeling (F) judgment preference as defined by Jung (1971) and Myers (1980). Rodgers (1988), using Lyon’s (1983) interview to measure voice in students at The Ohio State University, studied the voice orientations of equal numbers of dominant male and female Fs and Ts, and found all of the dominant male and female Fs (both male and female) to be care-voiced and all of the dominant male and female Ts (both male and female) to be justice-voiced. The T and F scales are the only dimension of the Myers-Briggs Type Indicator to have revealed a gender difference in the population.

Rodgers (1988) also found approximately 75 % of the women surveyed to have F preferences and approximately 75 % of the men surveyed to have T preferences. These preliminary findings lend some support to an interpretation that the two voices originate in personality type at birth rather than in social conditioning, with cultural expectations for the two genders reinforcing personality type preference voices. The voices of college
students, therefore, may be exemplifications of, both personality type preferences and social conditioning.

**Conditions for Developmental Change**

Chickering’s (1969) theory, based on his study of men and women at 13 liberal arts colleges and all of the research on the psychosocial development of college students that was available at the time, discussed in depth certain conditions that he hypothesized contributed to developmental change in students. His theory, which has been most useful to educators, was modified by more recent ethnic and gender research, and has endured as a work worthy of in-depth study and use.

Chickering’s (1969) study of college student development provided the specifics that Erikson (1950) lacked, detailing the vectors or tasks that made up the content of the three broad issues of identity. The issues were: (a) career development—“Who am I?” “What am I to become?” (b) defining one’s sexuality and initiating development of the capacity for intimacy—“Whom am I to love?” “What does mature love mean, anyway?” and (c) finding and integrating an adult philosophy of life, morality, and values—“What am I to believe?” “Am I to accept my heritage or do I have to decide what I am really going to stand for?” (as cited in Delworth et al., 1989).

Chickering’s (1969) vectors or tasks provided a response to such questions. His summary of psychosocial research on college students indicated that most freshmen were attempting to resolve three vectors: competence, managing emotions, and developing autonomy. The first three vectors represented finding oneself—determining one’s
capabilities, integrating self-control and interdependence, finding sexual-social expression, and finding that one can negotiate and be competent within the college’s academic and social environments. The first three vectors preoccupy most students as they enter college. The positive resolution of these vectors seems to be a prerequisite for resolving the fourth, establishing identity.

According to Chickering (1969), seniors must resolve four vectors: establishing identity, freeing interpersonal relationships, developing purpose, and establishing integrity. Each of these vectors is made up of a series of tasks and associated processes. The tasks make up the developmental challenges to be mastered; the processes describe how the tasks are resolved and their chronological relationships with one another.

Psychosocial tasks are not resolved suddenly. Their mastery takes place after repeated exposure to appropriate developmental environments. It may take one or more years to resolve a single vector (Delworth et al., 1989).

According to Chickering (1969), the first vector that freshmen have to resolve is that of developing competence: intellectual, physical-manual, and social interpersonal. Focusing on intellectual competence, entering college students are preoccupied with how well they will perform academically. This preoccupation involves exploration of one’s competencies, knowledge, academic skill, and unrecognized potential, as well as exploration of the intellectual demands of various disciplines and majors, ultimately culminating in either selecting a compatible major or leaving school.

Chickering (1969) stressed that teachers have roles and functions appropriate to this vector. They may monitor freshman students’ performance on initial midterm
examinations, be aware of how much or how little the students study, and express concern or encouragement for those who perform poorly or who seldom study. They may also make referrals to the career or learning resources center, a tutoring service, or other professional agencies as needs arise. Credit classes that emphasize exploration of knowledge levels, academic skill levels, known competencies, and hidden potential might be offered for freshmen. Here, freshmen would explore only majors and disciplines, not careers and vocations per se.

Chickering (1969) contended that most college juniors, many seniors, and many graduates are involved in resolving the issue of developing purpose—exploring careers and vocations, narrowing toward a commitment to one vocation and career, and finding outlets for other talents in avocational interests. These tasks require the student to know his or her competencies, to be self-regulating, and to establish a consistent identity or sense of self. Here, teachers may make themselves available to listen to and advise students concerning finishing the exploration of career and vocational areas and narrowing toward an initial commitment to avocational area and work setting.

Chickering’s (1969) vectors suggest that an exploration of mature, internalized values and even spiritual and lifestyle issues often helps students narrow down and make commitments. One’s values, integrity, and lifestyle (identity) often provide the basis for narrowing down and making commitments. Finally, if two students have made a commitment to each other, it is important that couples be helped to explore these issues together.
Chickering (1969) related global environmental conditions to the resolution of vectors. These environmental conditions included clear and consistent goals, organizational size, curriculum design and teaching strategies, classroom evaluation, interactions between students and faculty and staff, and the influence of peer culture. The researcher also discussed developmental change in terms of a series of differentiations and integrations associated with the vectors and challenges and supports appropriate to the tasks within the vectors (not too far behind or too far ahead of the student’s developmental level).

**Challenge and Support**

Widick and Simpson (1978) emphasized studying interaction and differential treatment in higher education classrooms, as well as teaching styles, to create an environment that provided the challenge and support that fostered movements by students from one developmental stage to another. In addition, Schlossberg, Lynch, and Chickering (1969) investigated the importance of teachers’ developing differentiated responses to students, providing an appropriate mix of challenge and support.

Daloz (1986) suggested concrete activities that offered challenge and support. Support, the author stressed, involved listening carefully to student agendas, providing structure and clear expectations, naming what the learner is feeling, and serving as the learner’s advocate. Challenge, he added, involved providing “new frames of meaning” or “constructive hypotheses” about what one is doing (p. 32). Furthermore, Daloz suggested that challenge and support led to a vision of what could be. They provided a map of the
future in which (a) students felt they mattered each time they moved in, moved through, and moved on from a particular learning experience; and (b) institutions would be truly educative and responsive to all.

Chickering’s (1969) generalizations, in some cases, need to be differentiated between men and women. For example, women have tended to integrate the management of emotions ahead of men, whereas men have tended to achieve autonomy ahead of women (Straub, 1987; Straub & Rodgers, 1986).

**Gender Research**


Marcia (1966, 1976, 1980), guided by Erikson, described two dimensions in identity formation: (a) conscious experience of an identity crisis to be resolved and (b) commitment to a sense of self or identity after deliberate exploration of options. The combination of the two dimensions yields four paths: (a) foreclosed; (b) diffuse; (c) moratorium; and (d) achieved.

Josselson’s (1987) identity-foreclosed women made commitments to an identity without experiencing a crisis or deliberately exploring options. They saw only one course
for their lives: getting married, having children, and having close family relationships. Security and harmony were prominent needs. Childhood identifications with family of origin seemed to be the source of their foreclosed identity.

Josselson's (1987) identity-diffuse women had not experienced a crisis, explored options, nor committed to an identity. From this group, 33% briefly tried to create identities but fell back into diffusion; 33% established some kind of identity through the help of authorities who structured their lives; 22% died in their twenties; and 11% were still trying to establish identity at the end of the study.

Josselson's (1987) identity-moratorium women, during the college years, were aware that they had to make choices to define themselves but were not yet able to do so. By age 34, 5% had achieved identity, 1.7% were still struggling in moratorium, and 10% had retreated into identities similar to those of the childhood families.

Identity achieved women constituted 24% of Josselson's (1987) longitudinal sample. The women had experienced an identity crisis, separated from families, explored options, and chose their identities and lifestyles.

All of the achieved women in Josselson's (1987) study used a common process. They were able to separate themselves from needing parental or peer-group sanctions. They became individualized persons capable of inner self-reliance. A common process (a) not retreating from rejections; (b) developing an internalized sense of competence in and out of the classroom; and (c) having the capacity to withstand a sense of guilt as they explored options also involved a common pattern. All of these women defined the self as a self in relationships. They emphasized interdependence rather than autonomy. Their
identities were related identities, usually with boyfriends with whom they had mutually supportive, interdependent relationships.

The achieved women in Josselson's (1987) study, having consciously explored and reworked their identities by age 34, had the highest self-esteem and lowest levels of anxiety and were flexible, open to new experiences, self-confident, and not dependent on external sources for meaning. Work was a source of mastery and pleasure for the women, but was not the key ingredient in their identity as it was for men of the same age (Levinson, 1978; Vaillant, 1977). The adult self was a balance of relationships, work, and other interests, with relationships being the key ingredients.

Only the foreclosed and achieved women in Josselson's (1987) study seemed to have a sense of well-being. Although work was important for both, holding a high-status job was not. Work was secondary, and in defining the self, even avocational interests could be more important than careers. Priority was given to a career only when the woman had a mentor with whom she had a supportive, facilitative relationship. The absence of a mentor meant using the career as an anchor for identity. To be an anchor for identity, work had to matter to someone who mattered to the women.

Institutional Responsibility

A number of principles need to be adopted by institutions: education should a) be student-centered, responsive to the needs of students; b) be accountable and performance-driven, with clear vision of goals and monitoring of progress; and c) use comprehensive approaches (Southern Education Foundation, 1995). When education is
student-centered and the educational development of students is a value communicated throughout the institution, diversity goals are pursued as part of a well-articulated plan to improve undergraduate education. If educational objectives are to be regarded as consistent with diversity goals, assessment of diversity should be monitored along with the assessment of other educational objectives (Southern Education Foundation, 1995).

**Hidden Curriculum**

In addition, a "hidden curriculum exists in postsecondary education. It includes the norms and values that undergird the formal curriculum [including] the organizational structure of the classroom and school as well as the interactions of students and teachers" (McCormick, 1994, p. 312). For example, teachers may use curriculum materials that show only male role models of leadership without any critical discussion of the absence of women as leaders. A hidden curriculum aspect of gender bias that affects the classroom climate might be the teacher’s nonverbal messages conveyed through body language and eye contact and the verbal messages delivered through the actual content of lessons, units, and/or courses (McCormick).

**Liberal Arts Schools as Postsecondary Institutions**

Prior research also has indicated that there were many positive aspects to being educated at liberal arts schools. Boyer’s (1987) study found that 73% of students at small liberal arts colleges said that teachers took a personal interest in their academic progress (59% at all institutions). The study also found that 81% of students at liberal arts colleges said they felt encouraged to discuss their feelings about important issues (66%
of the total sample). Furthermore, Boyer's study showed that 91% of students from liberal arts colleges indicated that teachers encouraged them to participate in classroom discussion (10% more than undergraduates at all colleges and universities).

**Summary**

The focus of this literature review has been on attempts to equalize student learning in institutions of higher education. Students are “no longer either just suppliers to, or customers of, postsecondary institutions. They now are effectively part of our postsecondary knowledge development, dissemination, and education system and need to be viewed as potential collaborators or competitors” (Peterson, Dill, Mets, & Associates, 1997, p. 23). The key shift in the postsecondary knowledge industry perspective is to focus on students as learners with individualized educational needs, rather than as potential students for courses and programs designed and delivered by postsecondary institutions (Peterson et al.).

Also, institutions will experience increased calls for accountability and performance funding. Parents and students will be more demanding consumers as they compare a much wider variety of advanced learning options. Employers will be looking for demonstrable skills and measurable knowledge, not credentials (Peterson et al., 1997).

In addition, between 1995 and 2005, the annual number of high school graduates is projected to jump by 22% (U. S. Department of Education, 1995). More students graduating from high school will inevitably mean more students applying to college.
Coping with a surge of new students is almost unimaginable after 20 years of relatively modest enrollment increases.

Furthermore, the increase in women projected to enter the U.S. workforce between the years 1991 and 2000 has increased the urgency of enlarging the knowledge base concerning male-female differences in career experience and development (Cox & Harquail, 1991). A particular concern exists about the successful integration of more women into managerial ranks of organizations, including postsecondary educational institutions, where they traditionally have been underrepresented.

Moreover, increased knowledge about how students learn is necessary (Katz, 1988). Information is needed concerning their motivations and aspirations and the conditions that inhibit their learning or make it possible. Sadker and Sadker (1992) revealed striking differences in college classroom participation patterns across gender, race, and ethnicity. However, trained faculty can change these patterns. An American University experimental equity training program, stated Sadker, illustrated that trained faculty members were 38% more interactive than those in the control group, giving more precise feedback to all students.

Finally, a growing body of scholarship reveals that diverse work environments can be more effective organizationally and can result in increased economic advancement. For example, research literature on organizations suggests that heterogeneous work teams promote creativity and innovation and improve problem solving and decision making, organizational flexibility, and tolerance for ambiguity (Cox, 1993). The goal of
managing diversity is to maximize "the ability of all employees to contribute to organizational goals and to achieve their full potential unhindered by group identity" (p. 11), such as race/ethnicity, gender, or age (Cox). These findings suggest that organizational effectiveness can be enhanced by higher education leaders who understand and know how to maximize the benefits of a diverse student body, faculty, and staff (Cox).

The challenges to higher education with respect to diversity have been projected to continue to increase in the foreseeable future (Statham et al., 1991). Demographic and economic imperatives in combination with changes in the political and legal context require institutions to transform themselves in ways that place diversity goals at the center of the institution's educational mission. This changing context of higher education demands that colleges and universities rise to the challenge.
CHAPTER 3

RESEARCH METHODOLOGY

This chapter discusses the methodology used in the study. It also contains the research design, the method by which subjects were selected, and the description of the research population. Procedures for preparation of the survey instrument are elucidated and procedures for the collection and analysis of data are described.

Population and Sample

In the spring of 1999, the vice presidents for academic affairs at each of the three private liberal arts institutions in southwestern Virginia to were contacted to request the participation of their institutions in the study of classroom interaction (Appendix A). Once permission was granted, single class periods for carrying out the research were selected at each school.

Conducting the survey during these single time periods provided a means to avoid duplicate selections of teachers and students and facilitated participation by the institutions. Time periods included for selection purposes were those that provided access to the greatest diversity of teacher and student characteristics, between the hours of 8:00 a.m. and 2:00 p.m. The time periods selected were those that made available, for survey, classes representing the greatest variety of divisions of the curriculum that were taught by both men and women.

Initially, course schedules were obtained from the three schools, and new course
listings were created for each by time period, day of the week, and division of the curriculum (Appendix B). Schedules of courses then were created by time period, day of the week, division of the curriculum, and gender of the teacher (Appendix C). The three schedules that were generated revealed one possible class period for administering the instrument at Bluefield College; 4 possible class periods at King College; and 2 possible class periods at Virginia Intermont College (Appendix C).

When classes were available during more than one time period, one period was randomly selected from those available. The time periods identified made available for survey students and teachers in classes representing five divisions of the curriculum at Bluefield College (business, fine arts, humanities, sciences, and social sciences); 3 divisions at King College (humanities, science, and social science); and 3 divisions at Virginia Intermont College: (business, science, and social science) (Appendix C).

When more than one class taught by a man, or one class taught by a woman, was available (Appendix D) during a particular time period, each class was included. Teachers of the selected classes were sent letters requesting their participation in the study (Appendix E). A response form was included at the end of the letter, and anonymity and confidentiality of data were assured.

Permission to carry out the research was received from 11 of the 15 teachers contacted (73.3 %) at Bluefield College; 5 of the 8 teachers contacted (62.5 %) at King College; and 9 of the 10 teachers contacted (90 %) at Virginia Intermont College. To allow ample time for teachers and students to become acquainted with teaching and
learning styles, the survey instrument was not administered until the last week of the spring semester.

The collection of data was supervised, at each of the three institutions, by selected students in their respective classrooms (Appendix E). Students were asked to respond with respect to current classes only, and completion of the survey instruments consumed approximately 20 minutes at the beginning of each of the three class periods to avoid students' providing a poorer quality of student response due to premature departure from the classroom. The survey instruments were used to obtain quantitative data regarding teachers' and students' perceptions of teachers' characteristics and approaches to student learning; students' characteristics and orientations to learning; and classroom characteristics, course designs, and peer expectations and influence at the three liberal arts schools.

The subjects included 95 students at Bluefield (49 men, 46 women); 93 students at King (19 men, 74 women); and 89 students at Virginia Intermont (27 men, 62 women) enrolled for the spring semester 1999 in 100-, 200-, 300-, and 400-level courses. These students comprised approximately 21.1% of the total student population at Bluefield; 19.7% of the total student population at King; and 19.1% of the total student population at Virginia Intermont.

The 11 classes at Bluefield College ranged in size from 4 to 29, with a mean class size of 11.36 students; from 16 to 34 at King, with a mean class size of 22.6 students; and from 4 to 30 at Virginia Intermont, with a mean class size of 12.89 students. A majority of the subjects were female (65.7%); white (91.7%); considered English their native
language (95.7%); and were 20 years old on average. Total representation included freshmen (33.2%); sophomores (19.5%); juniors (23.5%); and seniors (23.8%). Course levels included 100-level (44.4%); 200-level (19.5%); 300-level (29.6%); and 400-level (6.5%). Divisions of the curriculum included business (17.0%); fine arts (4.7%); humanities (13.0%); science (21.7%); and social science (43.7%). Course requirements included major (49.8%); general (35.7%); and elective (14.4%).

A similar survey instrument was completed, concurrently, by each of the teachers in the selected 100-, 200-, 300-, and 400-level courses at the three institutions (Appendix H). Teachers also were asked to respond with respect to the current class only, and completion of the survey instrument, again, consumed approximately 20 minutes of the class period. This instrument also was used to obtain quantitative data regarding teachers' perceptions of personal characteristics and approaches to student learning; students' characteristics and orientations to learning; and classroom characteristics, course designs, and peer expectations and influence at the three liberal arts colleges.

The subjects also included 11 teachers at Bluefield (5 women and 6 men); 5 teachers at King (1 woman and 4 men); and 9 teachers at Virginia Intermont (6 women and 3 men) for the spring semester 1999. Participating teachers comprised approximately 30% of the total teacher population at Bluefield; 15% of the total teacher population at King; and 22% of the total teacher population at Virginia Intermont.

This study extends the literature on teacher-student interaction in the college classroom by addressing particular concerns. In contrast to the traditional, narrow focus on teachers' behaviors, a broader perspective was taken.
1. Classes were regarded as groups with norms created by teachers. Anticipating that the teachers’ characteristics and teaching styles (lecture, participative, and lecture-participative), as well as overall approaches to learning, would play important roles in classroom interaction, students’ and teachers’ interpretations of classroom norms were explored, and insights gained into quantitative dimensions of teachers’ actions, specifically, their effects on students’ willingness to participate in classes.

2. Classes were regarded as groups with norms created by students. Anticipating that the students’ characteristics and orientations to learning would play important roles in classroom interaction, students’ and teachers’ interpretations of classroom norms were explored, and insights gained into quantitative dimensions of students’ actions, specifically, their willingness to participate in classes.

3. Classes were regarded as groups with norms created by classroom characteristics. Anticipating that course designs would play important roles in classroom interaction, students’ and teachers’ interpretations of classroom norms were studied, and insights gained into quantitative dimensions of course designs, specifically, their effects on students’ willingness to interact. Anticipating that peers’ expectations and influence would play important roles in classroom participation, students’ and teachers’ interpretations of classroom norms were studied, and insights gained into quantitative dimensions of peers’ expectations and influences, specifically, their effects on students’ willingness to interact.

5. To aid student recollection, students were surveyed in their classrooms, and they were asked to comment about only one class and one teacher.
6. Students and teachers were surveyed during a single class period at each of the three schools as a means to avoid duplicate selections of teachers and students.

**Instruments**

The Postsecondary Classroom Leadership Scale for Students (PCLSS) (Appendix F) and the Postsecondary Classroom Leadership Scale for Teachers (PCLST) (Appendix G) were designed by the researcher to measure classroom climate as perceived by students and teachers.

The instruments were prepared to examine the perceptions of male and female students concerning (a) male and female teachers' characteristics and teaching approaches (for example, supportiveness); (b) male and female students' characteristics and personal orientations to learning (for example, interest, comprehension, and confidence); and (c) various characteristics of the classroom environment (for example, course design and peer expectations and influence).

