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RAMIREZ, ERNEST EDWARD

THE RELATIONSHIP OF LEADER BEHAVIORS AND LOCI OF CONTROL

The University of Oklahoma PH.D. 1981

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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE RELATIONSHIP OF LEADER BEHAVIORS AND LOCI OF CONTROL

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

by

ERNEST EDWARD RAMIREZ

Norman, Oklahoma

1981

THE RELATIONSHIP OF LEADER BEHAVIORS

AND LOCI OF CONTROL

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DISSERTATION COMMITTEE

THIS DISSERTATION IS DEDICATED TO TWO FRIENDS,

MARIAN AND HERB,

WHO BY SHARING THEIR TALENTS WITH ME,

MADE MORE VALID THE CONCEPT OF LEADERSHIP.

In Memory of

Phil Boone

Filiberto Cortez

Mary Evelyn Dewey

Stuart Eacho

Pete Finch

Ray Hertzog

Albert Lunday

Manuel Machado

Frank Manley

Ameli Montalvo

Jimmie Montalvo

Charles Stewart Mott

Robert Ohm

Arnulfo Oliviera

Armando Ramírez

Denis Ramírez

Robert Rein

Ralph Stogdill

Tom Streithorst

Francisco Valentin

Carl Waldmann

Kimball Wiles

ACKNOWLEDGEMENTS

The three major events associated with the study, namely, identifying respondents, collecting, analyzing, and interpreting data, and writing the dissertation, were preceded by activities which illustrated the sustaining quality of groups and individuals.

The study would not have been accomplished without the participation of 83 business administration graduate students from the OU College of Business Administration and 71 educational administration graduate students from the OU College of Education who were enrolled during the spring of 1980. The investigator thanks these two groups for their energy and time. The endorsements of Professors Ramón Alonso, Homer Brown, Jack Kasulis, Bert McCammon, Malcolm Morris, Marion Phillips, and Edward Schrems from the OU College of Business Administration contributed to the identification of the business administration respondents for the study. In the Area of Educational Administration, the interest and concern for the study exhibited by Professors Jack Parker, Gene Pingleton, John Seaberg and Thomas Wiggins maximized the opportunities for the identification of educational administration respondents for the study.

The analyses and interpretations of the data in the study would not have been completed without the personal and professional assistance of Professor Herbert Richek from the OU School of Social Work and Mrs. Marian Ramírez from the OU School of Home Economics. Professor Richek and Mrs. Ramírez lived the study with the investigator as statistician and computer programmer, respectively. The investigator thanks these two persons for their services and, unreservedly, dedicates this dissertation to them.

The investigator recognizes and thanks Mr. Harry Blaylock, supervisor, systems analyst, and Mr. J. R. Yeary, supervisor, production control, from the Merrick Computer Center for their advice and services in designing the computer programs which scored the leader behavior and locus of control inventories used in the study.

The investigator was introduced to the theoretical constructs of leader behavior, locus of control, and interpersonal behavior by Professor Arthur B. Van Gundy, Jr., of the OU Department of Human Relations during the 1978 spring seminar on "leadership" in organizations. Professor Van Gundy's encouragement and friendship maximized the opportunities for the completion of the study.

On a personal level, the investigator acknowledges the support of a particular group of graduate students and of various individuals. The investigator is indebted to the graduate students of the Area of Adult and Community Education for their interest and concern since September,

1977. Chief among these graduate students are Richard Coberg, Louise Dauphinais, Keith Harmon, and Clinton Longacre. The investigator also is grateful for the friendship of Martha B. Mayne, who completed the PhD program in Adult Education in 1979.

On a personal level, the investigator acknowledges the support of a particular group of OU professors, who although were not members of the dissertation committee, nevertheless, showed concern for the investigator and interest in the study during the different stages of its development. These individuals are Caryl Adams, Hugh Jeffers, Lloyd Korhonen, Loy Prickett, John Pulliam, Omer Rupiper, Chipman Stuart, Richard Williams, and Richard Wisniewski from the OU College of Education. Additionally, Brooks Hill from the OU Department of Communication and Lupita Thompson from the OU Department of Modern Languages and Literatures supported the investigator in various ways.