The instruments consisted of three sections: Teacher Characteristics and Approach to Student Learning; Student Characteristics and Orientation to Learning; Classroom Characteristics, and Course Design and Peer Expectations and Influence Topics. Items included in the sections were those identified in the literature as affecting the quality of the classroom environment for learning and positive interpersonal relationships.

The research on which the instruments were based included the reality of the higher education classroom, as perceived by the researcher. Included was research on educational leadership, women in educational environments, and gender-roles.
The examination of a large number of survey instruments with proven reliability failed to yield any that measured the variables selected for investigation in this study. Therefore, this researcher created and refined the teacher and student surveys used in the current investigation.

The instruments were field tested. This was accomplished by means of a pilot study conducted prior to the data-collection phase that involved 4 teachers (2 men and 2 women) and 60 (approximately) students enrolled in spring semester classes at Bluefield College. Responses were analyzed, and the instrument was reworded and revised. None of the faculty or students who took part in the pilot study participated in the actual study that followed.

**Data Collection**

Once approval was granted by the graduate committee, the survey was conducted during the last week of the spring semester at each of the three institutions studied. It was assumed that conducting the survey late in the semester would allow teachers and students ample time to experience and observe the teacher approaches, student orientations, and course designs and peer expectations and influence they would evaluate. One student was assigned to administer the surveys in each of the classes selected for the sample, collect them, and take them to central locations for pickup.

**Data Analysis**

For purpose of data analysis, the null hypothesis for each of the dependent variables was tested at the .05 level of significance. The GLM Univariate procedure was used to
study the perceptions of male and female students, and male and female teachers concerning (a) teachers' characteristics and approaches to student learning, specifically, actions to encourage students' interjections, and strengthen students' overall orientations to learning, perceptions indicative of holding gender-neutral teaching approaches concerning interactions with male and female students; (b) students' characteristics and overall personal orientations to learning, specifically, actions to increase learning, perceptions indicative of holding gender-neutral orientations to learning; and (c) classroom characteristics, specifically, the level of influence on male and female students' willingness to interact by various aspects of the classroom environment, course design, and peer expectations and influence, perceptions indicative of holding gender-neutral orientations to learning. When the probability indicated statistical significance, the null hypotheses were rejected.

Hypotheses

The research hypotheses developed in this study originated with the research questions introduced earlier. The null hypothesis posited for each of the independent variables, perceptions of student characteristics and orientations to learning, perceptions of teacher characteristics and approaches to learning, and perceptions of classroom characteristics and their effects on student learning were tested at the .05 level of significance.
Hypotheses, Student Perceptions.

Hypothesis 1: There is no main effect due to factor A, student gender, on male and female teachers’ characteristics and approaches to learning.

Hypothesis 2: There is no main effect due to factor B, teacher gender, on male and female teachers’ characteristics and approaches to learning.

Hypothesis 3: There is no main effect due to an interaction of factors, student gender and teacher gender, on male and female teachers’ characteristics and approaches to learning.

Hypothesis 4: There is no main effect due to factor A, student gender, on male and female students’ characteristics and orientations to student learning.

Hypothesis 5: There is no main effect due to factor B, teacher gender, on male and female students' characteristics and orientations to student learning.

Hypothesis 6: There is no main effect due to an interaction of factors, student gender and teacher gender, on male and female students' characteristics and orientations to student learning.

Hypothesis 7: There is no main effect due to factor A, teacher gender, on classroom characteristics, course design, and peer expectations and influence.

Hypothesis 8: There is no main effect due to factor B, student gender, on classroom characteristics, course design, and peer expectations and influence.

Hypothesis 9: There is no main effect due to an interaction of factors, student gender and teacher gender, on classroom characteristics, course design, and peer expectations and influence.
Hypotheses: Teacher Perceptions

Hypothesis 10: There is no main effect due to factor A, teacher gender, on male and female teachers' characteristics and approaches to learning.

Hypothesis 11: There is no main effect due to factor B, teaching style, on male and female teachers' characteristics and approaches to learning.

Hypothesis 12: There is no main effect due to an interaction of factors, teacher gender and teaching style, on male and female teachers' characteristics and approaches to learning.

Hypothesis 13: There is no main effect due to factor A, teacher gender, on male and female students' characteristics and orientations to learning.

Hypothesis 14: There is no main effect due to factor B, teaching style, on male and female students' characteristics and orientations to learning.

Hypothesis 15: There is no main effect due to an interaction of factors, teacher gender and teaching style, on male and female students' characteristics and orientations to learning.

Hypothesis 16: There is no main effect due to factor A, teacher gender, on classroom characteristics, course design, and peer expectations and influence.

Hypothesis 17: There is no main effect due to factor B, teaching style, on classroom characteristics, course design, and peer expectations and influence.

Hypothesis 18: There is no main effect due to an interaction of factors, teacher gender and teaching style, on classroom characteristics, course design, and peer expectations and influence.
CHAPTER 4
ANALYSIS OF DATA

The purpose of this study was to investigate the existence of a statistically significant difference in the perceived main effects of teacher gender, student gender, and an interaction of the two in the higher education classrooms at three liberal arts institutions. The study focused on teacher characteristics and learning approaches, student characteristics and learning orientations, and classroom characteristics, course design, and peer expectations and influence, and their roles in students' willingness to interact.

Analysis of the Instruments

The instruments were designed by the researcher and validated by a panel of experts in the field of educational leadership and human development and learning. The panel was made up of the Program Coordinator for the Postsecondary and Private Sector Leadership concentration, two faculty members in the Educational Leadership and Policy Analysis (ELPA) program in the College of Education, and the chairperson for the Department of Human Development and Learning (HDAL) in the College of Education. The research on which the instruments were based included the reality of the higher education classroom, as perceived by the researcher and the panel of experts.

Composed of 23 questions each, the student instrument and teacher instrument, used research on educational leadership, women in educational environments, and gender-
roles. The instruments were composed only of items that were considered valid to educational leadership.

The instruments alluded to basic theoretical constructs such as material processing and long-term learning (Ausubel, 1968; Gagne, et al., 1994); and the higher cognitive processes (Bloom, 1956). Theoretical constructs applied also concerned college student development (Chickering, 1969): (a) person-environment interaction (Delworth et al., 1989; Rodgers, 1990; 1989; 1984a); (b) psychosocial (Buhler & Massasrik, 1968; Chickering, 1969; Erikson, 1950; 1968; Havighurst, 1948; Jung, 1971; 1969; 1961; 1954, & Sanford, 1962b; 1962a, 1956); (c) cognitive-structural (Delworth et al., 1989; Fowler, 1981; Gilligan, 1982; Kegan, 1982; Kitchener & King, 1981; Kohlberg, 1984; Loevinger, 1976; Perry, 1970; Rodgers, 1989; 1980; Widick, & Parker, 1978); and (d) typological (Jung, 1971; Myers, 1980; Rodgers, 1988). Finally, used were theories evolving from gender research (Baruch, Barnett, & Rivers, 1983; Josselson, 1987; Marcia, 1966; 1976; 1980; Marcia & Friedman, 1970; Straub, 1987; Straub & Rodgers, 1986).

Factor analysis was used to produce scores for constructs that were not directly observable. The analysis also facilitated the design of the instruments by helping to ferret out questions that did not work as planned. Principal components analysis with an orthogonal (varimax) rotation was used to identify dimensions in the construct measured (SPSS Base 9.0).
Analysis of the Sample

Cluster sampling was used to draw the sample from a population of 36 (26 male, 10 female) teachers at Bluefield College, 33 teachers at King College (23 male, 10 female), and 41 teachers at Virginia Intermont College (24 male, 17 female). The sample included students taken from a population of 506 (236 male, 270 female) students at Bluefield College, 473 students (201 male, 287 female) at King College, and 488 students (115 male, 331 female) at Virginia Intermont College.

From the 506 students at Bluefield College, 95 were in the selected classes, 21.1 % of the total student population. From the 473 students at King College, 93 were in the selected classes, 19.7 % of the total student population. From the 488 students at Virginia Intermont College, 89 were in the selected classes, 19.1 % of the total student population.

From the 36 teachers at Bluefield College, 15 were selected; 11 of the 15 teachers participated in the study, 31.0 % of the total teacher population. From the 33 teachers at King College, 8 were selected; 5 of the 8 teachers participated in the study, 15.1 % of the total teacher population. From the 41 teachers at Virginia Intermont College, 10 were selected; 9 of the 10 teachers participated in the study, 22 % of the total teacher population.

Demographic data gathered through the student instrument for use in the study included gender, native language, race, age category, course requirement, and student major. Demographic data gathered through the teacher instrument included gender,
native language, race, teaching style, years of teaching, and class size. Two hundred seventy-seven students (76.3 %) and 25 teachers (75.8 %) completed the instruments.

Data describing the sample of teacher respondents by school and gender are presented in Table 2. Data describing the sample of teacher respondents by years of teaching experience are presented in Table 3. All teacher respondents were Anglo- or European-American. Table 4 enumerates the various teaching styles used.

Table 2

Total Number of Teacher Responses by School and Gender

<table>
<thead>
<tr>
<th>School</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>(54.5%)</td>
<td>(45.5%)</td>
<td>(100.0%)</td>
<td></td>
</tr>
<tr>
<td>King College</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>(80.0%)</td>
<td>(20.0%)</td>
<td>(100.0%)</td>
<td></td>
</tr>
<tr>
<td>Virginia Intermont College</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>(33.3%)</td>
<td>(66.7%)</td>
<td>(100.0%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>(34.3%)</td>
<td>(65.7%)</td>
<td>(100.0%)</td>
<td></td>
</tr>
</tbody>
</table>
Table 3

**Total Number of Teacher Years of Experience**

<table>
<thead>
<tr>
<th>School</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>20+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>23</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>53</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(24.2%)</td>
<td>(6.3%)</td>
<td>(8.4%)</td>
<td>(5.3%)</td>
<td>(55.8%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>00</td>
<td>33</td>
<td>24</td>
<td>22</td>
<td>14</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(00.0%)</td>
<td>(35.5%)</td>
<td>(25.8%)</td>
<td>(23.7%)</td>
<td>(15.0%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont  College</td>
<td>28</td>
<td>41</td>
<td>20</td>
<td>00</td>
<td>00</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(31.5%)</td>
<td>(46.0%)</td>
<td>(22.5%)</td>
<td>(00.0%)</td>
<td>(00.0%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>80</td>
<td>52</td>
<td>27</td>
<td>67</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(18.4%)</td>
<td>(28.9%)</td>
<td>(18.8%)</td>
<td>(9.7%)</td>
<td>(24.2%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>
Table 4

Total Number of Teaching Styles Used

<table>
<thead>
<tr>
<th>School</th>
<th>Lecture</th>
<th>Participative</th>
<th>Lecture-Participative</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>31</td>
<td>9</td>
<td>55</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(32.6%)</td>
<td>(9.5%)</td>
<td>(57.9%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>13</td>
<td>1</td>
<td>79</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(14.0%)</td>
<td>(1.1%)</td>
<td>(84.9%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont</td>
<td>College</td>
<td>20</td>
<td>5</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22.5%)</td>
<td>(5.6%)</td>
<td>(71.9%)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>64</td>
<td>15</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23.1%)</td>
<td>(5.4%)</td>
<td>(71.5%)</td>
</tr>
</tbody>
</table>
Data describing the sample of student respondents by school and gender are presented in Table 5. Data detailing student race are presented in Table 6, with most of the respondents of Anglo- or European-American origin.

Table 5

**Total Number of Student Responses by School and Gender**

<table>
<thead>
<tr>
<th>School</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>49</td>
<td>46</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(51.6%)</td>
<td>(48.4%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>19</td>
<td>74</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(20.4%)</td>
<td>(79.6%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>27</td>
<td>62</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(30.3%)</td>
<td>(69.7%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>182</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(34.3%)</td>
<td>(65.7%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>
### Table 6

**Total Number of Student Participants by School and Race**

<table>
<thead>
<tr>
<th>School</th>
<th>Anglo-American</th>
<th>Asian</th>
<th>African-American</th>
<th>American</th>
<th>Native</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>90</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(94.7%)</td>
<td>(3.2%)</td>
<td>(2.1%)</td>
<td></td>
<td></td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>88</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(94.5%)</td>
<td>(2.2%)</td>
<td>(2.2%)</td>
<td>(1.0%)</td>
<td>(100.0%)</td>
<td></td>
</tr>
<tr>
<td>Virginia Intermont</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>76</td>
<td>8</td>
<td>5</td>
<td></td>
<td></td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(85.4%)</td>
<td>(9.0%)</td>
<td>(5.6%)</td>
<td></td>
<td>(100.0%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>13</td>
<td>9</td>
<td>1</td>
<td>277</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(91.7%)</td>
<td>(4.3%)</td>
<td>(3.2%)</td>
<td>(0.4%)</td>
<td>(100.0%)</td>
<td></td>
</tr>
</tbody>
</table>
Data defining student native language are presented in Table 7. Student age differentiation (18, 19, 20, 21 22-29, 30+) is shown in Table 8. Student year in school (freshman, sophomore, junior, senior) is found in Table 9.

Table 7

<table>
<thead>
<tr>
<th>School</th>
<th>English</th>
<th>Chinese</th>
<th>Japanese</th>
<th>Urdu</th>
<th>Bengali</th>
<th>German</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>92</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(96.7%)</td>
<td>(1.1%)</td>
<td>(1.1%)</td>
<td>(1.1%)</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>King College</td>
<td>91</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(97.8%)</td>
<td>(0.0%)</td>
<td>(0.0%)</td>
<td>(1.1%)</td>
<td>(1.1%)</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Virginia Intermont</td>
<td>College</td>
<td>82</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(92.2%)</td>
<td>(0.0%)</td>
<td>(6.7%)</td>
<td>(0.0%)</td>
<td>(0.0%)</td>
<td>(1.1%)</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>265</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(95.9%)</td>
<td>(0.4%)</td>
<td>(2.5%)</td>
<td>(0.7%)</td>
<td>(0.4%)</td>
<td>(1.1%)</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 8

Total Number of Student Participants by Age

<table>
<thead>
<tr>
<th>School</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22-29</th>
<th>30+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>16</td>
<td>32</td>
<td>17</td>
<td>18</td>
<td>11</td>
<td>1</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(16.8%)</td>
<td>(33.7%)</td>
<td>(17.9%)</td>
<td>(18.9%)</td>
<td>(11.6%)</td>
<td>(1.1%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>17</td>
<td>16</td>
<td>0</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(16.1%)</td>
<td>(21.5%)</td>
<td>(26.9%)</td>
<td>(18.3%)</td>
<td>(17.2%)</td>
<td>(0.0%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont College</td>
<td>11</td>
<td>12</td>
<td>23</td>
<td>15</td>
<td>23</td>
<td>5</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(12.4%)</td>
<td>(13.5%)</td>
<td>(25.8%)</td>
<td>(16.9%)</td>
<td>(25.8%)</td>
<td>(5.6%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>64</td>
<td>65</td>
<td>50</td>
<td>50</td>
<td>6</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(15.2%)</td>
<td>(23.1%)</td>
<td>(23.5%)</td>
<td>(18.1%)</td>
<td>(18.1%)</td>
<td>(2.2%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>
Table 9

Total Number of Student Participants by Year in School

<table>
<thead>
<tr>
<th>School</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bluefield College</td>
<td>43</td>
<td>21</td>
<td>21</td>
<td>10</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(45.3%)</td>
<td>(22.1%)</td>
<td>(22.1%)</td>
<td>(10.5%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>30</td>
<td>13</td>
<td>29</td>
<td>21</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(32.3%)</td>
<td>(14.0%)</td>
<td>(31.2%)</td>
<td>(22.6%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>19</td>
<td>20</td>
<td>15</td>
<td>35</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(21.3%)</td>
<td>(22.5%)</td>
<td>(16.9%)</td>
<td>(39.3%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>92</td>
<td>54</td>
<td>65</td>
<td>66</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(33.2%)</td>
<td>(19.5%)</td>
<td>(23.5%)</td>
<td>(23.8%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>
Courses in each of the four course-levels were involved (See Table 10), within 5 divisions of the curriculum (Table 11). The 277 student respondents were enrolled in the 25 courses as major or general requirements, or electives for fulfilling the conditions of 33 majors (Table 12).

Table 10

Total Number of Student Participants by Course Level

<table>
<thead>
<tr>
<th>School</th>
<th>100-level</th>
<th>200-level</th>
<th>300-level</th>
<th>400-level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>59</td>
<td>32</td>
<td>0</td>
<td>4</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(62.1%)</td>
<td>(33.7%)</td>
<td>(00.0%)</td>
<td>(4.2%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>18</td>
<td>22</td>
<td>53</td>
<td>4</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(19.4%)</td>
<td>(23.6%)</td>
<td>(57.0%)</td>
<td>(00.0%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont College</td>
<td>46</td>
<td>00</td>
<td>29</td>
<td>14</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(51.7%)</td>
<td>(00.0%)</td>
<td>(32.6%)</td>
<td>(15.7%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>54</td>
<td>82</td>
<td>18</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(44.4%)</td>
<td>(19.5%)</td>
<td>(29.6%)</td>
<td>(6.5%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>
## Total Number of Student Participants by Division of the Curriculum

<table>
<thead>
<tr>
<th>School</th>
<th>Business</th>
<th>Fine Arts</th>
<th>Humanities</th>
<th>Science</th>
<th>Social Science</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>11</td>
<td>13</td>
<td>4</td>
<td>25</td>
<td>32</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(11.6%)</td>
<td>(13.7%)</td>
<td>(14.7%)</td>
<td>(26.3%)</td>
<td>(33.7%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>00</td>
<td>00</td>
<td>22</td>
<td>14</td>
<td>57</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(00.0%)</td>
<td>(00.0%)</td>
<td>(23.6%)</td>
<td>(15.1%)</td>
<td>(61.3%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont College</td>
<td>36</td>
<td>00</td>
<td>00</td>
<td>21</td>
<td>32</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>(40.4%)</td>
<td>(00.0%)</td>
<td>(00.0%)</td>
<td>(23.6%)</td>
<td>(36.0%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>13</td>
<td>36</td>
<td>60</td>
<td>121</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(17.0%)</td>
<td>(04.7%)</td>
<td>(13.0%)</td>
<td>(21.7%)</td>
<td>(43.6%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>

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Table 12

**Total Number of Students by Major or General Requirements, or Electives**

<table>
<thead>
<tr>
<th>School</th>
<th>Major Requirement</th>
<th>General Requirement</th>
<th>Elective</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefield College</td>
<td>52</td>
<td>26</td>
<td>17</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>(54.7%)</td>
<td>(27.4%)</td>
<td>(17.9%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>King College</td>
<td>38</td>
<td>37</td>
<td>18</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(40.8%)</td>
<td>(39.8%)</td>
<td>(19.4%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Virginia Intermont</td>
<td>48</td>
<td>36</td>
<td>5</td>
<td>89</td>
</tr>
<tr>
<td>College</td>
<td>(53.9%)</td>
<td>(40.4%)</td>
<td>(5.7%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>138</td>
<td>99</td>
<td>40</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>(49.8%)</td>
<td>(35.7%)</td>
<td>(14.5%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>

**Analysis of the Data**

The General Linear Model Univariate procedure was used for regression analysis and analysis of variance for each dependent variable.
Student Perceptions of Teachers' Characteristics and Teaching Approaches

Three null hypotheses posited for the independent variables, student characteristics and learning orientations; teacher characteristics and learning approaches; and classroom characteristics, course design and peer expectations and influence, were tested at the .05 level of significance.

Hypothesis 1 stated that, according to student responses, there is no main effect due to factor A, student gender, on male and female teachers’ characteristics and learning approaches. Hypothesis 2 stated that, according to student responses, there is no main effect due to factor B, teacher gender, on male and female teachers’ characteristics and learning approaches. Hypothesis 3 stated that, according to student responses, there is no effect due to an interaction of factors, student gender and teacher gender, on male and female teachers’ characteristics and learning approaches.

Asking Direct Analytical Questions, Seeking Elaboration, Providing Feedback

Instrument items linked through the factor analysis were (a) asking direct, analytical questions; (b) allowing an appropriate response time; (c) acknowledging, responding to, expanding upon questions and comments, and summarizing; (d) seeking elaboration by student; student; (e) providing positive, definitive feedback (praise, remediation, acceptance); and (f) using teaching methods that provide structure, present expectations, and demand decision making. An acceptable measure of reliability (.81) was computed using Cronbach’s alpha (Cronbach, 1951).
According to student perceptions overall, an analysis of the data indicated no main effect (F = .011, p > .915) due to factor A, student gender, overall; a main effect (F = 8.913, p < .003) due to factor B, teacher gender; and no effect (F = 1.828, p > .178) due to interaction of the two factors, student gender and teacher gender (Appendix H, Table H1). Thus, the null hypothesis for factor A and the null hypothesis of no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the interaction effects, please refer to the table of estimated marginal means (Table 13), which reinforces the results of the F-test.

At Bluefield College, an analysis indicated no main effect (F = .007, p > .934) due to factor A, student gender; a main effect (F = 6.181, p < .015) due to factor B, teacher gender; and no effect (F = 2.237, p > .138) due to interaction of the 2 factors, teacher gender and student gender (Appendix H, Table H2). Thus, the null hypothesis for factor A and the null hypothesis of no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the interaction effects at Bluefield College, please refer to the table of estimated marginal means (Table 14).

At King College, an analysis indicated no main effect (F = .711, p > .401) due to factor A, student gender; no main effect (F = 2.671, p > .106) due to factor B, teacher gender; and an effect (F = 4.114, p < .046) due to interaction of factor A and factor B, student gender and teacher gender (Appendix H, Table H3). Therefore, the null hypotheses for factor A and factor B were not rejected. However, the null hypothesis for no interaction was rejected. To further explore the interaction effects at King College, please refer to the table of estimated marginal means (Table 15).
Table 13

Student Perceptions of Teacher Characteristics and Teaching Approaches

Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback

Estimated Marginal Means

Overall

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>18.032</td>
<td>.477</td>
<td>17.092</td>
<td>18.971</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>20.219</td>
<td>.670</td>
<td>18.901</td>
<td>21.537</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>18.767</td>
<td>.352</td>
<td>18.075</td>
<td>19.460</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>19.591</td>
<td>.466</td>
<td>18.673</td>
<td>20.509</td>
</tr>
</tbody>
</table>
Table 14

Student Perceptions of Teacher Characteristics and Teaching Approaches

Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback

Estimated Marginal Means

Bluefield College

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>17.069</td>
<td>.725</td>
<td>15.629</td>
<td>18.509</td>
</tr>
<tr>
<td>Male</td>
<td>Female</td>
<td>20.300</td>
<td>.873</td>
<td>18.567</td>
<td>22.033</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>18.350</td>
<td>.873</td>
<td>16.617</td>
<td>20.083</td>
</tr>
<tr>
<td>Female</td>
<td>Female</td>
<td>19.154</td>
<td>.765</td>
<td>17.634</td>
<td>20.674</td>
</tr>
</tbody>
</table>

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Table 15

**Student Perceptions of Teacher Characteristics and Teaching Approaches**

**Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback**

**Estimated Marginal Means**

**King College**

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>22.333</td>
<td>.776</td>
<td>20.791 - 23.876</td>
</tr>
<tr>
<td>Male</td>
<td>Female</td>
<td>18.750</td>
<td>1.503</td>
<td>15.763 - 21.737</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>19.524</td>
<td>.379</td>
<td>18.771 - 20.277</td>
</tr>
<tr>
<td>Female</td>
<td>Female</td>
<td>19.909</td>
<td>.907</td>
<td>18.108 - 21.711</td>
</tr>
</tbody>
</table>
At Virginia Intermont College, an analysis indicated no main effect ($F = .096, p > .758$) due to factor A, student gender; a main effect ($F = 13.532, p < .000$) due to factor B, teacher gender; and no effect ($F = 1.567, p > .214$) due to interaction of factor A and factor B, student gender and teacher gender (Appendix H, Table H4). Thus, the null hypotheses for factor A and no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the interaction effects at Virginia Intermont, please refer to the table of estimated marginal means (Table 16).

**Student Perceptions of Students’ Characteristics and Learning Orientations**

Hypothesis 4 stated that, according to student responses, there is no main effect due to factor A, student gender, on male and female students’ characteristics and learning orientations. Hypothesis 5 stated that, according to student responses, there is no main effect due to factor B, teacher gender, on male and female students’ characteristics and learning orientations. Hypothesis 6 stated that, according to student responses, there is no main effect due to an interaction of factors, student gender and teacher gender, on male and female students’ characteristics and learning orientations.

**Interacting Equally. Receiving Feedback**

Instrument items linked through the factor analysis were (a) speaking out, interacting equally with others, asking questions, and making comments; and (b) interjecting ideas in a manner that brings feedback from the teacher and fellow students. The measure of reliability was acceptable at .86.
Table 16

Student Perceptions of Teacher Characteristics and Teaching Approaches

Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback

Estimated Marginal Means

Virginia Intermont College

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>16.105</td>
<td>.878</td>
<td>14.360</td>
<td>17.851</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>20.750</td>
<td>1.353</td>
<td>18.060</td>
<td>23.440</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>17.576</td>
<td>.666</td>
<td>16.251</td>
<td>18.900</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>19.862</td>
<td>.711</td>
<td>18.449</td>
<td>21.275</td>
</tr>
</tbody>
</table>
Overall, an analysis of the data indicated no main effect ($F = .469, p > .494$) due to factor A, student gender, at the 3 schools; a main effect ($F = 10.467, p < .001$) due to factor B, teacher gender; and no effect ($F = .091, p > .763$) due to interaction of the two factors, student gender and teacher gender (Appendix I, Table I1). Thus, the null hypotheses for factor A and no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the interaction effects, please refer to the table of estimated marginal means (Table 17).

At Bluefield College, an analysis indicated no main effect ($F = .145, p > .705$) due to factor A, student gender; no main effect ($F = 3.716, p > .057$) due to factor B, teacher gender; and no effect ($F = .781, p > .379$) due to interaction of the 2 factors, teacher gender and student gender. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Bluefield College, please refer to the table of estimated marginal means (Appendix I; Table I2).

At King College, an analysis indicated no main effect ($F = .210, p > .648$) due to factor A, student gender; no main effect ($F = 1.41, p > .708$) due to factor B, teacher gender; and no effect ($F = .1.718, p > .193$) due to interaction of factor A and factor B, student gender and teacher gender. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at King College, please refer to the table of estimated marginal means (Appendix I; Table I3).
Table 17

Student Perceptions of Student Characteristics and Learning Orientations

Interacting Equally to Bring Feedback

Estimated Marginal Means

Overall

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
<td>Bound</td>
<td>Bound</td>
</tr>
<tr>
<td>Male</td>
<td>Male</td>
<td>5.381</td>
<td>.230</td>
<td>4.928 5.834</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>6.094</td>
<td>.323</td>
<td>5.459 6.729</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>5.474</td>
<td>.169</td>
<td>5.141 5.808</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>6.333</td>
<td>.225</td>
<td>5.891 6.776</td>
</tr>
</tbody>
</table>
At Virginia Intermont College, an analysis indicated no main effect \( (F = .322, p > .572) \) due to factor A, student gender; a main effect \( (F = 5.016, p < .028) \) due to factor B, teacher gender; and no effect \( (F = .295, p > .588) \) due to interaction of factor A and factor B, student gender and teacher gender (Appendix I; Table I4). Thus, the null hypotheses for factor A and no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the interaction effects at Virginia Intermont College, please refer to the table of estimated marginal means (Table 18).

Response To Teachers’ Questions

Instrument items linked through the factor analysis were (a) responding to the teachers’ indirect questions: analytical and factual; and (b) responding to the teachers’ direct questions: analytical and factual. The measure of reliability was acceptable at .90.

Overall, an analysis of the data, indicated no main effect \( (F = .649, p > .421) \) due to factor A, student gender, at the 3 schools; no main effect \( (F = 2.121, p > .146) \) due to factor B, teacher gender; and no effect \( (F = .762, p > .384) \) due to interaction of the two factors, student gender and teacher gender. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects, please refer to the table of estimated marginal means (Appendix I; Table I5), which reinforces the results of the F-test.
Table 18

**Student Perceptions of Student Characteristics and Learning Orientations**

**Interacting Equally to Bring Feedback**

**Estimated Marginal Means**

**Virginia Intermont College**

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Male</td>
<td>5.474</td>
<td>.427</td>
<td>4.626</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>6.250</td>
<td>.657</td>
<td>4.943</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>5.485</td>
<td>.324</td>
<td>4.841</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>6.759</td>
<td>.345</td>
<td>6.072</td>
</tr>
</tbody>
</table>

At Bluefield College, an analysis indicated no main effect ($F = .184$, $p > .669$) due to factor A, student gender; no main effect ($F = .932$, $p > .337$) due to factor B, teacher gender; and no effect ($F = .466$, $p > .497$) due to interaction of the 2 factors, student gender, and teacher gender. Therefore, the null hypothesis for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Bluefield College, please refer to the table of estimated marginal means (Appendix I; Table I6).
At King College, an analysis indicated no main effect ($F = .029, p > .865$) due to factor A, student gender; no main effect ($F = .687, p > .410$) due to factor B, teacher gender; and no effect ($F = 3.311, p > .072$) for interaction of factor A and factor B. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at King College, please refer to the table of estimated marginal means (Appendix I; Table 17).

At Virginia Intermont College, an analysis indicated no main effect ($F = .097, p > .757$) due to factor A, student gender; no main effect ($F = 1.395, p > .241$) due to factor B, teacher gender; and no effect ($F = .306, p > .581$) due to interaction of factor A and factor B, student gender and teacher gender. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the effects at Virginia Intermont College, please refer to the table of estimated marginal means (Appendix I; Table 18).

Response To Fellow Students’ Questions

Instrument items linked through the factor analysis were responding to fellow student’s questions: (a) fellow male students, analytical and factual; and (b) fellow female students, analytical and factual. The measure of reliability was acceptable at .97.

Overall, an analysis of the data, indicated no main effect ($F = .208, p > .649$) due to factor A student gender, at the 3 schools; no main effect ($F = .398, p > .529$) due to factor B, teacher gender; and no interaction ($F = .027, p > .869$) between the two factors, student gender and teacher gender. Thus, the null hypotheses for factor A, factor B, no
interaction were not rejected. To further explore the overall effects, please refer to the table of estimated marginal means (Appendix I; Table I9), which reinforces the results of the F-test.

At Bluefield College, an analysis indicated no main effect (F = 1.431, p > .235) due to factor A, student gender; no main effect (F = .654, p > .421) due to factor B, teacher gender; and no effect (F = .449, p > .504) due to interaction of the 2 factors, teacher gender and student gender. Thus, the null hypothesis for factor A, factor B, and no interaction were not rejected. To further explore the effects at Bluefield College, please refer to the table of estimated marginal means (Appendix I; Table I10).

At King College, an analysis indicated no main effect (F = 1.498, p > .224) due to factor A, student gender; no main effect (F = .033, p > .857) due to factor B, teacher gender; and no effect (F = 2.196, p > .142) for interaction of factor A and factor B. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at King College, please refer to the table of estimated marginal means (Appendix I; Table I11).

At Virginia Intermont College, an analysis indicated no main effect (F = .038, p > .846) due to factor A, student gender; no main effect (F = .827, p > .366) due to factor B, teacher gender; and no effect (F = .554, p > .459) due to interaction of factor A and factor B, student gender and teacher gender. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Virginia Intermont, please refer to the table of estimated marginal means (Appendix I; Table I12).
Fear Of Speaking Out

Instrument items linked through the factor analysis concerned the effect of fear: (a) appearing unintelligent to peers; (b) appearing unintelligent to teachers; (c) being unable to organize thoughts; (d) being too tense to participate effectively; and (e) views offending others. The measure of reliability was .88.

Overall, an analysis of the data indicated no main effect (F = .003, p > .953) due to factor A, student gender, at the 3 schools; no main effect (F = .161, p > .689) due to factor B, teacher gender; and no effect (F = .140, p > .708) due to interaction of the two factors, student gender and teacher gender. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects, please refer to the table of estimated marginal means (Appendix I; Table I13), which reinforces the results of the F-test.

At Bluefield College, an analysis indicated no main effect (F = .077, p > .782) due to factor A, student gender; no effect (F = 1.636, p > .204) due to interaction of the 2 factors, teacher gender and student gender; and no main effect (F = .002, p > .963) due to factor B, teacher gender. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Bluefield College, please refer to the table of estimated marginal means (Appendix I, Table I14).

At King College, an analysis indicated no main effect (F = .460, p > .499) due to factor A, student gender; no main effect (F = .172, p > .679) due to factor B, teacher gender; and no effect (F = 2.936, p > .090) for interaction of factor A and factor B. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected.
To further explore the interaction effects at King College, please refer to the table of estimated marginal means (Appendix I; Table I15).

At Virginia Intermont College, an analysis indicated no main effect (F = .178, p > .674) due to factor A, student gender; no main effect (F = .000, p > .994) due to factor B, teacher gender; and no effect (F = .005, p > .946) due to interaction of factor A and factor B, student gender and teacher gender. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Virginia Intermont College, please refer to the table of estimated marginal means (Appendix I; Table I16).

Classroom Characteristics, Course Design and Peer Expectations and Influence

Hypothesis 7 stated that, according to student responses, there is no main effect due to factor A, student gender, on classroom characteristics, course design, and peer expectations and influence. Hypothesis 8 stated that, according to student responses, there is no main effect due to factor B, teacher gender, on classroom characteristics, course design, and peer expectations and influence. Hypothesis 9 stated that, according to student responses, there is no main effect due to an interaction of factors, student gender and teacher gender, on classroom characteristics, course design, and peer expectations and influence.
Interaction Not Diminished By Peer Pressure

Instrument items linked through the factor analysis concerned the effect of peer pressure: (a) speaking out; (b) voicing controversial opinions; (c) not relying on a “few” to speak; (d) respecting views of others; and (e) showing confidence. The measure of reliability was acceptable at .80.

Overall, an analysis of the data indicated no main effect (F = .001, p > .976) due to factor A, student gender, at the 3 schools; no main effect (F = 2.329, p > .128) due to factor B, teacher gender; and no effect (F = 1.309, p > .254) due to an interaction of the two factors, student gender and teacher gender. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects, please refer to the table of estimated marginal means (Appendix J; Table J1), which reinforces the results of the F-test.

At Bluefield College, an analysis indicated no main effect (F = .002, p > .963) due to factor A, student gender; no main effect (F = .166, p > .685) due to factor B, teacher gender; and no effect (F = .024, p > .878) due to interaction of the 2 factors, teacher gender and student gender. Thus, the null hypothesis for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Bluefield College, please refer to the table of estimated marginal means (Appendix J; J2).

At King College, an analysis indicated no main effect (F = .001, p > .969) due to factor A, student gender; no main effect (F = .983, p > .324) due to factor B, teacher gender; and no effect (F = 1.173, p > .282) due to interaction of factor A and factor B. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected.
To further explore the interaction effects at King College, please refer to the table of estimated marginal means (Appendix J; Table J3).

At Virginia Intermont College, an analysis indicated no main effect ($F = .062, p > .804$) due to factor A, student gender; no main effect ($F = 2.149, p > .146$) due to factor B, teacher gender; and no effect ($F = .089, p > .767$) due to interaction of factor A and factor B, student gender and teacher gender. Therefore, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects at Virginia Intermont College, please refer to the table of estimated marginal means (Appendix J; Table J4).

**Teacher Perceptions of Teacher Characteristics and Teaching Styles**

Three null hypotheses posited for the independent variables, student characteristics and learning orientations; teacher characteristics and teaching styles; and classroom characteristics, course design, and peer expectations and influence, were tested at the .05 level of significance.

Hypothesis 10 stated that, according to teacher responses, there is no main effect due to factor A, teacher gender, on male and female teachers’ characteristics and approaches to student learning. Hypothesis 11 stated that, according to teacher responses, there is no main effect due to factor B, teaching style, on male and female teachers’ characteristics and approaches to student learning. Hypothesis 12 stated that, according teacher responses, there is no main effect due to an interaction of factors, teacher gender and
teaching style, on male and female teachers’ characteristics and approaches to student learning.

**Asking Direct, Analytical Questions, Allowing Ample Response Time, Role Models**

Instrument items linked through the factor analysis were (a) asking direct, analytical questions; (b) allowing ample response time; and (c) selecting textbooks to provide role models. An acceptable measure of reliability (.88) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = 1.519, p > .232$) due to factor A, teacher gender, at the 3 schools; a main effect ($F = 6.595, p < .006$) due to factor B, teaching style; and no effect ($F = .147, p > .705$) due to interaction of the two factors, teacher gender and teaching style (Appendix K; Table K1). Thus, the null hypothesis for factor A and the null hypothesis of no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the interaction effects, please refer to the table of estimated marginal means (Table 19).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect ($F = 1.519, p > .232$) due to factor A, teacher gender; a main effect ($F = 6.595, p < .006$) due to factor B, teaching style; and no effect ($F = .147, p > .705$) due to interaction of the two factors (Appendix K: Table K2). Thus, the null hypothesis for factor A and the null hypothesis of no interaction were not rejected.
Table 19

**Teacher Perceptions of Teacher Characteristics and Teaching Styles**

**Asking Direct, Analytical Questions, Allowing Ample Response Time, Role Models**

**Estimated Marginal Means**

**Female Students**

<table>
<thead>
<tr>
<th>Male Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>3.333</td>
<td>1.526</td>
<td>.150</td>
<td>6.517</td>
<td></td>
</tr>
<tr>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Lecture-

| Participative| 8.600             | .836  | 6.856      | 10.344 |

Female Gender

| Lecture     | 6.000             | 2.643 | .486       | 11.514 |
| Participative| 6.333             | 1.526 | 3.150      | 9.517  |

Lecture-

| Participative| 10.000            | .935  | 8.051      | 11.949 |

95% Confidence Interval
However, the null hypothesis for factor B was rejected. To further explore the interaction effects, please refer to the table of estimated marginal means (Table 20).

**Teaching Methods**

Instrument items linked through the factor analysis were (a) acknowledging, responding to, expanding upon questions and comments, and summarizing; (b) seeking elaboration by student; (c) being approachable; (d) emphasizing interpretation, not memorization; (e) providing positive, definitive feedback; (f) stressing responsibility on the part of the student for academic, social, and vocational success; (g) intervening on students' behalf, yet engaging them as full partners in learning; (h) respecting students' opinions; and (i) using teaching methods that provide structure and expectations, and demand decision making. An acceptable measure of reliability (.88) was computed using Cronbach's alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = .010 \ p > .922$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .535, \ p > .594$) due to factor B, teaching style; and no effect ($F = .058, \ p > .813$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects, please refer to the table of estimated marginal means (Appendix K; Table K3).
Table 20

**Teacher Perceptions of Teacher Characteristics and Teaching Styles**

*Asking Direct, Analytical Questions, Allowing Ample Response Time, Role Models*

**Estimated Marginal Means**

**Male Students**

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Lecture</td>
<td>3.333</td>
<td>1.526</td>
<td>.150</td>
<td>6.517</td>
</tr>
<tr>
<td>Male Participative Lecture</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Male Lecture-Participative</td>
<td>8.600</td>
<td>.836</td>
<td>6.856</td>
<td>10.344</td>
</tr>
<tr>
<td>Female Lecture</td>
<td>6.000</td>
<td>2.643</td>
<td>.486</td>
<td>11.514</td>
</tr>
<tr>
<td>Female Participative Lecture</td>
<td>6.333</td>
<td>1.526</td>
<td>3.150</td>
<td>9.517</td>
</tr>
<tr>
<td>Female Lecture-Participative</td>
<td>10.000</td>
<td>.935</td>
<td>8.051</td>
<td>11.949</td>
</tr>
</tbody>
</table>
According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect ($F = .022, p > .883$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = 650, p > .533$) due to factor B, teaching style; and no main effect ($F = .022, p > .883$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the interaction effects, please refer to the table of estimated marginal means (Appendix K; Table K4).