On a personal level, the investigator is cognizant of the affection and concern of a group of friends, whose words of encouragement and gestures of service toward the investigator, his immediate family, and this dissertation demonstrated the "intangibles" of human relationships. These friends are Jean Ebarb Alvarado, David Barbosa, Karyl Barbosa, Diane Bissonette, Chlo Bradford, Father Michael Cooper, SJ, Sister Ann Patrick Deegan, OP, Father John Doherty, SJ, Father Matthias Faue, OSB, Father Robert Fellows, Helen Finchum, Reverend James Fleming, John Folks,

Gene Gallegos, Alice Goldsmith, Rafael Goldsmith, Father Michael Graham, SA, Gerisue Henry, Sister Rebecca Henshaw, RSM, Barbara Kidwell, Robert Krebsbach, Brother Anthony Kreutzjans, SJ, Gashu Lake, Father John Laurance, SJ, Margaret Lautner, Father Partrick Marrin, OP, Rita McRaith, Agapito Mendoza, Greg Montalvo, Nancy Montalvo, Shirin Nematollahi, Anna Theresa Ramirez Newell, Robert Newell, Father Dennis Polanco, SA, Ruth Ohm, Magda Ramírez, Vidal Ramírez, Father Maurice Reardon, SJ, Frances Regan, Carmen Rosado, Pedro Rosado, Father Denis Statham, OSB, Graciela Stone, Sue Safford, Tomasita Valentin, James Wallace, Margaret Wallace, Charles Wilkinson, Dottie Wilkinson, Mercedes Zamudio, and Mary Ann Zoeller. The efforts of Charles and Dottie Wilkinson, who accepted the investigator's invitation to be the principal typists and editors of this dissertation, were characterized by a wealth of endurance and patience.

The investigator recognizes the friendship and support of two university professors who have always been available when needed. These individuals are Dwight Kirk, Professor Emeritus of Educational Administration at Texas Tech University, and Billy Ray Webb, Professor of Sociology at East Texas State University at Commerce. Professor Webb was a member of the investigator's advisory committee for the Master's degree from 1968-1970. Professor Webb's goal of striving for excellence in social science research became

one of the investigator's goals during the time the study was conducted.

The investigator's parents, Bartolo Eduardo and Anita Ramirez, along with David and Betty Laurance, Moe Rhine, and Mohammed Sabermahani supported the investigator financially. The generosity of these persons, without question, lessened the obstacles and maximized the opportunities for the completion of the study.

Finally, the investigator recognizes the assistance and support of four OU professors, who served on the investigator's dissertation committee. These professors are Donald S. Udell from the Area of Adult and Community Education, Herbert G. Richek from the School of Social Work, Thomas W. Wiggins from the Area of Educational Aministration, and John J. Seaberg, Jr., chairman of the dissertation committee, from the Area of Educational Administration. Additionally, Professor Ricardo Luis García from the Graduate School of Education at the University of Utah was a member of the investigator's dissertation committee. Collectively, the five individuals on the dissertation committee worked earnestly and unselfishly for the benefit of the investigator, thus, maximizing the opportunities for the successful completion of the study. The investigator was always strengthened by the committee's belief that indeed this candidate had the ability to complete a PhD program in the Area of Educational Administration. On a most personal level, the investigator

was gratified by the group's dedication to the personal and professional growth of graduate students who are representatives of minority groups.

Each individual on the dissertation committee manifested himself in a unique manner.

Donald S. Udell shared his vision of learning which is based on the development of all of a community's resources. In the process, the investigator always felt the warmth of a brother and colleague.

Herbert G. Richek shared his dedication and loyalty to the development of "a more humane and just society." In the process, the investigator felt the various roles of this particular social science researcher.

Thomas W. Wiggins, known affectionately as "Tío Tomas," shared his vision of dialogue in systems of communication. In the process, the investigator witnessed directly the values of trust, openness, reciprocity, and interdependence in one-to-one communication.