Teacher Perceptions of Students’ Characteristics and Learning Orientations

Hypothesis 13 stated that, according to teacher responses, there is no main effect due to factor A, teacher gender, on male and female students’ characteristics and learning orientations. Hypothesis 14 stated that, according to teacher responses, there is no main effect due to factor B, teaching style, on male and female students’ characteristics and learning orientations. Hypothesis 15 stated that, according teacher responses, there is no main effect due to an interaction of factors, teacher gender and teaching style, on male and female students’ characteristics and learning orientations.

Interacting Equally To Receive Feedback, Responding to Teachers’ Questions

Instrument items linked through the factor analysis were (a) speaking out, interacting equally with others; (b) interjecting ideas in a manner to bring feedback; and (c) responding to teacher’s direct and indirect questions, analytical and factual. An acceptable measure of reliability (.96) was computed using Cronbach’s alpha (Cronbach, 1951).
According to teacher perceptions concerning female students overall, an analysis of the data indicated a main effect ($F = 5.667, p < .027$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = 1.876, p > .179$) due to factor B, teaching style; and no effect ($F = 4.068, p > .057$) due to interaction of the two factors, teacher gender and teaching style (Appendix L; Table L1). Thus, the null hypotheses for factor B and no interaction were not rejected. However the null hypothesis for factor A was rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Table 21).

According to teacher perceptions concerning male students overall, an analysis of the data indicated a main effect ($F = 5.400, p < .031$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = 1.833, p > .186$) due to factor B, teaching style; and an effect ($F = 5.280, p < .032$) due to interaction of the two factors (Appendix L; Table L2). Thus, the null hypotheses for factor B was not rejected. However, the null hypothesis for factor A and no interaction were rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Table 22).

**Responding to Fellow Students' Questions**

Instrument items linked through the factor analysis were responding to fellow students' questions: (a) male students, analytical and factual; and (b) female students, analytical and factual. An acceptable measure of reliability (.98) was computed using Cronbach's alpha (Cronbach, 1951).
Table 21

**Teacher Perceptions of Student Characteristics and Learning Orientations**

*Interacting Equally To Bring Feedback, Responding to Teachers’ Questions*

**Estimated Marginal Means**

**Female Students**

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval Lower</th>
<th>95% Confidence Interval Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>6.000</td>
<td>2.734</td>
<td>0.296</td>
<td>11.704</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>15.300</td>
<td>1.498</td>
<td>12.176</td>
<td>18.424</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>19.000</td>
<td>4.736</td>
<td>9.120</td>
<td>28.880</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>14.333</td>
<td>2.734</td>
<td>8.629</td>
<td>20.037</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>16.375</td>
<td>1.675</td>
<td>12.882</td>
<td>19.868</td>
</tr>
</tbody>
</table>
Table 22

**Teacher Perceptions of Student Characteristics and Learning Orientations**

**Interacting Equally To Bring Feedback, Responding To Teachers' Questions**

**Estimated Marginal Means**

**Male Students**

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>9.667</td>
<td>2.669</td>
<td>4.100</td>
<td>15.233</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>19.300</td>
<td>1.462</td>
<td>16.251</td>
<td>22.349</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>17.667</td>
<td>2.669</td>
<td>12.100</td>
<td>23.233</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>23.000</td>
<td>4.622</td>
<td>13.358</td>
<td>32.642</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>19.375</td>
<td>1.634</td>
<td>15.966</td>
<td>22.784</td>
</tr>
</tbody>
</table>

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According to teacher perceptions concerning female students overall, an analysis of the data indicated a main effect (F = 4.395, p < .049) due to factor A, teacher gender, at the 3 schools; no main effect (F = 1.676, p > .212) due to factor B, teaching style; and no effect (F = 2.094, p > .163) due to interaction of the two factors, teacher gender and teaching style (Appendix L; Table L3). Thus, the null hypothesis for factor A was rejected. However, the null hypothesis for factor B and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Table 23).

According to teacher perceptions concerning male students overall, an analysis of the data indicated a main effect (F = 4.656, p < .043) due to factor A, teacher gender, at the 3 schools; no main effect (F = 1.216, p > .317) due to factor B, teaching style; and no effect (F = 1.930, p > .180) due to interaction of the two factors, teacher gender and teaching style (Appendix L; Table L4). Thus, the null hypothesis for factor A was rejected. However, the null hypotheses for factor B and no interaction were not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Table 24).

**Completing Assignments, Feeling Prepared for Class, Taking Responsibility for Learning**

Instrument items linked through the factor analysis were (a) completing the required assignments; (b) feeling prepared for class; and (c) taking personal responsibility for learning. An acceptable measure of reliability (.95) was computed using Cronbach's alpha (Cronbach, 1951).
Table 23

**Teacher Perceptions of Student Characteristics and Learning Orientations**

**Responding to Fellow Students’ Questions**

**Estimated Marginal Means**

**Female Students**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Teacher Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>1.776E-15</td>
<td>3.133</td>
<td>-6.534</td>
<td>6.534</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>8.300</td>
<td>1.716</td>
<td>4.721</td>
<td>11.879</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>12.000</td>
<td>5.426</td>
<td>.682</td>
<td>23.318</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>7.333</td>
<td>3.133</td>
<td>.799</td>
<td>13.868</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>10.500</td>
<td>1.918</td>
<td>6.499</td>
<td>14.501</td>
<td></td>
</tr>
</tbody>
</table>
Table 24

Teacher Perceptions of Student Characteristics and Learning Orientations

Responding to Fellow Students' Questions

Estimated Marginal Means

Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval Lower</th>
<th>95% Confidence Interval Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Lecture</td>
<td>1.776E-15</td>
<td>3.129</td>
<td></td>
<td>-6.528</td>
<td>6.528</td>
</tr>
<tr>
<td>Male Participative Lecture</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Female Lecture</td>
<td>12.000</td>
<td>5.420</td>
<td></td>
<td>.694</td>
<td>23.306</td>
</tr>
<tr>
<td>Female Participative Lecture</td>
<td>8.333</td>
<td>3.129</td>
<td></td>
<td>1.806</td>
<td>14.861</td>
</tr>
<tr>
<td>Female Participative Lecture</td>
<td>10.500</td>
<td>1.916</td>
<td></td>
<td>6.503</td>
<td>14.497</td>
</tr>
</tbody>
</table>

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According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = .391, p > .539$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .468, p > .633$) due to factor B, teaching style; and no effect ($F = .391, p > .539$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix L5).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect ($F = .319, p > .579$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .931, p > .411$) due to factor B, teaching style; and no effect ($F = .409, p > .530$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction was not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix L; Table L6).

**Valuing Achievement and All Fields of Study, Risking Failure, Increasing Aspirations**

Instrument items linked through the factor analysis were (a) placing value on personal achievement; (b) valuing all fields of study; (c) risking failure to learn; and (d) increasing academic and career aspirations. An acceptable measure of reliability (.94) was computed using Cronbach's alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = .679, p > .420$) due to factor A, teacher gender, at
the 3 schools; no main effect (F = .936, p > .409) due to factor B, teaching style; and no effect (F = .163, p > .690) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix L; Table L7).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect (F = .531, p > .474) due to factor A, teacher gender, at the 3 schools; no main effect (F = .718, p > .500) due to factor B, teaching style; and no effect (F = .228, p > .638) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction was not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix L; Table L8).

Building Confidence, Prepared for the Workplace or Graduate School, Offensive Views

Instrument items linked through the factor analysis were (a) working to build confidence; (b) feeling prepared the the workplace and/or graduate school; and (c) fearing that views expressed would be offensive. An acceptable measure of reliability (.89) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect (F = .752, p > .396) due to factor A, teacher gender, at the 3 schools; no main effect (F = .072, p > .930) due to factor B, teaching style; and no effect (F = .485, p > .494) due to interaction of the two factors, teacher gender and
teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix L; Table L9).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect ($F = .865, p > .363$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .057, p > .945$) due to factor B, teaching style; and no effect ($F = .741, p > .433$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction was not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix L; Table L10).

**Fear of Appearing Unintelligent to the Teacher and Peers**

Instrument items linked through the factor analysis were fear of appearing unintelligent to (a) teacher; (b) peers. An acceptable measure of reliability (.94) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = 1.860, p > .188$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .967, p > .397$) due to factor B, teaching style; and no effect ($F = .152, p > .701$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix L; Table L11).
According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect (F = .865, p > .363) due to factor A, teacher gender, at the 3 schools; no main effect (F = 1.086, p > .357) due to factor B, teaching style; and no effect (F = .865, p > .363) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction was not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix L; Table L12).

**Fear Of Being Unable to Organize Thoughts, Or Being Too Tense to Participate**

Instrument items linked through the factor analysis were fear of being (a) unable to organize thoughts; and (b) too tense to participate. An acceptable measure of reliability (.98) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect (F = .186, p > .671) due to factor A, teacher gender, at the 3 schools; no main effect (F = .527, p > .598) due to factor B, teaching style; and no effect (F = .007, p > .934) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix L; Table L13).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect (F = .153, p > .700) due to factor A, teacher gender, at the 3 schools; no main effect (F = .537, p > .593) due to factor B, teaching style; and no effect
(F = 015, p > .904) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction was not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix L; Table L14).

**Fear Of Being Unable to Complete Assignments, Or Understand Class Content**

Instrument items linked through the factor analysis were fear of being unable to (a) complete assignments; and/or (b) understand class content. An acceptable measure of reliability (.82) was computed using Cronbach's alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect (F = .033, p > .857) due to factor A, teacher gender, at the 3 schools; no main effect (F = .127, p > .882) due to factor B, teaching style; and no effect (F = 1.626, p > .217) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix L; Table L15).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect (F = .657, p > .427) due to factor A, teacher gender, at the 3 schools; no main effect (F = .554, p > .583) due to factor B, teaching style; and no effect (F = .006, p > .939) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction was not
rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix L; Table L16).

**Teacher Perceptions of Classroom Characteristics, Course Design and Peer Influence**

Hypothesis 16 stated that, according to teacher responses, there is no main effect due to factor A, teacher gender, on classroom characteristics, course design, and peer expectations and influence. Hypothesis 17 stated that, according to teacher responses, there is no main effect due to factor B, teaching style, on classroom characteristics, course design, and peer expectations and influence. Hypothesis 18 stated that, according teacher responses, there is no main effect due to an interaction of factors, teacher gender and teaching style, on classroom characteristics, course design, and peer expectations and influence.

**Speaking Out, Showing Confidence**

Instrument items linked through the factor analysis were (a) speaking out; and (c) showing confidence. An acceptable measure of reliability (.96) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect (F = 2.805, p > .110) due to factor A, teacher gender, at the 3 schools; no main effect (F = .075, p > .928) due to factor B, teaching style; and no effect (F = .018, p > .894) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were
not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix M; Table M1).

According to teacher perceptions concerning male students overall, an analysis of the data indicated a main effect ($F = 6.720, p < .017$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .245, p > .785$) due to factor B, teaching style; and no effect ($F = 1.618, p > .218$) due to interaction of the two factors, teacher gender and teaching style (Appendix M; Table M2). Thus, the null hypotheses for factor B and no interaction were not rejected. However, the null hypothesis for factor A was rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Table 25).

Respecting the Views of Others

Instrument items linked through the factor analysis concerned respecting the views of fellow students. An acceptable measure of reliability (.98) was computed using Cronbach's alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = .428, p > .521$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .627, p > .544$) due to factor B, teaching style; and no effect ($F = .428, p > .521$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix M; Table M3)
Table 25

**Teacher Perceptions of Student Characteristics and Learning Orientations**

**Speaking Out Showing Confidence**

**Estimated Marginal Means**

**Male Students**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Teaching style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>5.000</td>
<td>.718</td>
<td>3.502</td>
<td>6.498</td>
</tr>
<tr>
<td></td>
<td>Partic.</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-Partic.</td>
<td>5.600</td>
<td>.393</td>
<td>4.780</td>
<td>6.420</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>8.000</td>
<td>1.244</td>
<td>5.405</td>
<td>10.595</td>
</tr>
<tr>
<td></td>
<td>Partic.</td>
<td>6.667</td>
<td>.718</td>
<td>5.169</td>
<td>8.165</td>
</tr>
<tr>
<td></td>
<td>Lecture-Partic.</td>
<td>6.625</td>
<td>.440</td>
<td>5.708</td>
<td>7.542</td>
</tr>
</tbody>
</table>
According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect ($F = .530, p > .475$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .491, p > .619$) due to factor B, teaching style; and no effect ($F = .290, p > .596$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix M; Table M4).

**Student-Centered and Subject-Centered Teaching Approaches**

Instrument items linked through the factor analysis were concerned (a) relying on a particular “few” for interaction; and (b) student-centered and subject-centered approaches. An acceptable measure of reliability (.90) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect ($F = .123, p > .730$) due to factor A, teacher gender, at the 3 schools; no main effect ($F = .685, p > .516$) due to factor B, teaching style; and no effect ($F = .013, p > .911$) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Appendix M; Table M5).

According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect ($F = .018, p > .895$) due to factor A, teacher gender, at the 3
schools; no main effect \( F = .453, p > .642 \) due to factor B, teaching style; and no effect \( F = .099, p < .756 \) due to interaction of the two factors, teacher gender and teaching style. Thus, the null hypotheses for factor A, factor B, and no interaction were not rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Appendix M; Table M6).

**Course Design**

Instrument items linked through the factor analysis were concerned student willingness to voice controversial opinions; and a course design that provides (a) opportunities for students to get to know each other; (b) support and challenge by peers; (c) support and challenge by teacher; (d) for frequent small group discussions; (e) for discussions organized around clear questions; and (f) for participation that positively affects grade. An acceptable measure of reliability (.96) was computed using Cronbach’s alpha (Cronbach, 1951).

According to teacher perceptions concerning female students overall, an analysis of the data indicated no main effect \( F = 1.877, p > .186 \) due to factor A, teacher gender, at the 3 schools; a main effect \( F = 6.539, p < .007 \) due to factor B, teaching style; and no effect \( F = .063, p > .804 \) due to interaction of the two factors, teacher gender and teaching style (Appendix M; Table M7). Thus, the null hypotheses for factor A and no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the overall effects on female students, please refer to the table of estimated marginal means (Table 26).
According to teacher perceptions concerning male students overall, an analysis of the data indicated no main effect (F = 1.992, p > .173) due to factor A, teacher gender, at the 3 schools; a main effect (F = 6.750, p < .006) due to factor B, teaching style; and no effect (F = .036, p > .852) due to interaction of the two factors, teacher gender and teaching style (Appendix M; Table M8). Thus, the null hypotheses for factor A and no interaction were not rejected. However, the null hypothesis for factor B was rejected. To further explore the overall effects on male students, please refer to the table of estimated marginal means (Table 27).

**Summary**

The following conclusions resulted from data taken from students' responses. Main effects were found of (a) teacher gender, overall, and at Bluefield College; (b) an interaction of teacher and student gender at King College; and (c) teacher gender at Virginia Intermont College.

The following conclusions resulted from data taken from teachers' responses. Main effects were found of (a) teaching style, for both male and female students; (b) teacher gender, for both male and female students; (c) an interaction of teacher gender and teaching style, for male students only; and (d) teacher gender, for male students only.

According to male and female teachers' perceptions, a main effect existed (a) of teaching style on the teachers' approach to student learning, for both female and male students; (b) of teacher gender on students' orientations to learning, for both female students and male students; (c) of an interaction of teacher gender and teaching style, for
Table 26

**Teacher Perceptions of Classroom Characteristics and Learning Orientations**

**Course Design**

**Estimated Marginal Means**

**Female Students**

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>8.000</td>
<td>3.308</td>
<td>1.099</td>
<td>14.901</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>18.700</td>
<td>1.812</td>
<td>14.920</td>
<td>22.480</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>12.000</td>
<td>5.730</td>
<td>4.644</td>
<td>23.954</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>18.333</td>
<td>3.308</td>
<td>11.432</td>
<td>25.235</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>24.500</td>
<td>2.026</td>
<td>20.274</td>
<td>28.726</td>
</tr>
</tbody>
</table>
Table 27

**Teacher Perceptions of Classroom Characteristics and Learning Orientations**

**Course Design**

**Estimated Marginal Means**

**Male Students**

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Style</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Lecture</td>
<td>7.667</td>
<td>3.280</td>
<td>.826</td>
<td>14.508</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Participative Lecture</td>
<td>18.700</td>
<td>1.796</td>
<td>14.953</td>
<td>22.447</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Lecture-P</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female Lecture</td>
<td>12.000</td>
<td>5.680</td>
<td>.151</td>
<td>23.849</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female Participative Lecture</td>
<td>18.333</td>
<td>3.280</td>
<td>11.492</td>
<td>25.174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female Lecture-P</td>
<td>24.375</td>
<td>2.008</td>
<td>20.186</td>
<td>28.564</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
male students only; (d) of teacher gender on classroom characteristics, for male students only; and (e) of teaching style on classroom characteristics, for both female and male students. According to male and female students' perceptions, overall, a main effect of teacher gender existed: (a) on teachers' characteristics and teaching approaches; and (b) on students' characteristics and orientations to learning.

Student Responses

Overall, a main effect of teacher gender was found. Reinforcing the results of the F-test, estimated marginal means showed that students perceived male and female teachers to (a) ask direct, analytical questions; (b) acknowledge, respond to, and expand upon questions and comments; (c) seek elaboration; (d) provide positive, definitive feedback; and (e) use teaching methods that provide structure, expectations, and demand decision making. Male students in the classes of female teachers produced the highest estimated marginal mean (20.219); followed by: female students in female teachers' classes (19.591); female students in male teachers' classes (18.767); and male students in male teachers' classes (18.032).

Another main effect of teacher gender was found. Students perceived that they (a) spoke out, interacting equally with others, and (b) interjected ideas in a manner to bring feedback. Female students in the classes of female teachers produced the highest estimated marginal mean (6.333), followed by: male students in female teachers' classes (6.094); female students in male teachers' classes (5.474); and male students in male teachers' classes (5.381).
Bluefield College. A statistically significant difference was found from analysis of the student responses at Bluefield College on one of the variables selected for study. A main effect of teacher gender was found. Students perceived male and female teachers to (a) ask direct, analytical questions, (b) acknowledge, respond to, and expand upon questions and comments, (c) seek elaboration, (d) provide positive, definitive feedback, and (e) use teaching methods that provide structure, expectations, and demand decision making. Male students in the classes of female teachers produced the highest estimated marginal mean (20.300), followed by: female students in female teachers' classes (19.154); female students in male teachers' classes (18.350); and male students in male teachers' classes (17.069).

King College. A statistically significant difference was found from analysis of the student responses at King College on one of the variables selected for study. A main effect of an interaction of student gender and teacher gender was found. Students perceived male and female teachers to (a) ask direct, analytical questions, (b) acknowledge, respond to, and expand upon questions and comments, (c) seek elaboration, (d) provide positive, definitive feedback, and (e) use teaching methods that provide structure, expectations, and demand decision making. Male students in the classes of male teachers produced the highest estimated marginal mean (22.333), followed by: female students in female teachers' classes (19.909); female students in male teachers' classes (19.524); and male students in female teachers' classes (18.750).
Virginia Intermont College. A statistically significant difference was found from analysis of the student responses at Virginia Intermont College on two of the variables selected for study. Again, a main effect of teacher gender was found. Students perceived male and female teachers to (a) ask direct, analytical questions, (b) acknowledge, respond to, and expand upon questions and comments, (c) seek elaboration, (d) provide positive, definitive feedback, and (e) use teaching methods that provide structure, expectations, and demand decision making. Male students in the classes of female teachers produced the highest estimated marginal mean (20.750); followed by: female students in female teachers' classes (19.862); female students in male teachers' classes (17.576); and male students in male teachers' classes (16.105).

A main effect of teacher gender was also found for student characteristics and orientations to learning. Students perceived that they (a) spoke out, interacting equally with others, and (b) interjected ideas in a manner to bring feedback. Female students in the classes of female teachers produced the highest estimated marginal mean (6.759), followed by: male students in female teachers' classes (6.250); female students in male teachers' classes (5.458); and male students in male teachers' classes (5.474).

Teacher Responses

From analysis of the teacher responses, a statistically significant difference was found on two variables selected for study.

Male Students and Female Students. A main effect of teaching style was found for both male students and female students. Reinforcing the results of the F-test, the
estimated marginal mean showed that teachers perceived male and female teachers to (a) ask direct, analytical questions; (b) allow appropriate response time; (c) and select textbooks to provide role models. Estimates of predicted mean values showed teacher perceptions of female teachers to produce the highest estimated marginal means (10.000, lecture-participative styles; 6.333, participative styles; 6.000, lecture styles) for both male and female students. Reinforcing the results of the F-test, estimates of predicted mean values showed teachers' perceptions of male teachers' to be lower (8.600, lecture-participative; 3.333, lecture styles; 0.000, participative styles).

A main effect of teacher gender was found, for both male students and female students. Teachers perceived male and female students to (a) speak out, interacting equally with others, and (b) interject ideas in a manner to bring feedback, and (c) respond to the teachers' direct and indirect questions, both analytical and factual. However, the estimated marginal means for male students and female students were different. Female teachers using lecture teaching styles produced the highest estimated marginal means (male students, 23.000; female students, 19.000), followed by: female teachers using lecture-participative teaching styles (male students, 19.375; female students, 16.375); male teachers using lecture-participative styles (male students, 19.300; female students, 15.300); female teachers using participative styles (male students, 17.667; female students, 14.333); male teachers using lecture styles (male students, 9.667; female students, 6.000).

A main effect of teacher gender was found, with approximate means for both male students and female students. Teachers perceived male and female students to (a)
respond to fellow male and female students' questions, analytical and factual. Female teachers using lecture teaching styles produced the highest estimated marginal mean (12.000, female students; 12.000, male students), followed by: female teachers using lecture-participative styles (10.500, female students; 10.500, male students); male teachers using lecture-participative styles (8.300, female students; 7.900, male students); female teachers using participative styles (7.333, female students; 8.333, male students); and male teachers using lecture methods (1.776, female students; 1.776, male students).

A main effect of teaching style was also found, with approximate means for male and female students. Teachers perceived that they had created: classroom environments in which male and female students felt comfortable voicing controversial opinions, and course designs that provided opportunities for: (a) students to get to know each other; (b) support and challenge by peers and the teacher; (c) small group discussions; (d) discussions organized around clear questions; and (e) participation that positively affected grades. Female teachers using lecture-participative styles produced the highest estimated marginal mean (24.500, female students; 24.375 male students), followed by male teachers using lecture-participative methods (18.700, female students; 18.700 male students); female teachers using participative styles (18.333, female students; 18.333, male students); female teachers using lecture styles (12.000, female students; 12.000, male students), and male teachers using lecture methods (8.000, female students; 7.667, male students).
Male Students. A main effect of an interaction of teacher gender and teaching style was found for male students only. Teachers perceived male and female students to (a) speak out, interacting equally with others; (b) interject ideas in a manner to bring feedback; and (c) respond to teachers' direct and indirect questions, both analytical and factual. Reinforcing the results of the F-test, the estimated marginal means showed students in the classrooms of female teachers using lecture teaching styles to produce the highest estimated marginal means (23.000), followed by: female teachers using lecture-participative teaching styles (19.375); male teachers using lecture-participative styles (19.300); female teachers using participative styles (17.667); and male teachers using lecture methods (9.667).

A main effect of teacher gender was also found, for male students only. Teachers perceived that students (a) spoke out, and (b) showed confidence. Estimates of predicted mean values showed female teachers using lecture teaching styles to produce the highest estimated marginal means (8.000), followed by: female teachers using participative teaching styles (6.667); female teachers using lecture-participative styles (6.625); male teachers using lecture-participative styles (5.600); and male teachers using lecture methods (5.000).

Different Teaching Approaches

The learning orientations, teaching approaches, and course designs and peer expectations and influence revealed in this study do not represent a radical departure from
previous findings discussed in chapter 2. Do male teachers use different teaching approaches from female teachers?

**Teacher Responses.** According to teacher responses, teachers perceived that they (a) asked direct and indirect questions, analytical and factual; (b) allowed ample response time; and (c) selected textbooks that provided role models. Female teachers produced the highest estimated marginal means (10.000, lecture participative styles; 6.333, participative styles; 6.000, lecture styles) for both male and female students. Reinforcing the results of the F-test, the estimated marginal means showed male teachers to produce lower means (8.600, lecture-participative; lecture, 3.333; participative, 0.000). These findings support others that found different teaching approaches by male and female teachers (Constantinople et al., 1988; Hutchinson & Beadle, 1992; Statham et al., 1991; Sears & Hennessey, 1996).

**Student Responses.** According to student responses, students perceived that male teachers and female teachers used somewhat different approaches. The teachers (a) asked direct analytical questions, and allowed ample response time; (b) acknowledged, responded to, and expanded upon the questions and comments, and sought elaboration; (c) provided positive, definitive feedback; and (d) used teaching methods that provide structure, stress expectations, and demand decision making. The estimated marginal means were slightly higher for female teachers (male students, 20.219; female students, 19.591) than male teachers (male students, 18.032; female students, 18.767).
At Bluefield College, students perceived that male teachers and female teachers used somewhat different teaching approaches. The estimated marginal means were higher for female teachers (male students, 20.300; female students, 19.154) than male teachers (male students, 17.069; female students, 18.350). At Virginia Intermont College, also, students perceived that the male teachers and female teachers used somewhat different teaching approaches. The estimated marginal means were higher for female teachers (male students, 20.750; female students, 19.682) than male teachers (male students, 16.105; female students, 17.576). At King College, students perceived that male teachers and female teachers used different teaching approaches. The estimated marginal means were lower for female teachers (male students, 18.750; female students, 19.909) than male teachers (male students, 22.333; female students, 19.524).

**Differential Treatment of Male Students and Female Students**

Do male teachers use different teaching approaches for female students than for male students? The estimated marginal means for male teachers (lecture styles, 3.333; participative, 0.000; lecture-participative, 8.600) and female teachers (lecture, 6.000; participative, 6.333; lecture-participative, 10.000) were identical for male students and female students. These findings support others that found no evidence of differential treatment of students based on gender (Boersma et al., 1981; Constantinople et al., 1988; Crawford & MacLeod, 1990; Heller et al., 1985; Krupnick, 1985; Sternglanz & Lyberger-Ficek, 1977; Wingate, 1984).
According to student responses, students perceived that they were treated similarly. Reinforcing the F-test, the estimated marginal mean showed female students in the classes of male teachers (18.676); and male students in the classes of male teachers (18.032) to produce comparable estimated marginal means. Students perceived female students in the classes of female teachers (19.591), also, to be treated similarly to male students (20.219).

At Bluefield College, students perceived some differential treatment of male students and female students by male teachers (male students, 17.069; female students, 18.350) and female teachers (male students, 20.300; female students, 19.154). At Virginia Intermont College, students perceived some differential treatment of male students and female students by male teachers (male students, 16.105; female students, 17.576) and female teachers (male students, 20.750; female students, 19.682). Male students (16.105).

At King College, a greater degree of differential treatment was noted. Students perceived more differential treatment by male teachers (male students, 22.333; female students, 19.524) than by female teachers (male students, 18.750; female students, 19.909).

Differential Behavior by Male Students and Female Students

Do female students contribute equally with men to the interaction process in the higher education classroom?

Teacher Responses. According to teacher responses, male and female teachers perceived male and female students to behave differently on (a) speaking out, interjecting
ideas in a manner to bring feedback; and (b) responding to direct and indirect questions, both analytical and factual. Teachers perceived female students in the classes of female teachers to behave differently, producing lower means (19.000, lecture; 16.375, lecture-participative; 14.333, participative) from male students (23.000, lecture; 19.375, lecture-participative; 17.667, participative) in the classes of female teachers. Estimates of predicted mean values were also lower for female students in the classes of male teachers (15.300, lecture-participative; 6.000, lecture; 0.000 participative) than for male students in the classes of male teachers (19.300, lecture-participative; 9.667, lecture; 0.000, participative).

Teachers perceived male and female students to respond similarly to the questions of fellow students. Female students produced means in male teachers' classes (8.300, lecture-participative; 1.776, lecture; 0.000, participative) and female teachers' classes (12.000, lecture; 10.500, participative; 7.333, lecture-participative) that were comparable to male students' means in male teachers' classes (7.900, lecture-participative; 1.776, lecture; 0.000, participative) and female teachers' classes (12.000, lecture; 10.500, lecture-participative; 8.333, participative). As discussed in chapter 2, particular research findings have shown women to behave differently in the classroom (Auster & MacRone, 1994; Banks, 1988; Canada & Pringle, 1995; Condravy et al., 1998; Constantinople et al., 1988; Crawford & MacLeod, 1990; Hall & Sandler, 1982; Karp & Yoels, 1976; Krupnick, 1985; O'Keefe, 1987; Pearson & West, 1991; Sternglanz & Lyberger-Ficek, 1977; Wingate, 1984).
Student Responses. According to student responses, male and female students perceived male and female students to perform differently on (a) speaking out, interacting equally with others; (b) interjecting ideas in a manner to bring feedback.

Students perceived female students (6.333) and male students (6.094) in the classes of female teachers to produce the highest mean, followed by female students (5.474) and male students (5.381) in the classes of male teachers. These findings support others that found little evidence of less interaction by female students (Boersma et al., 1981; Heller et al., 1985; Karp & Yoels, 1976; Krupnick, 1985; Nadler & Nadler, 1990; Pearson & West, 1991; Sternglanz & Lyberger Ficek, 1977).

At Bluefield College, students perceived female students to make interjections somewhat less frequently (6.038) than male students (6.250) in female teachers' classes, and somewhat less frequently (5.600) than male students (5.609) in male teachers' classes. At King College, students perceived that female students (5.909) in the classes of female teachers and male students (5.867) in the classes of male teachers produced the highest means, followed by female students (5.429) in the classes of male teachers and male students (5.000) in the classes of female teachers. At Virginia Intermont College, students perceived that female students (6.759) made slightly more interjections than male students (6.250) in female teachers' classes. Female students (5.485) and male students (5.474) in the classes of male teachers made interjections at an approximate rate.
Differential Effect of Course Design

Do course designs and peer expectations and influence differentially affect students?

Teacher Responses. According to teacher responses, teachers perceived that male and female students were not differentially affected by course designs or peer expectations and influence. Teachers perceived that female students (a) spoke out, and (b) showed confidence in male teachers classes (6.000, lecture; 5.700, lecture-participative; 0.000, participative) and female teachers' classes (7.000, lecture; 6.875, lecture-participative; 6.667, participative) comparably to male students in male teachers' classes (5.600, lecture-participative; 5.000, lecture; 0.000, participative) and female teachers' classes (8.000, lecture; 6.667, participative; 6.625, lecture-participative).

Teachers also perceived that male students and female students felt comfortable (a) voicing controversial opinions; and had opportunities to experience (b) small group discussions; (c) support and challenge by peers and teachers; (d) students getting to know one another; (e) discussions organized around clear questions; and (f) participation that positively affected grades. Teachers perceived that female students in male teachers' classes (18.700, lecture-participative; 8.000, lecture; 0.000, participative) and female teachers' classes (24.500, lecture-participative; 18.333, participative; 12.000, lecture) experience effects similar to male students in male teachers' classes (18.700, lecture-participative; 7.677, lecture; 0.000, participative) and female teachers' classes (24.375, lecture-participative; 18.333; participative; 12.000, lecture.)
**Student Responses.** According to student responses, students perceived that they
were comfortable (a) speaking out; (b) voicing controversial opinions; (c) not relying on
the "few" to make interjections; (d) respecting the views of others; and (e) showing
confidence in class. Female students in the classes of female teachers (15.864) and male
teachers (14.681) experienced situations similar to male students in the classes of female
teachers (15.344) and male teachers (15.175).

At Bluefield College, students perceived female students in the classes of female
teachers (14.962) and male teachers (15.350) experienced situations similar to male
students in the classes of female teachers (15.100) and male teachers (15.276). At
Virginia Intermont, students perceived female students in the classes of female teachers
(16.517) and male teachers (14.848) to be as comfortable with their learning
environments; as male students in male teachers' classes (14.895) and female teachers'
classes (16.000). At King College, students perceived that male students in the classes of
female teachers were slightly less comfortable than female students (male students,
15.250; female students, 16.273); as were female students in the classes of male teachers
(male students, 15.333; female students, 14.381).
CHAPTER 5
CONCLUSIONS, RECOMMENDATIONS, IMPORTANCE, AND IMPLICATIONS

The purpose of this study was to investigate the range of motivational factors that facilitate individuals’ assuming leadership roles in the postsecondary classroom and, thereafter, making themselves available for senior faculty positions and administrative posts, or other higher-echelon positions. The factors were (a) teachers’ characteristics and teaching approaches, specifically, actions to encourage students’ interjections, and strengthen overall orientation to learning; (b) male and female students’ characteristics and orientations to learning, specifically, interjections made, and overall orientation to learning; (c) classroom characteristics, specifically, the course design and peer expectations and influence, and their levels of influence on student willingness to interact in the higher education classrooms in which they are currently being surveyed.

Four questions become apparent. Do male teachers use different teaching approaches than female teachers? Do male teachers use different teaching approaches for female students than for male students? Do women and men contribute equally in the interaction process in the higher education classroom? Do course designs and peer expectations and influence differentially affect male students and female students?

Conclusions

Do male teachers use different teaching approaches than female students? According to the perceptions of teachers, male teachers and female teachers use different teaching
approaches in higher education classrooms. Female teachers produced higher estimated
marginal means for both male and female students, than male teachers.

Factors included here were:

a. asking direct and indirect analytical and factual questions;

b. allowing ample response time; and

c. selecting textbooks that provide role models.

According to the perception of students, male teachers and female teachers used
somewhat different approaches. The estimated marginal means were slightly higher for
female teachers than male teachers.

At Bluefield College and Virginia Intermont College, students perceived that male
teachers and female teachers used somewhat different teaching approaches. The
estimated marginal means were higher for female teachers than male teachers.

At King College, students also perceived that male teachers and female teachers used
different teaching approaches. However, the estimate marginal means were lower for
female teachers than for male teachers.

Factors included here were:

a. asking direct, analytical questions and allowing ample response time;

b. acknowledging, responding to, and expanding upon questions and comments, and
seeking elaboration;

c. providing positive, definitive feedback; and

d. using teaching methods that provide structure, stress expectations, and demand
decision making.
Do male teachers utilize different teaching approaches for female students than for male students? Male and female teachers perceived no differential treatment of male students and female students. The estimated marginal means for male teachers and female teachers were identical for male students and female students.

Factors included here were:

a. asking direct analytical questions;

b. allowing ample response time; and

c. selecting textbooks that provide role models.

Male and female students perceived some differential treatment overall by male teachers and female teachers. Students also perceived some differential treatment at:

Bluefield College, with male teachers favoring female students and female teachers favoring male students; King College, with male teachers favoring male students and female teachers favoring female students; Virginia Intermont College, with male teachers favoring female students and female teachers favoring male students.

Factors included here were:

a. asking direct, analytical questions;

b. allowing ample response time;

c. acknowledging, responding to, and expanding upon questions and comments;

d. seeking elaboration;

e. providing positive, definitive feedback; and

f. using teaching methods that provide structure, stress expectations, and demand decision making.
Do female students contribute equally with men to the interaction process in the higher education classroom? Male and female teachers perceived less interaction by female students in the classes of female teachers using: lecture teaching styles; lecture-participative styles; and participative styles. Teachers also perceived less interaction by female students in the classes of male teachers: using lecture-participative styles; using lecture styles. Factors included here were:

a. speaking out, interacting equally with others;

b. interjecting ideas in a manner to receive feedback; and

c. responding to teachers' direct and indirect questions, both analytical and factual.

Teachers perceived male and female students to respond similarly to the questions and comments of fellow students, fellow male students and female students.

Male and female students perceived female student interaction to be slightly higher than male student interaction overall, in the classes of male teachers and female teachers. Students perceived female student interaction to be somewhat higher than male student interaction at each of the three schools, except in female teachers' classes at Bluefield College and in male teachers' classes at King College.

Factors included here were:

a. speaking out, interacting equally with others; and

b. interjecting ideas in a manner to receive feedback.

Male and female teachers also perceived equal responses by male and female students to fellow students' questions and comments, fellow male students and fellow female students. Female students produced means in male and female teachers' classes that were
comparable to male students' means in male and female teachers' classes. The only factor included here was responding to fellow students' questions and comments, fellow male students and fellow female students.

Do course designs, and peer expectations and influence, differentially affect male students and female students? Teachers perceived that male and female students were not differentially affected by course designs or peer expectations and influence. Teachers perceived that female students interacted and showed confidence in male and female teachers' classes comparably to male students in male and female teachers' classes.

Factors included here were:

a. speaking out; and

b. showing confidence.

Teachers perceived that female students in male and female teachers' classes experienced effects similar to male students in male and female teachers' classes.

Factors included here were: opportunities for

a. voicing controversial opinions;

b. small group discussions;

c. support and challenge by peers and the teacher;

d. students getting to know one another;

e. discussions organized around clear questions; and

f. participation that positively affected grades.
Overall, students also perceived that female students in the classes of female and male teachers experienced situations similar to male students in the classes of female and male teachers.

At Bluefield College and Virginia Intermont College, students perceived female students in the classes of female and male teachers to be as comfortable with their learning environments as male students in the classes of female and male teachers. At King College, students perceived that male students in the classes of female teachers were slightly less comfortable than female students; as were female students in the classes of male teachers.

Factors included here were:

a. speaking out;

b. voicing controversial opinions;

c. not relying on the "few" to make interjections;

d. respecting the views of others; and

e. showing confidence in class.

Recommendations

Recommendations for further study of the problem are:

1. A larger number of teachers and students needs to be sampled.

2. A larger number of small, private, liberal arts institutions need to be examined, with equal numbers of men and women teachers, representing each division of the curriculum, with special attention given to years of teaching experience.
3. The study needs to be conducted earlier in the semester. Having to give up valuable class time during the last week of classes prohibited some of the selected teachers from participating.

4. An observation study needs to be done.

The results of this study, which indicate that differences exist: in the teaching approaches of male students and female students; in the learning orientations of male students and female students, and in the effects of course design and peer expectations and influence, prompt further research in this area. Classroom interaction is indeed a complex process. Greater participation in the classes of female teachers has been traced to size of the classes, number of men in the classes, and to particular divisions of the curriculum (Fassinger, 1995); as well as learning style preferences (Lenehan, Dunn, Ingham, Signer, & Murray, 1994).

In further analysis of variables for this study, the researcher found main effects for both years of teacher experience and divisions of the curriculum.

Alternative Hypotheses

A main effect (F = 2.964; p > .020) of teacher experience was found on teacher characteristics and approaches to student learning: (a) asking direct, analytical questions (b) allowing ample response time; (c) acknowledging, responding to, and expanding upon questions and comments; (d) seeking elaboration; (e) providing feedback; and (f) using teaching methods that provide structure, stress expectations, and demand decision making. Teaching experience of 16-20 years produced the highest estimated marginal
mean (21.212); followed by 6-10 years (19.412); then, 1-5 years (19.118); 11-15 years (18.670); and 20+ (18.546).