John J. Seaberg, Jr., known affectionately as "La Palanca," shared his view of the world, and, particularly, of "the problem." In the process, the investigator was taught that the systems approach to problem solving was the best possible methodology that could be used for accomplishing the goals and objectives of this dissertation. The investigator thanks Professor Seaberg for advising and assisting him in the building of this model of a dissertation.

Ricardo L. García will be remembered by the investigator for his commitment to the urgency of developing culturally pluralistic educational enterprises. The investigator recognizes the efforts of Professor García in preparing him to become a teacher of teachers whose interests can best be served in culturally pluralistic learning settings. It is to be noted that it was Professor García who nominated the investigator for a USOE Bilingual Education Fellowship in July, 1976, to be used for graduate studies at the University of Oklahoma.

Early in the study, the investigator commended the activities of dissertation writing to the Holy Spirit. It is believed that the Holy Spirit has always been active in the various stages of this dissertation's development. Thank you, Holy Spirit.

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THE RELATIONSHIP OF LEADER BEHAVIORS AND LOCI OF CONTROL

CHAPTER I

INTRODUCTION

The study analyzed the relationship between leader behaviors and loci of control for present and prospective leaders in business administration and educational administration. Other relationships analyzed in the study were between (a) leader behaviors and interpersonal behaviors and (b) loci of control and interpersonal behaviors. The respondents were business administration graduate students and educational administration graduate students enrolled in the College of Business Administration and College of Education, respectively, at the University of Oklahoma during the spring semester of 1980.

Leader behaviors were measured by the Leader Behavior Description Questionnaire, Form XII (Stogdill, 1963). Loci of control and interpersonal behaviors were measured by the Multidimensional Locus of Control Scales (Levenson, 1973) and the Fundamental Interpersonal Relations Orientation-Behavior Scales (Schutz, 1977), respectively.

The data generated by the respondents in the study were analyzed by univariate and multivariate statistical techniques. The study was essentially correlational in nature.

Guilford and Fruchter's (1973) steps for incidental sampling were used to select respondents from the two populations. So that generalizations beyond the sample could be made safely, each respondent was asked to define herself/himself by a demographic information sheet prepared by the investigator.

Setting of the Problem

Leadership has been identified by researchers as a scientific construct with various characteristics and/or dimensions. Empirical research in the field has yielded (a) definitions of leadership that go beyond explication of a leader's traits and behaviors; (b) theories of leadership; and (c) particular instruments for measuring various dimensions of leadership (Pfeffer, 1977). Definitions and conceptualizations of leadership have been synthesized by Stogdill (1974) into broad categories; for example, leadership is (a) a focus of group processes; (b) an act of behavior; (c) an instrument of goal achievement; (d) an effect of interaction; (e) a differentiated role; and (f) the initiation of structure. Relative to leadership as an act of behavior, Fiedler (1967, p. 36) has proposed the following: "By leadership behavior we generally mean the

particular acts in which a leader engages in the course of directing and coordinating the work of his group members. This may involve such acts as structuring the work relations, praising or criticizing group members, and showing consideration for their welfare and feelings." Relative to leadership as the initiation of structure, Stogdill (1959, p. 126) has defined leadership as "the initiation and maintenance of structure in expectation and interaction." Summarily, behavioral theorists have defined leadership in ways that provide a basis for objective observation, description, measurement, and experimentation (Stogdill, 1974). Theories of leadership ranging from great man theories that emphasize character and personality traits (cf. Bernard, 1926; Kilbourne, 1935) to exchange theories that analyze social transactions among group members as exchanges in costs and rewards (cf. Homans, 1958; Blau, 1964) have guided leadership research. Prominent among instruments for measuring various dimensions of leadership are the Ohio State Leadership Scales which consist of the (a) Leadership Opinion Questionnaire written by Fleishman (1957); (b) Supervisory Behavior Description Questionnaire prepared in conjunction with a leadership project sponsored by the International Harvester Company in Chicago during the 1950s; (c) Leadership Behavior Description Questionnaire, written by Halpin (1957); and (d) Leadership Behavior Description Questionnaire, Form XII revised by Stogdill (1963). The Ohio State Leadership Scales have been

identified as an outcome of the Ohio State Leadership Studies whose approach to the topic of leadership has been that of investigating and measuring performance rather than human traits (Schrieshiem & Kerr, 1974; Stogdill & Coons, 1957).