A main effect (F = 3.145; p > .015) of teacher experience was found on student characteristics and orientations to student learning: (a) speaking out, interacting equally with others; and (b) interjecting ideas in a manner that brings feedback. Teaching experience 1-5 years produced the highest estimated marginal mean (6.427); followed by 6-10 years (6.177); 16-20 years (6.012); 11-15 years (5.875); and 20+ years (5.338).

A main effect (F = 2.533; p > .041) of teacher experience was found on student characteristics and orientations to student learning: (a) responding to the teachers; direct and indirect questions, both analytical and factual. Teaching experience 16-20 years produced the highest estimated marginal mean (13.124); followed by 1-5 years (12.799); 6-10 years (11.930); 11-15 years (11.584); and 20+ (11.003).

A main effect (F = 10.075; p > .000) of curriculum division was found on teacher characteristics and approaches to student learning: (a) asking direct, analytical questions (b) allowing ample response time; (c) acknowledging, responding to, and expanding upon questions and comments; (d) seeking elaboration; (e) providing feedback; and (f) using teaching methods that provide structure, stress expectations, and demand decision making. Humanities produced the highest estimated marginal mean (21.993); followed by fine arts (21.424); business (18.903); social science (18.323); and science (17.624).

A main effect (F = 10.075; p > .000) of curriculum division was also found on student characteristics and orientations to learning: (a) speaking out, interacting equally with others; and (b) interjecting ideas in a manner that brings feedback. Fine arts produced the
highest estimated marginal mean (7.435); followed by humanities (6.190); business (5.952); social science (5.529); and science (5.068).

A main effect ($F = 3.706; p > .006$) of curriculum division was also found on student characteristics and orientations to learning: (a) responding to the teachers' direct and indirect questions, both analytical and factual. Fine arts produced the highest estimated marginal mean (13.374); followed by humanities (12.812); business (11.830); science (10.886); and social science (10.665).

A main effect ($F = 10.075; p > .000$) of curriculum division was also found on student characteristics and orientations to learning: (a) responding to fellow students' questions and comments, male students and female students. Fine arts produced the highest estimated marginal mean (14.506); followed by humanities (12.232); science (11.778); business (11.044); and social science (10.875). A main effect ($F = 3.468; p > .017$) of year in school was also found, here. Being a senior produced the highest estimated marginal mean (16.729). This was followed by: being a freshman (15.475); being a junior (14.910); and being a sophomore (14.649).

A main effect ($F = 10.075; p > .000$) of curriculum division was also found on student characteristics and orientations to learning: fear of (a) appearing unintelligent to peers; (b) appearing unintelligent to the teacher; (c) being unable to organize thoughts; (d) being too tense to participate effectively; and (e) views being offensive to others. Fine arts produced the highest estimated marginal mean (17.986); followed by humanities (15.593); science (15.405); social science (14.484); and business (13.726).
A main effect ($F = 10.075; p > .000$) of curriculum division was also found on classroom characteristics, course design, and peer expectations and influence: (a) speaking out; (b) voicing controversial opinions; (c) not relying on the "few" to make interjections; (d) respecting the views of others; and (e) showing confidence in class. Fine arts produced the highest estimated marginal mean (17.375); followed by humanities (16.144); business (15.207); social science (14.881); and science (14.417). A main effect ($F = 10.075; p > .000$) of year in school was also found, here. The effect of being a senior produced the highest estimated marginal mean (16.562); followed by being a junior (15.808); being a freshman (15.331); and being a sophomore (14.718).

Although a great deal remains to be learned, sufficient evidence exists to demonstrate that classroom interaction has direct, positive effects on student learning. Learning becomes the mutual responsibility of students, teachers, and administrators. Student and teacher responsibility doesn't just happen. Educators must expect it, foster it, and nurture it. Classroom environments must be built in which students and teachers can collectively engage in the process of teaching and learning.

**Importance**

As was suggested in chapter I, of great importance to higher education is whether or not gender differentials in the postsecondary classroom are the result of differential teaching approaches for male students and female students, differential learning orientations by male students and female students, or differential effects of course design and peer expectations and influence on male students and female students.
Overt barriers can be breached by political pressure and institutional policy, permitting the ascendance of the men and women of greatest ability. Educators can change their individual approaches to student learning; equal educational opportunity can be afforded male and female students. Comprehensive educations can be offered: male and female students can be taught how to compete in a competitive world; how to debate, and argue for a point of view; and risk failure—skills that successful people practice regularly. Female students can be told that their experience is valid, should not be subverted, and that they can be both feminine and skilled leaders.

However, weak orientations to learning, or fear of succeeding, on the part of male and female students can only be addressed more broadly. Teachers may not be able to strengthen individual students’ learning orientations; reduce the negative effects of peer expectations and influence on them; or lessen students’ fears of success, feelings that if one is to fail, it is a better excuse that one did not try than that one was not able (Owens, 1995). Advancement requires both a willingness to take risks and intellectual leadership, and strong senior leadership.

**Implications**

Through participating in an environment in which certain central values are both discussed and exemplified, the hope of the researcher is that such values and behaviors consistent with them would become more deeply ingrained in both the students and teachers. Whereas the present data, indicating substantial effects of (a) teacher gender; (b) an interaction of teacher and student gender; (c) teaching style; and (d) an interaction
of teacher gender and teaching style, reflect only some surface aspects of the kinds of change the researcher would hope might occur, including a strengthened orientation to learning on the part of female students, an improved approach on the part of male teachers, and improved course designs, with freedom from peer expectations and influence, the researcher does not suggest that such changes would result from participation in this study.

In addition, it is not being stated, here, that being in a classroom where male students and female students are differentially treated causes female students to make fewer interjections, thereby minimizing learning. Neither is it being alleged that having a weaker learning orientation causes female students to make fewer interjections, thereby decreasing learning. It also is not being declared, here, that being in a classroom situation where particular aspects of the environment, specifically, course design and peer influence cause students to be unwilling to interact, thus hampering development.

However, the researcher does maintain that interaction in the classroom facilitates learning and development; and interaction is facilitated when: classroom environments are free of differential treatment; students possess strong orientations to learning; and students are protected from particular aspects of the environment, specifically, inadequate course designs, and the negative influence of peers.

**Methodological Approach**

The current investigation addressed some of the methodological shortcomings inherent in earlier studies. These include reports based solely on observational methods,
or those that relied solely on anecdotal comments: from students, or from teachers, concerning possible techniques for increasing student and student, and student and teacher interaction.

Social scientists contend that perceptions and interpretations guide human conduct (Berger & Luckmann, 1966; Fassinger, 1995). This study extends earlier studies by comparing the perceptions of teachers and students.

The study investigated teacher gender, teaching styles (lecture, participative, and lecture-participative), an interaction of teacher gender and student gender, as well as teachers' overall approaches to student learning. The study also looked at student gender and overall orientations to learning.

To date, little research has been done concerning the effects of classroom characteristics on the willingness of students to make interjections. This study extended earlier findings by anticipating that both students' characteristics and orientations to learning, and classroom characteristics, course design, and peer expectations and influence played important roles in classroom interaction.

Perceptions of Self, One Class, and One Teacher

Teachers and students are diverse in personal characteristics, teaching approaches, and orientations to learning. Classrooms are environmentally diverse in peer characteristics and course designs. This study extends earlier ones by investigating, only, each student's perception of their (a) personal characteristics and orientation to learning, (b) teacher's characteristics and teaching style, and (c) classroom's environment, the
course design and peer expectations and influence. The study also investigates only each teacher's perception of their (a) students' overall personal characteristics and orientations to learning, (b) personal characteristics and approach to learning, and (c) their classroom's environment, its course design and peer expectations and influence.
REFERENCES


Lawrence, G. D. (1982). People types and tiger stripes (2nd ed.). Gainesville, FL: Center for Applications of Psychological Type.


McKaig, R. (1984). Involved students are happy students—or are they? *Campus Activities Programming, 17*(1), 31-33.


Schiff, D. (1997, February 3). Give your daughters Legos and erector sets, in addition to Barbies, if you want them to go into engineering. Electronic Design, 45, 179-181.


APPENDIX A

LETTER OF INQUIRY TO VICE PRESIDENTS FOR ACADEMIC AFFAIRS
February 16, 1998

Mary Lou Cole
49 College Drive
Bluefield, VA 24605

Dr. Paul Sorrells
Vice President for Academic Affairs
Bluefield College
3000 College Drive
Bluefield, VA 24605

Dear Dr. Sorrells:

I am currently a student in the Educational Leadership and Policy Analysis doctoral program at East Tennessee State University in Johnson City, Tennessee. My doctoral dissertation study is scheduled to be carried out during this spring semester 1999, specifically, the week of April 19 at Bluefield College (with your permission), King College, and Virginia Intermont College.

I am requesting permission to administer a survey to the teachers and students in randomly-selected classes during that week. I will be happy to take responsibility for contacting the teacher to request their permission. Anonymity and confidentiality of response will be assured for both teachers and students.

Very little class time will be consumed, approximately 20 minutes at the beginning of one class. Each teacher will need to assign one of their most conscientious students to administer the survey instruments, collect the responses, place them in an envelope, seal the envelope, and take it to a central location for pickup.

I will call your office within a few days to get your decision. You may contact me at (540) 326-2079 if you have concerns or need further information. Thank you so much for your consideration in this matter.

Sincerely,

Mary Lou Cole
APPENDIX B

COURSE LISTING BY TIME PERIOD, DAY OF THE WEEK, AND DIVISION OF THE CURRICULUM

191
## BLUEFIELD COLLEGE
Schedule of Courses by Time Period, Day of Week, and Division of Curriculum - SPRING 1999

### BUSINESS

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**EconII**  Gordon
**PersComp**  Cole
**InterAcctng**  Belcher
**Marketing**  Belcher
**PrinAcctng**  Cole
**SmBusMgmt**  Shoemaker
**IncomeTax**  Cole
**BusinessLaw**  Cyrus
**IntrotoBus**  Gordon
**MgmtInfSys**  Anderson
**Auditing**  Cole
**ElectOffice**  Belcher
**HumResMgmt**  Shoemaker
**Visual Basic**  Anderson
**OrganiTheo**  Shoemaker
**Cobol**  Anderson
**BusPolicy**  Shoemaker

### EDUCATION

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**Clay**  Haughton
**Haughton**  Clay
**Watson**  Haughton

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**Art History**  Shroyer
**Comm Arts**  Garrett

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### DRAMA
- Garrett

### MUSIC
- Sheppard
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- Moxley
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- Moxley

### HUMANITIES
- English: Pelliio, Pellillo, RMerritt
- Greek: Lyle
- Hebrew: Carrell
- Philosophy: Lyle, Crawford
- Religion: Lyle, Lyle

### SCIENCE
- Biology: Randall, Kerr
- Chemistry: Flowers, Elswick, Stallard, Slade
- Mathematics: Elswick, Chaffin, Stallard, Slade
- Physical Science: Flowers, Chaffin, Chaffin

### SOCIAL SCIENCE
- Criminal Justice: Walls, Tresch, Chaffin
- History: Tresch, Cyrus
- Political Science: Poe, Chaffin
- Psychology: Poe, Glasgow
- Sociology: Glasgow, Glasgow, Glasgow, Armbister
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**BUSINESS**

- **AcctPrill** Schroder-F; TW F
- **AcctPrill** Schroder-F; MWF
- **CIS** Shroder-F; TRF
- **Gov/Bus** Bartel-M; TR, 9M
- **CorpFin** Percy-M; MWF
- **IndOrgPsych** Percy-M; MW, 11F
- **MarketMgmt** Percy-M; MWR
- **PrinAuditing** Schroder-F; MW, 9R
- **BusPolicySem** Bartel-M; TWF

**COMPUTER INFORMATION MANAGEMENT**

- **CompSciII** Fetters-M; MW, 11R
- **SystAnal** Fetters-M; MWR
- **ComputerTech** Dwyer-F; T

**ECONOMICS**

- **Micro** Percy-M; MWF, 9R
- **Macro** Bartel-M; MWF, 9R

**EDUCATION**

(No male teachers)

**FINE ARTS**

- **ART** Man&Arts Flanagan-M; MWF
- **MUSIC**
  - Music Theory Flanagan-M; MWF, 9R
  - ModEraMusic Flanagan-M; TWF
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**PHYSICAL EDUCATION**
(No classes that lend themselves to interaction as described in study; all health classes taught by women)

**HUMANITIES**

**BIBLE**
- OT Sur: Bowley-M; MWF
- OT Testament Survey: Bowley-M; MWF
- NTSur: Bowley-M; MWF
- NTSurvey: Bowley-M; MWF
- Prophetic Lit: Mclanahan-M; MWF
- Romans: Mclanahan-M; MWF

**ENGLISH**
- Writing Skills: Woolsey-M; MW, 9R
- FrEng: McDonald-M; MWF
- FrEng: Vandebrake-F; MW, 9R
- FrEng: Owens-M; MWF
- FrEng: Owens-M; MWF
- FrEng: Vandebrake-F; MWF
- FrEng: Woolsey-L-F; MR, 1T
- SurWestLit: McDonald-M; TR, 9M
- SurWestLit: Woolsey-M; TR, 9M
- SurWestLit: Woolsey-L-F; TR, 9M
- SurWestLit: Woolsey-L-F; MWR
- SurWestLit: McDonald-M; MWR
- CraftPrint: Woolsey-M; W2-5
- CreatWrit: Woolsey-L-F; MW, 9T
- 19th Century: Woolsey-M; MW, 11R
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### FRENCH
- **Elem French** (MWF): Madigan-F
- **Inter Fre** (MWF): Madigan-F
- **Bishara-F** (TW F)
- **Adv French** (MWF): Bishara-F
- **French Canada** (MWF): Bishara-F
- **Inter German** (MWF): Madigan-F

### PHILOSOPHY
- **World’s Relig** (MWF): Rohr-M
- **Religion**
  - **Gospel Mark** (MWF): Rohr-M
  - **Amer Relig Exp** (MWF): McClaanahan-M
  - **Intro Christ Miss** (MWF): Rohr-M
- **SPANISH**
  - **Elem Span** (MWF): Guffey-F
  - **Int Spanish** (MWF): Macione-F
  - **Int Span** (MWF): Guffey-F
  - **Span Gramm Comp** (MWF): Macione-F

### SOCIAL SCIENCES
- **HISTORY**
  - **US 1877-** (MWF): Cole-M
  - **Mod Era Music** (MWF): Flannagan-M
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### BUSINESS
- ManAcct     Connor-F
- BusComp     Conley-F
- Marketg Ferrell-F
- Marketg Ferrell-F
- BusLaw      Conley-F
- PersFinan   Opp-M
- ConsBehav   Watson-M
- OrgBehavi   Ferrell-F
- ProOpMgmt   Watson-M
- LogtMgmt    Vonessen-M
- BusResMe    Watson-M
- CorpStrat   Watson-M

### COMPUTER INFORMATION MANAGEMENT
- Comp Fund   Colelman-F
- Comp Fund   Coleman-F
- Excel/Access Coleman(M)-F

### ECONOMICS
- Micro       Opp-M
- Macro       Opp-M
- PerFinPl    Opp-M
- ConsAff     Bailey-M

### PARALEGAL STUDIES
- EssentPlglPract Greer-F
- Legal Writing Murthy-F
- Legal Ethics Murthy-F
- ConsumCre/Bnkru Copeland-F
- Business Lawl Copeland-F
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**EDUCATION**
*(no male teachers)*

**FINE ARTS**

**ART**

- IntroVisArts: Blevins-M
- 3-DDesign: Tadlock-M
- Painting: Blevins-M
- Printmaking: Mehlerfer-M
- Life Drawing: Tadlock-M
- GraphicDesign: Mehlerfer-M
- Illustration: Mehlerfer-M
- Ceramics: Tadlock-M
- Sculpture: Blevins-M
- InterPainting: Mehlerfer-M
- InterPrintmaking: Blevins(MW)-M
- InterDrawing: Mehlerfer-M
- ArtHistoryII: Blevins-M
- IntGraphDes: Mehlerfer-M
- IntCeramics: Tadlock-M
- InterSculpture: Blevins-M
- AdvPainting: Tadlock-M
- AdvPrintmaking: Mehlerfer-M
- AdvDrawing: Blevins-M
- ArtHistory: Mehlerfer-M
- AdvGraphDes: Tadlock-M
- AdvCeramics: Blevins-M
- Adv Sculpture: Tadlock-M
- Choir: Rhinehart-M
- PerfArts Rhinehart-M
- PerfArts: Rhinehart-M
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**SPEECH**
- SpecComm
- SpecComm
- VoicDictn

**THEATRE**
- IntroToTheat
- Stagecraft
- ActingI
- MusicTheat

**PHYSICAL EDUCATION**
- Health
  - SftyEdFirstAid
- PHYSED
  - PEforChild
  - Meas/Eval/PE
  - Kinesiology

**HUMANITIES**
**ENGLISH**
- ComplInterStud
- Composition
- Comp/Lit
- Comp/Lit
- Comp/Lit
- Comp/Lit
- EngLit
- AmerLitI
- AmerLitII
- WorldLit
- MedRenLi
- Chil/AdolLit
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**FRENCH**
- ElemFreill Rivielo-M

**PHILOSOPHY**
- IntroPhil Rainwater-M
- ElemLogic Rainwater-M
- IntroRelig Rainwater-M
- Life/TeachJesus Rainwater-M

**SCIENCE**

**HISTORY**
- WorldHistH Rivielo-M
- WorldHistll Rivielo-M
- AmerHist Schultz-M
- AmerHist Schultz-M
- ColAmer Puglisi(W)-M

**POLITICAL SCIENCE**
- PolitScience Rivielo-M
- AmerFedGov Rivielo-M

**PSYCHOLOGY**
- GenPsychology West-F
- DevelPsych West-F
- AppliedPsych West-F
- Personality West-F
- ResDesll Watson-F

**SOCIAL WORK**
- CommResour SmithP(W)-F
- ProgPoliclass Shumaker-F
- HumanBeh Shumaker-F
- SOWKPracticell Shumaker-F
- ContIssWelfare Shumaker-F
- SOWKPracIV SmithP-F
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APPENDIX C

TIME PERIOD, DAY OF WEEK, GENDER OF TEACHER AND DIVISION OF CURRICULUM
BLUEFIELD COLLEGE
Schedule of Courses, Summary Sheet - SPRING 1999
by Time Period, Day of Week, Gender of Teacher and Division of Curriculum

---Monday, Wednesday, Friday classes---

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* Divisions with male and female teachers

Total No. of Divisions with male/female teachers 2 5 0 4 0 0 3 0 2 0 4 2 0 0 0 4

Divisions Available for survey: Bus, FA, Hum, Science, So Sc

Time Period for administering survey: MWF

No women are currently teaching in the PE division. No men were teaching in the division of education during the selected time period.
KING COLLEGE
Schedule of Courses, Summary Sheet - SPRING 1999
by Time Period, Day of Week, Gender of Teacher and Division of Curriculum

---Monday, Wednesday, Friday classes---

| Time Period | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 8:00        | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  |
| 9:00        | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  |
| 10:00       | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  | M  | F  |
| 11:00       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12:00       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12:30       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1:00        |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2:00        |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

---Tuesday, Thursday classes---

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</tbody>
</table>

Business (No male teachers)
Education (No male teachers)
Fine Arts
Health, PE & Recreation (No classes that lend themselves to interaction as described in study; all health classes taught by women)

Humanities
SocSciences
Sciences

Total

* Divisions with male and female teachers

Divisions with male & female teachers

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<tr>
<th>Divisions available for survey</th>
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<th>Hum</th>
<th>SS</th>
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Time Periods for administering survey

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</table>

Certain PE courses meet in areas not conducive to interaction as described in the survey instrument (i.e. adv. weight training, swimming, skiing, lifeguarding, aquatic leadership, coaching) and were omitted. Also, no men are currently teaching in the education division.
### VIRGINIA INTERMONT COLLEGE
Schedule of Courses, Summary Sheet - SPRING 1999
by Time Period, Day of Week, Gender of Teacher and Division of Curriculum

--- Monday, Wednesday, Friday classes ---

| Time | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | M | F | M | F |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Business**
- Tuesday, Thursday classes
- 1:00
- 2:00
- 9:00
- 10:00
- 11:00
- 12:00
- 12:30
- 1:00
- 2:00
- 8:00
- 9:00
- 9:30
- 10:00
- 11:00
- 12:00
- 12:30
- 1:00
- 2:00

**Education** (No male teachers)
- Monday, Wednesday, Friday classes
- Tuesday, Thursday classes

--- Tuesday, Thursday classes ---

| Time | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | M | F | M | F |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Curric**

**Division with male & female teachers**
- Business
- Education
- Fine Arts
- Health, PE & Recreation
- Humanities
- SocScience
- Science

**Total**
- 6:0
- 8:4
- 9:2
- 10:0
- 10:3
- 11:0
- 11:3
- 12:0
- 12:3
- 1:00
- 2:00

--- Available for survey ---

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</table>

Certain PE courses meet in areas not conducive to interaction as described in the survey instrument (i.e. adv. weight training, swimming, skiing, lifeguarding, aquatic leadership, coaching) and were omitted. Also, no men are currently teaching in the education division.
APPENDIX D

COURSES OFFERED AT SELECTED TIME
MONDAY, WEDNESDAY, FRIDAY COURSES OFFERED AT 9:00 AM
BLUEFIELD COLLEGE COURSES
by Academic Division (100-, 200-, 300-, and 400-level courses) and Teacher Gender

<table>
<thead>
<tr>
<th>COURSE</th>
<th>FACULTY</th>
<th>GENDER</th>
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<tbody>
<tr>
<td>BUS 2543 PRINCIPLES OF ACCOUNTING II</td>
<td>GORDON</td>
<td>MALE</td>
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<tr>
<td>BUS 3023 PRINCIPLES OF MARKETING</td>
<td>COLE</td>
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<tr>
<td>BUS 4503 SMALL BUSINESS MANAGEMENT</td>
<td>SHOEMAKER</td>
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DIVISION OF FINE ARTS

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<tr>
<td>MUS 1641 EAR TRAINING II</td>
<td>SHEPPARD</td>
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<tr>
<td>MUS 3552 CHURCH MUSIC EDUCATION</td>
<td>MOXLEY</td>
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DIVISION OF HUMANITIES

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<tr>
<td>ENG 3063 TECHNICAL WRITING</td>
<td>PELLILLO</td>
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<td>GRK 2023 INTERMEDIATE HELLENISTIC GREEK</td>
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DIVISION OF SCIENCE

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<td>BIO 2013 ANATOMY AND PHYSIOLOGY</td>
<td>RANDALL</td>
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<td>PHYSICS PHYSICS II</td>
<td>CHAFFIN</td>
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<td>MATH MATHEMATICS OF FINANCE</td>
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DIVISION OF SOCIAL SCIENCE

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<td>SOCIOLOGY INTRO TO SOCIOLOGY</td>
<td>GLASGOW</td>
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<tr>
<td>HISTORY WESTERN CIVILIZATION II</td>
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### COURSE FACULTY GENDER

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<td>PSYC 248 THEORIES AND TECH OF COUNSELING</td>
<td>THOMPSON</td>
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VIRGINIA INTERMONT COLLEGE
TUESDAY, THURSDAY COURSES OFFERED AT 11:00 AM - SPRING 1999
by Academic Division (100-, 200-, 300-, and 400-level courses) and Teacher Gender

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<th>DIVISION OF BUSINESS</th>
<th>FACULTY</th>
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<td>05-102-01 COMPUTER FUNDAMENTALS</td>
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<td>COLEMAN</td>
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<td>23-307-01 CONSUM CRE/BNKRU</td>
<td>PARALEGAL STUDIES</td>
<td>COPELAND</td>
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<tr>
<td>04-301-01 GENERAL CHEMISTRY</td>
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<td>BROWNING</td>
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<td>SOCIAL WORK</td>
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APPENDIX E

LETTER TO MEMBERS OF THE FACULTY

212
March 30, 1999

Bluefield College
3000 College Drive
Bluefield, VA 24605

Dear Dr. Randall:

As you may know, I am currently a student in the Educational Leadership and Policy Analysis doctoral program at ETSU. My doctoral dissertation study will be carried out during the week of April 19 at Bluefield College and two other schools.

I would like your permission to survey both you and your 9:00 a.m. class on Wednesday, April 21, 1999. Certainly, complete anonymity and confidentiality of response are assured. Approximately 20 minutes of class time would be consumed (preferably at the beginning of class—for quality of student response).

To ensure that confidentiality of response is provided, it would be necessary for you to assign one student to pick up your envelope of copies (instruction sheet and teacher questionnaire included) from the Office of the VP for Academic Affairs, just prior to class, and return the envelope to her, immediately following survey completion. The student also would be responsible for handing out the copies, collecting them when completed, placing them back in the envelope, and sealing the envelope before returning it.

I know that involvement in this project would mean giving up valuable class time. However, doing so would both extend research concerning higher education in private, church-affiliated, liberal arts institutions, generally, and benefit Bluefield College, specifically. I do appreciate your consideration in this matter. Please respond by completing the form below and returning it to the secretary on or before Friday, April 16.

I do appreciate your consideration in this matter. Please call me at 326-2079 after you have had time to check your calendar. Thank you so much.

Sincerely,

Mary Lou Cole

Yes, you may conduct your dissertation study survey in __________________________ on Wednesday, April 21, at 9:00 a.m. (Course Name and Number)

__________________________________________
(signature)
APPENDIX F

POSTSECONDARY CLASSROOM LEADERSHIP SCALE FOR STUDENTS (PCLSS)
POSTSECONDARY CLASSROOM LEADERSHIP
SCALE FOR STUDENTS (PCLSS)

Please respond to the following items according to your perceptions of this class only—Anonymity and confidentiality of data are assured.

A. Decide how well each statement describes the teacher/student relationship in this class.

B. Circle your answer - 4, 3, 2, 1, or 0.

SA = Strongly Agree ...................................................... 4
A = Agree ..................................................................... 3
D = Disagree ................................................................. 2
SD = Strongly Disagree .................................................. 1
NA = Not Applicable/No Opinion .................................. 0

C. It is very important that you respond to each statement.

Section I - Teacher Characteristics and Approach to Student Learning

Part A
In this class, the teacher—

1. (a) asks direct, analytical questions
   (b) allows an appropriate response time
2. (a) acknowledges, responds to, expands upon questions/comments, and summarizes
   (b) seeks elaboration by student
3. (a) is approachable, welcoming disagreement
4. emphasizes interpretation, not memorization

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<th>D</th>
<th>SD</th>
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### Part A

**In this class, the teacher—**

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<th>D</th>
<th>SD</th>
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**Section II - Student Characteristics and Orientation to Learning**

### Part A

**In this class, I—**

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Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
### Part B

**I—**

1. (a) place value on personal achievement
2. (b) value all fields of study (language, fine arts, math, and science)
3. (c) work to build my personal confidence
4. (d) take responsibility for my own learning
5. (e) am willing to risk failure to learn

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### Part C

**My education, here, has—**

1. increased my academic and career aspirations
2. (a) prepared me for the workplace
   (b) prepared me for graduate school

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### Part D

**When speaking out in this class, I do not fear—**

1. (a) appearing unintelligent to my peers
2. (b) appearing unintelligent to my teacher
3. (c) that I will be unable to organize thoughts
4. (d) being too tense to participate effectively
5. (e) that my views will be offensive to others

<table>
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</table>

**In this class, I do not fear—**

2. (a) being unable to complete assignments
   (b) being unable to understand class content and/or instructor questions

<table>
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<th>D</th>
<th>SD</th>
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**Section III - Classroom Characteristics and Course Design**

### Part A

**In this class, my willingness to interact is not diminished by peer pressure.**

1. (a) speak out
2. (b) voice controversial opinions
3. (c) don’t rely on a particular “few” to speak
4. (d) respect the views of others
5. (e) show confidence

<table>
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<th>SA</th>
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<th>SD</th>
<th>NA</th>
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</tbody>
</table>
Part B

In this class, my willingness to interact is increased by the course design. It provides opportunities—

1. (a) for students to get to know each other 4 3 2 1 0
   (b) for support and challenge by peers 4 3 2 1 0
   (c) for support and challenge by the teacher 4 3 2 1 0
2. (a) for frequent small group discussions 4 3 2 1 0
   (b) for discussions organized around questions 4 3 2 1 0
   (c) for participation positively affecting grade 4 3 2 1 0
   (d) for setting an appropriate pace 4 3 2 1 0

Part C

In this class, the teacher's approach is—

1. (a) student-centered 4 3 2 1 0
   (b) subject-centered 4 3 2 1 0
APPENDIX G

POSTSECONDARY CLASSROOM LEADERSHIP SCALE FOR TEACHERS (PCLST)
POSTSECONDARY CLASSROOM LEADERSHIP SCALE FOR TEACHERS (PCLST)

Please respond to the following items according to your perceptions of this institution and this class — Anonymity and confidentiality of data are assured.

A. Decide how well each statement describes your role as faculty member at this institution, your teaching approach in this class, or students' personal orientations to learning in this class.

B. Circle your answer - 4, 3, 2, 1, or 0.

<table>
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</table>

C. It is important that you respond to each statement.

Section I - Teacher Characteristics and Approach to Student Learning

Part A

In this class, I—

1. (a) ask direct, analytical questions
   of women
   of men

   (b) and allow an appropriate response time
   for women
   for men

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2. (a) acknowledge, respond to, and expand upon
the questions/comments
of women 4 3 2 1 0
of men 4 3 2 1 0
(b) seek elaboration
by women 4 3 2 1 0
by men 4 3 2 1 0
3. am approachable, and welcome disagreement
by women 4 3 2 1 0
by men 4 3 2 1 0
4. emphasize interpretation, not memorization
  to women 4 3 2 1 0
  to men 4 3 2 1 0
5. provide positive, definitive feedback
  to women 4 3 2 1 0
  to men 4 3 2 1 0
6. stress assuming personal responsibility for
  academic, social, and vocational success
  to women 4 3 2 1 0
  to men 4 3 2 1 0
7. (a) intervene on students’ behalf
  women 4 3 2 1 0
  men 4 3 2 1 0
8. (a) do not interrupt students when speaking
  women 4 3 2 1 0
  men 4 3 2 1 0
  (b) respect student opinions
    women 4 3 2 1 0
    men 4 3 2 1 0
9. use teaching methods that provide structure,
  expectations, and demand decision making
    by women 4 3 2 1 0
    by men 4 3 2 1 0
10. select textbooks that provide role models for
    women 4 3 2 1 0
     men 4 3 2 1 0
## Section II - Student Characteristics and Orientation to Learning

### Part A

The students in this class—

1. (a) speak out, interacting equally with others
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0
   (b) interject ideas in a manner that brings feedback
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

2. (a) respond to my indirect questions:
   - women - analytical: 4 3 2 1 0
   - women - factual: 4 3 2 1 0
   - men - analytical: 4 3 2 1 0
   - men - factual: 4 3 2 1 0
   (b) respond to my direct questions:
   - women - analytical: 4 3 2 1 0
   - women - factual: 4 3 2 1 0
   - men - analytical: 4 3 2 1 0
   - men - factual: 4 3 2 1 0

   respond to fellow student’s questions and comments:
   (c) fellow male students
      - women - analytical: 4 3 2 1 0
      - women - factual: 4 3 2 1 0
      - men - analytical: 4 3 2 1 0
      - men - factual: 4 3 2 1 0
   (d) fellow female student
      - women - analytical: 4 3 2 1 0
      - women - factual: 4 3 2 1 0
      - men - analytical: 4 3 2 1 0
      - men - factual: 4 3 2 1 0

3. (a) generally complete the required assignments
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0
   (b) generally appear to be prepared for class
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

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**Part B**

The students in this class—

1. (a) place value on personal achievement
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (b) value all fields of study (languages & fine arts, math & science)
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (c) work to build their personal confidence
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (d) take responsibility for their own learning
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (e) are willing to risk failure to learn
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

**Part C**

This class has helped students to—

1. increase their academic and career aspirations
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

2. (a) prepare for the workplace
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (b) prepare for graduate school
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

**Part D**

When students in this class speak out, they do not seem to fear—

1. (a) appearing unintelligent to peers
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (b) appearing unintelligent to the teacher
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0

   (c) being unable to organize their thoughts
   - women: 4 3 2 1 0
   - men: 4 3 2 1 0
Part D

When students in this class speak out, they do not seem to fear—
  (d) being too tense to participate effectively
    women 4 3 2 1 0
    men  4 3 2 1 0
  (e) that their views might be offensive to others
    women 4 3 2 1 0
    men  4 3 2 1 0

Students in this class seem confident about being able to—
  2. (a) complete assignments
    women 4 3 2 1 0
    men  4 3 2 1 0
  (b) understand class content and/or instructor questions
    women 4 3 2 1 0
    men  4 3 2 1 0

Section III - Classroom Characteristics Course Design

Part A

In this class, student willingness to interact does not appear to be diminished by peer pressure. The students—
  1. (a) speak out
    women 4 3 2 1 0
    men  4 3 2 1 0
  (b) voice controversial opinions
    women 4 3 2 1 0
    men  4 3 2 1 0
  (c) don’t rely on the “few” to make interjections
    women 4 3 2 1 0
    men  4 3 2 1 0
  (d) respect the views of others
    women 4 3 2 1 0
    men  4 3 2 1 0
  (e) show confidence in class
    women 4 3 2 1 0
    men  4 3 2 1 0
Part B

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The course design—
(d) sets an appropriate pace for
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Part C

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APPENDIX H

DATA ANALYSIS RESULTS
STUDENT PERCEPTIONS OF TEACHERS’ CHARACTERISTICS
AND APPROACHES TO STUDENT LEARNING

226
Table H1
Student Perceptions of Teachers' Characteristics and Approaches to Student Learning
Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback
Overall

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<th>Sig.</th>
<th>Observed Power</th>
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p < .05

Table H2
Student Perceptions of Teachers' Characteristics and Approaches to Student Learning
Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback
Bluefield College

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Table H3
Student Perceptions of Teachers' Characteristics and Approaches to Student Learning
Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback
King College

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Table H4
Student Perceptions of Teachers’ Characteristics and Approaches to Student Learning
Asking Direct, Analytical Questions, Seeking Elaboration, Providing Feedback
Virginia Intermont College

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APPENDIX I

DATA ANALYSIS RESULTS
STUDENT PERCEPTIONS OF STUDENTS' CHARACTERISTICS AND ORIENTATIONS TO LEARNING
Table II
Student Perceptions of Students' Characteristics and Learning Orientations
Interacting Equally
Overall

<table>
<thead>
<tr>
<th>Source</th>
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<th>Sig.</th>
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p < .05

Table II
Student Perceptions of Students' Characteristics and Learning Orientations
Interacting Equally
Estimated Marginal Means
Bluefield College

<table>
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<tr>
<th>Student Gender</th>
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<th>Upper Bound</th>
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Table III
Student Perceptions of Students' Characteristics and Learning Orientations
Interacting Equally
Estimated Marginal Means
King College

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<th>Student Gender</th>
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<th>Upper Bound</th>
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**Student Perceptions of Students' Characteristics and Approaches to Student Learning**
**Interacting Equally**
**Virginia Intermont College**

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### Table 15
**Student Perceptions of Students' Characteristics and Learning Orientations**
**Response to Teachers' Questions**
**Estimated Marginal Means**
**Overall**

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<th>Student Gender</th>
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**Response to Teacher Questions**
**Estimated Marginal Means**
**Bluefield College**

<table>
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<th>Student Gender</th>
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<th>Std. Error</th>
<th>95% Confidence Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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Student Perceptions of Students' Characteristics and Learning Orientations
Response to Teachers' Questions
Estimated Marginal Means
King College

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<th>Student Gender</th>
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### Table 18
Student Perceptions of Students' Characteristics and Learning Orientations
Response to Teachers' Questions
Estimated Marginal Means
Virginia Intermont College

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<th>Student Gender</th>
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<th>Std. Error</th>
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### Table 19
Student Perceptions of Students' Characteristics and Learning Orientations
Response to Fellow Students' Questions
Estimated Marginal Means
Overall

<table>
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<th>Student Gender</th>
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Table II0
Student Perceptions of Students’ Characteristics and Learning Orientation
Response to Fellow Students’ Questions
Estimated Marginal Means
Bluefield College

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<th>Upper Bound</th>
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Table II1
Student Perceptions of Students’ Characteristics and Learning Orientations
Response to Fellow Students’ Questions
Estimated Marginal Means
King College

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<th>Lower Bound</th>
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Table II2
Student Perceptions of Students’ Characteristics and Learning Orientations
Response to Fellow Students’ Questions
Estimated Marginal Means
Virginia Intermont College

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<th>Student Gender</th>
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<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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<td>15.909</td>
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Table 113
Student Perception of Students' Characteristics and Learning Orientations
Fear of Appearing Unintelligent, Being Too Tense to Participate, Views Offending
Estimated Marginal Means
Overall

<table>
<thead>
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<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
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<td>Upper</td>
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Table 114
Student Perception of Students' Characteristics and Learning Orientations
Fear of Appearing Unintelligent, Being Too Tense to Participate, Views Offending
Estimated Marginal Means
Bluefield College

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
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<td>Upper</td>
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Table 115
Student Perception of Students' Characteristics and Learning Orientations
Fear of Appearing Unintelligent, Being Too Tense to Participate, Views Offending
Estimated Marginal Means
King College

<table>
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<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
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<th>Std. Error</th>
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Table 116

Student Perception of Students' Characteristics and Learning Orientations
Fear of Appearing Unintelligent, Being Too Tense to Participate, Views Offending
Estimated Marginal Means
Virginia Intermont College

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
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<th>Std. Error</th>
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<tbody>
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<td>15.103</td>
<td>.737</td>
<td>13.639 - 16.568</td>
</tr>
</tbody>
</table>

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APPENDIX J

DATA ANALYSIS RESULTS
STUDENT PERCEPTIONS OF CLASSROOM CHARACTERISTICS
Table J1

Student Perceptions of Classroom Characteristics, Course Design and Peer Expectations and Influence
Interaction Not Diminished by Peer Pressure
Estimated Marginal Means

<table>
<thead>
<tr>
<th>Overall</th>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Male</td>
<td>15.175</td>
<td>.419</td>
<td>14.349 - 16.000</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>15.344</td>
<td>.588</td>
<td>14.186 - 16.502</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>14.681</td>
<td>.309</td>
<td>14.073 - 15.289</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female</td>
<td>15.864</td>
<td>.409</td>
<td>15.057 - 16.670</td>
</tr>
</tbody>
</table>

Table J2

Student Perceptions of Classroom Characteristics, Course Design and Peer Expectations and Influence
Interaction Not Diminished by Peer Pressure
Estimated Marginal Means

<table>
<thead>
<tr>
<th>Bluefield College</th>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Male</td>
<td>15.276</td>
<td>.618</td>
<td>14.048 - 16.504</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>15.100</td>
<td>.745</td>
<td>13.621 - 16.579</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>15.350</td>
<td>.745</td>
<td>13.871 - 16.829</td>
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<td>Female</td>
<td>Female</td>
<td>14.962</td>
<td>.653</td>
<td>13.664 - 16.259</td>
</tr>
</tbody>
</table>
Table J3
Student Perceptions of Classroom Characteristics, Course Design and Peer Expectations and
Influence
Interaction Not Diminished by Peer Pressure
Estimated Marginal Means
King College

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>15.333</td>
<td>.724</td>
<td>13.895 - 16.771</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>15.250</td>
<td>1.401</td>
<td>12.466 - 18.034</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>14.381</td>
<td>.353</td>
<td>13.679 - 15.083</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>16.273</td>
<td>.845</td>
<td>14.594 - 17.952</td>
</tr>
</tbody>
</table>

Table J4
Student Perceptions of Classroom Characteristics, Course Design and Peer Expectations and
Influence
Interaction Not Diminished by Peer Pressure
Estimated Marginal Means
Virginia Intermont College

<table>
<thead>
<tr>
<th>Student Gender</th>
<th>Teacher Gender</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>14.895</td>
<td>.882</td>
<td>13.142 - 16.648</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>16.000</td>
<td>1.359</td>
<td>13.299 - 18.701</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>14.848</td>
<td>.669</td>
<td>13.518 - 16.179</td>
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<tr>
<td></td>
<td>Female</td>
<td>16.517</td>
<td>.714</td>
<td>15.098 - 17.936</td>
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</tbody>
</table>
APPENDIX K

DATA ANALYSIS RESULTS
TEACHER PERCEPTIONS OF TEACHER CHARACTERISTICS
AND APPROACHES TO LEARNING

239
Table K1
Teacher Perceptions of Teachers' Characteristics and Approaches to Learning
Asking Direct, Analytical Questions, Allowing Appropriate Response Time, Role Models
Female Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Gender</td>
<td>10.612</td>
<td>1</td>
<td>10.612</td>
<td>1.519</td>
<td>.232</td>
<td>.217</td>
</tr>
<tr>
<td>Teacher Style</td>
<td>92.152</td>
<td>2</td>
<td>46.076</td>
<td>6.595</td>
<td>.006</td>
<td>.862</td>
</tr>
<tr>
<td>Teacher Gender by Teacher Style</td>
<td>1.030</td>
<td>1</td>
<td>1.030</td>
<td>.147</td>
<td>.705</td>
<td>.065</td>
</tr>
<tr>
<td>Error</td>
<td>139.733</td>
<td>20</td>
<td>6.987</td>
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<td></td>
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</table>

Table K2
Teacher Perceptions of Teachers' Characteristics and Approaches to Learning
Asking Direct, Analytical Questions, Allowing Appropriate Response Time, Role Models
Male Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Gender</td>
<td>10.612</td>
<td>1</td>
<td>10.612</td>
<td>1.519</td>
<td>.232</td>
<td>.217</td>
</tr>
<tr>
<td>Teacher Style</td>
<td>92.152</td>
<td>2</td>
<td>46.076</td>
<td>6.595</td>
<td>.006</td>
<td>.862</td>
</tr>
<tr>
<td>Teacher Gender by Teacher Style</td>
<td>1.030</td>
<td>1</td>
<td>1.030</td>
<td>.147</td>
<td>.705</td>
<td>.065</td>
</tr>
<tr>
<td>Error</td>
<td>139.733</td>
<td>20</td>
<td>6.987</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table K3
Teacher Perceptions of Teachers’ Characteristics and Approaches to Learning
Teaching Methods
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecture</td>
<td>30.333</td>
<td>2.181</td>
<td>25.784</td>
</tr>
<tr>
<td>Male</td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>31.700</td>
<td>1.195</td>
<td>29.208</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>30.000</td>
<td>3.778</td>
<td>22.120</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>30.667</td>
<td>2.181</td>
<td>26.117</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>32.500</td>
<td>1.336</td>
<td>29.714</td>
</tr>
</tbody>
</table>

Table K4
Teacher Perceptions of Teachers’ Characteristics and Approaches to Learning
Teaching Methods
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecture</td>
<td>29.000</td>
<td>2.414</td>
<td>23.964</td>
</tr>
<tr>
<td>Male</td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>31.100</td>
<td>1.322</td>
<td>28.341</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>29.000</td>
<td>4.182</td>
<td>20.277</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>30.000</td>
<td>2.414</td>
<td>24.964</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>31.875</td>
<td>1.479</td>
<td>28.791</td>
</tr>
</tbody>
</table>

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APPENDIX L

DATA ANALYSIS RESULTS
TEACHER PERCEPTIONS OF STUDENT CHARACTERISTICS
AND ORIENTATIONS TO LEARNING

242
Table L1
Teacher Perceptions of Students' Characteristics and Learning Orientations
Interacting Equally To Bring Feedback, Responding to Teachers' Questions
Female Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Gender</td>
<td>127.127</td>
<td>1</td>
<td>127.127</td>
<td>5.667</td>
<td>.027</td>
<td>.620</td>
</tr>
<tr>
<td>Teacher Style</td>
<td>84.176</td>
<td>2</td>
<td>42.088</td>
<td>1.876</td>
<td>.179</td>
<td>.343</td>
</tr>
<tr>
<td>Teacher Gender by Teacher Style</td>
<td>91.255</td>
<td>1</td>
<td>91.255</td>
<td>4.068</td>
<td>.057</td>
<td>.484</td>
</tr>
<tr>
<td>Error</td>
<td>448.642</td>
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<td>22.432</td>
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<td></td>
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</tbody>
</table>

Table L2
Teacher Perceptions of Students' Characteristics and Learning Orientations
Interacting Equally To Bring Feedback, Responding To Teachers' Questions
Male Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Gender</td>
<td>115.369</td>
<td>1</td>
<td>115.369</td>
<td>5.400</td>
<td>.031</td>
<td>.599</td>
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<tr>
<td>Teacher Style</td>
<td>78.315</td>
<td>2</td>
<td>39.157</td>
<td>1.833</td>
<td>.186</td>
<td>.336</td>
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<tr>
<td>Teacher Gender by Teacher Style</td>
<td>112.802</td>
<td>1</td>
<td>112.802</td>
<td>5.280</td>
<td>.032</td>
<td>.590</td>
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<tr>
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</tbody>
</table>

Table L3
Teacher Perceptions of Students' Characteristics and Learning Orientations
Responding to Fellow Students' Questions
Female Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Gender</td>
<td>129.395</td>
<td>1</td>
<td>129.395</td>
<td>4.395</td>
<td>.049</td>
<td>.514</td>
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<tr>
<td>Teacher Style</td>
<td>98.690</td>
<td>2</td>
<td>49.345</td>
<td>1.676</td>
<td>.212</td>
<td>.311</td>
</tr>
<tr>
<td>Teacher Gender by Teacher Style</td>
<td>61.630</td>
<td>1</td>
<td>61.630</td>
<td>2.094</td>
<td>.163</td>
<td>.281</td>
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<tr>
<td>Error</td>
<td>588.767</td>
<td>20</td>
<td>29.438</td>
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</tbody>
</table>
Table L4
Teacher Perceptions of Students’ Characteristics and Learning Orientations
Responding to Fellow Students’ Questions
Male Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Gender</td>
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<td>136.787</td>
<td>4.656</td>
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<td>.043</td>
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<td>Teacher Style</td>
<td>71.463</td>
<td>2</td>
<td>35.731</td>
<td>1.216</td>
<td>.317</td>
<td>.235</td>
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<tr>
<td>Teacher Gender by Teacher Style</td>
<td>56.702</td>
<td>1</td>
<td>56.702</td>
<td>1.930</td>
<td>.180</td>
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<tr>
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<td>29.378</td>
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</tbody>
</table>

Table L5
Teacher Perceptions of Students’ Characteristics and Learning Orientations
Completing Assignments, Taking Personal Responsibility for Learning
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecture</td>
<td>10.000</td>
<td>1.479</td>
<td>6.916 - 13.084</td>
</tr>
<tr>
<td>Male</td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td>9.500</td>
<td>.810</td>
<td>7.811 - 11.189</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>12.000</td>
<td>2.561</td>
<td>6.658 - 17.342</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>10.333</td>
<td>1.479</td>
<td>7.249 - 13.418</td>
</tr>
<tr>
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<td>Participative</td>
<td>9.500</td>
<td>.905</td>
<td>7.611 - 11.389</td>
</tr>
</tbody>
</table>
Table L6
Teacher Perceptions of Students' Characteristics and Learning Orientations
Completing Assignments, Taking Personal Responsibility for Learning
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>10.00</td>
<td>1.536</td>
<td>6.796 - 13.204</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.00</td>
<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
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<td>Lecture-</td>
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<td>0.841</td>
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<td>7.129 - 13.537</td>
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<tr>
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<td>Participative</td>
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<td>0.941</td>
<td>6.913 - 10.837</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>12.00</td>
<td>2.260</td>
<td>8.286 - 16.714</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
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<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td>10.100</td>
<td>1.238</td>
<td>7.518 - 12.682</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>15.00</td>
<td>3.914</td>
<td>6.835 - 23.165</td>
</tr>
<tr>
<td></td>
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<td>11.125</td>
<td>1.384</td>
<td>8.238 - 14.012</td>
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</tbody>
</table>

Table L7
Teacher Perceptions of Students' Characteristics and Learning Orientations
Placing Value On Achievement, Values, Risking Failure, Increasing Aspirations
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>12.00</td>
<td>2.260</td>
<td>8.286 - 16.714</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.00</td>
<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td>10.100</td>
<td>1.238</td>
<td>7.518 - 12.682</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>15.00</td>
<td>3.914</td>
<td>6.835 - 23.165</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>11.125</td>
<td>1.384</td>
<td>8.238 - 14.012</td>
</tr>
</tbody>
</table>

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Table L8
Teacher Perceptions of Students' Characteristics and Learning Orientations
Placing Value On Achievement, Values, Risking Failure, Increasing Aspirations
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Lecture</td>
<td>12.00</td>
<td>2.300</td>
<td>7.202 - 16.798</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.00</td>
<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td>10.50</td>
<td>1.260</td>
<td>7.872 - 13.128</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>15.00</td>
<td>3.984</td>
<td>6.690 - 23.310</td>
</tr>
<tr>
<td></td>
<td>Lecture-</td>
<td>13.00</td>
<td>2.300</td>
<td>8.202 - 17.798</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>11.00</td>
<td>1.408</td>
<td>8.187 - 14.063</td>
</tr>
</tbody>
</table>

Table L9
Teacher Perceptions of Students' Characteristics and Learning Orientations
Building Confidence, Prepared for Workplace and/or Graduate School, Offensive Views
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
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<td>2.169</td>
<td>9.143 - 18.191</td>
</tr>
<tr>
<td></td>
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<td>0.000 - 0.000</td>
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<td></td>
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<td>11.900</td>
<td>1.188</td>
<td>9.422 - 14.378</td>
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<tr>
<td></td>
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<td>10.000</td>
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<td>2.164 - 17.836</td>
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<tr>
<td></td>
<td>Lecture-</td>
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<td>2.169</td>
<td>7.143 - 16.191</td>
</tr>
<tr>
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<td>1.328</td>
<td>8.730 - 14.270</td>
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Table L10
Teacher Perceptions of Students' Characteristics and Learning Orientations
Building Confidence, Prepared for Workplace and/or Graduate School, Offensive Views
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
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<td>9.540 18.460</td>
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<td>0.000 0.000</td>
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<td></td>
<td>Lecture-Participative</td>
<td>11.800</td>
<td>1.171</td>
<td>9.357 14.243</td>
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<td>Female</td>
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<td>3.703</td>
<td>2.275 17.725</td>
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<td>8.769 14.231</td>
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Table L11
Teacher Perceptions of Students' Characteristics and Learning Orientations
Fear of Appearing Unintelligent to Teacher and Peers
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
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<td>.950</td>
<td>8.019 11.981</td>
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<td></td>
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<td>Participative</td>
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<td>0.000</td>
<td>0.000 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>8.700</td>
<td>.520</td>
<td>7.615 9.785</td>
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<tr>
<td>Female</td>
<td>Lecture</td>
<td>11.000</td>
<td>1.645</td>
<td>7.569 14.431</td>
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<td>7.019 10.981</td>
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Table L12
Teacher Perceptions of Students' Characteristics and Learning Orientations
Fear of Appearing Unintelligent to Teacher and Peers
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
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<td>Lecture</td>
<td>7.000</td>
<td>.684</td>
<td>5.574 - 8.426</td>
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<td>Partic.</td>
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<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
<td>Female</td>
<td>Lecture</td>
<td>6.667</td>
<td>.374</td>
<td>4.719 - 8.281</td>
</tr>
<tr>
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<td>Partic.</td>
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<td>.684</td>
<td>4.241 - 7.093</td>
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Table L13
Teacher Perceptions of Students' Characteristics and Learning Orientations
Fear of Being Unable to Organize Thoughts or Being Too Tense to Participate
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>6.667</td>
<td>1.199</td>
<td>4.165 - 9.168</td>
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<tr>
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<td>Partic.</td>
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<td>0.000</td>
<td>0.000 - 0.000</td>
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<tr>
<td>Female</td>
<td>Lecture</td>
<td>5.700</td>
<td>.657</td>
<td>4.330 - 7.070</td>
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<tr>
<td></td>
<td>Partic.</td>
<td>4.000</td>
<td>1.199</td>
<td>1.499 - 6.501</td>
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</table>

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Table L14  
Teacher Perceptions of Students' Characteristics and Learning Orientations  
Fear of Being Unable to Organize Thoughts or Being Too Tense to Participate  
Estimated Marginal Means  
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Lecture</td>
<td>6.667</td>
<td>1.201</td>
<td>4.161 ( \pm ) 9.172</td>
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<td>Participative</td>
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<td>0.000 ( \pm ) 0.000</td>
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<td></td>
<td>Lecture-Participative</td>
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<td>.658</td>
<td>4.228 ( \pm ) 6.972</td>
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<td>1.494 ( \pm ) 6.506</td>
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<tr>
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<td>.736</td>
<td>3.716 ( \pm ) 6.784</td>
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Table L15  
Teacher Perceptions of Students’ Characteristics and Learning Orientations  
Fear of Being Unable to Complete Assignments or Understand Class Content  
Estimated Marginal Means  
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
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<td>Lecture</td>
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<td>.635</td>
<td>5.676 ( \pm ) 8.324</td>
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<td>0.000</td>
<td>0.000 ( \pm ) 0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>6.000</td>
<td>.348</td>
<td>5.275 ( \pm ) 6.725</td>
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<tr>
<td>Female</td>
<td>Lecture</td>
<td>6.000</td>
<td>1.099</td>
<td>3.707 ( \pm ) 8.293</td>
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<td>Participative</td>
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<td>.635</td>
<td>5.343 ( \pm ) 7.991</td>
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<tr>
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<td>6.750</td>
<td>.389</td>
<td>5.939 ( \pm ) 7.561</td>
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</table>
Table L16
Teacher Perceptions of Students' Characteristics and Learning Orientations
Fear of Being Unable to Complete Assignments or Understand Class Content
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
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<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval Lower Bound</th>
<th>95% Confidence Interval Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>6.333</td>
<td>.694</td>
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<td>Participative</td>
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</tr>
<tr>
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<td>Lecture-Participative</td>
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<td>1.203</td>
<td>4.491</td>
<td>9.509</td>
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<td>.694</td>
<td>5.218</td>
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<td>6.250</td>
<td>.425</td>
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</table>
APPENDIX M

DATA ANALYSIS RESULTS
TEACHER PERCEPTIONS OF CLASSROOM CHARACTERISTICS
Table M1
Teacher Perceptions of Classroom Characteristics, Course Design and Peer Evaluation
Speaking Out, Showing Confidence
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>6.000</td>
<td>.601</td>
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<td>4.747</td>
<td>7.253</td>
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<tr>
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<td>Participative Lecture</td>
<td>5.700</td>
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<td>1.040</td>
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<td>4.830</td>
<td>9.170</td>
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<td>.601</td>
<td></td>
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<td>Participative Lecture</td>
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<td>.368</td>
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<td>7.642</td>
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Table M2
Teacher Perceptions of Classroom Characteristics, Course Design, and Peer Influence
Speaking Out, Showing Confidence
Male Students

<table>
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<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
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<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
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<td>Teacher Gender</td>
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<td>.694</td>
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<td>.245</td>
<td>.785</td>
<td>.083</td>
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<td>Teacher Gender by Teacher Style</td>
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<td>1.618</td>
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<td>.228</td>
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</table>
Table M3
Teacher Perceptions of Classroom Characteristics, Course Design and Peer Evaluation
Respecting the Views of Others
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>3.667</td>
<td>.471</td>
<td>2.683</td>
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<td>Lecture-Participative</td>
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<td>.258</td>
<td>2.461</td>
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<td>3.000</td>
<td>.816</td>
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<td>.471</td>
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<td>.289</td>
<td>2.398</td>
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Table M4
Teacher Perceptions of Classroom Characteristics, Course Design and Peer Evaluation
Respecting the Views of Others
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecture</td>
<td>3.667</td>
<td>.487</td>
<td>2.651</td>
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<tr>
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<td>Lecture-Participative</td>
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<td>0.000</td>
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<tr>
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<td>Lecture-Participative</td>
<td>3.100</td>
<td>.267</td>
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<tr>
<td>Female</td>
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<td>1.240</td>
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<tr>
<td></td>
<td>Lecture-Participative</td>
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<td>.487</td>
<td>2.317</td>
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<td>Lecture-Participative</td>
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<td>.298</td>
<td>2.378</td>
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Table M5
Student Perceptions of Classroom Characteristics, Course Design and Peer Expectations and Influence
Student-Centered and Subject-Centered Approach, Relying On A Particular “Few”
Estimated Marginal Means
Female Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Lecture</td>
<td>5.333</td>
<td>1.299</td>
<td>2.624 - 8.043</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000 - 0.000</td>
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<td>Lecture-Participative</td>
<td>5.400</td>
<td>.711</td>
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<td>Lecture</td>
<td>5.000</td>
<td>2.250</td>
<td>.307 - 9.693</td>
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<td>Participative</td>
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<td>1.299</td>
<td>3.957 - 9.376</td>
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<tr>
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<td>4.750</td>
<td>.795</td>
<td>3.091 - 6.409</td>
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</table>

Table M6
Student Perceptions of Classroom Characteristics, Course Design and Peer Expectations
Student-Centered and Subject-Centered Approach, Relying On A Particular “Few”
Estimated Marginal Means
Male Students

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Lecture</td>
<td>8.667</td>
<td>1.701</td>
<td>5.118 - 12.215</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000 - 0.000</td>
</tr>
<tr>
<td></td>
<td>Lecture-Participative</td>
<td>8.700</td>
<td>.932</td>
<td>6.756 - 10.644</td>
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<tr>
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<td>Lecture</td>
<td>9.000</td>
<td>2.947</td>
<td>2.854 - 15.146</td>
</tr>
<tr>
<td></td>
<td>Participative</td>
<td>10.000</td>
<td>1.701</td>
<td>6.451 - 13.549</td>
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<tr>
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<td>Lecture-Participative</td>
<td>7.875</td>
<td>1.042</td>
<td>5.702 - 10.048</td>
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### Table M7

**Teacher Perceptions of Classroom Characteristics, Course Design, and Peer Influence**

**Course Design**

**Female Students**

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1.877</td>
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<td>214.736</td>
<td>6.539</td>
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<td>.859</td>
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<td>Teacher Gender by Teacher Style</td>
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<td>2.079</td>
<td>.063</td>
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</tbody>
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### Table M8

**Teacher Perceptions of Classroom Characteristics, Course Design and Peer Evaluation**

**Course Design**

**Estimated Marginal Means**

**Female Students**

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Teaching Style</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3.308</td>
<td>1.099</td>
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Table M9
Teacher Perceptions of Classroom Characteristics, Course Design, and Peer Influence

Course Design
Male Students

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<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
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<td>Teacher Gender by Teacher Style</td>
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<td>20</td>
<td>32.266</td>
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</table>

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VITA

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Office of the Academic Dean; Bluefield College; 1986
Teacher; Bluefield College, Bluefield, Virginia, 1996
Office of Development; Bluefield College, 1987-89
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