It is of more than passing interest to observe that in the vast body of leadership research there are remarkably few references that exist between loci of control and leadership behaviors. House and Baetz (1979) have reported two studies (cf. Runyon, 1973; Mitchell, Smyser, & Weed, Note 1) which show that a subordinate's score on Rotter's (1966) Internal-External Locus of Control Scale moderates the relationship between participative leadership style and subordinate satisfaction. Stogdill (1974) has identified five studies out of 3690 leadership studies in which locus of control was a factor. CIJE and ERIC searches performed through the GIPSY program (Harmon, Note 2) did not identify any studies in which leadership behaviors and/or styles and loci of control had been factors.

The dearth of references to relationships between loci of control and leader behaviors is supported in the body of research that has been generated by Rotter's seminal paper of 1954 on locus of control (Lefcourt, 1976; Phares, 1976). This lacuna in the empirical research is curious, since (based upon the research and theoretical writings both in the domains of leadership and locus of control) there appear to be some rather remarkable semantic similarities

among the concepts subsumed under leader behaviors with the concepts under loci of control. For example, a number of prominent researchers in leadership characteristics are willing to accept a two-factor theory of leader behavior. These factors are sometimes called initiating structure and consideration. Note that in one instance, namely, consideration, a leader responds, irrespective of personal motivation, to the concerns of others or (in less judgmental terms) to the presses of one's staff or group over which leadership is provided. In the other factor, the emphasis in leaders who are inclined toward the initiating structure pole, it may be said that the psychic energy of a leader focuses not so much on consideration of others but rather on one's inner promptings. The two primary dimensions of locus of control appear to be remarkably congruent with the two factors of leader behavior. For example, Rotter (1966) and researchers after him speak of internal and external loci of control (Lefcourt, 1976). Again, one can see the similarity of consideration as being related to external control; a leader who initiates structure would logically seem to tend toward internal control.

The constructs of leadership and interpersonal behavior have been investigated empirically since the Hawthorne Studies in the 1920s. The human relations and behavioral approaches to management gained strength because of their emphases on interpersonal behavior (Hoy & Miskel, 1978). An outcome of the interconnection between the two

constructs has been the inclusion of interpersonal behavior as a dimension of leadership (Barnard, 1938; Halpin, 1957; Getzels & Guba, 1957; Cartwright & Zander, 1953). More recently, Schutz (1977) has applied variables of a three-dimensional theory of interpersonal behavior (known as Fundamental Interpersonal Relations Orientation or FIRO theory) to public school administrators in California. Schutz (1978) has developed various instruments derived from FIRO theory which measure interpersonal behavior. These instruments have been employed by researchers (cf. Steffens, 1976) in studies of various types. Schutz (1977) has recommended, however, that additional empirical investigations be conducted using interpersonal behavior based on FIRO theory and leader behavior as theoretical constructs.

While empirical research between leadership and interpersonal behavior is evident (Petrullo & Bass, 1961), there is a gap in empirical research between the constructs of interpersonal behavior and locus of control. The three interpersonal needs of inclusion, control, and affection described by Schutz (1958, 1977, 1978) appear to be remarkably congruent with Rotter's (1954, 1966) external and internal loci of control. Reviews on locus of control did not identify any studies in which locus of control and interpersonal behavior had been factors (Joe, 1971; Lefcourt, 1976; Phares, 1976). CIJE and ERIC searches performed by the GIPSY program (Harmon, Note 3) identified a

review by Drasgow et al. (1974) which analyzed over a 1000 studies that deal with either locus of control or levels of interpersonal functioning. Drasgow's (1974) study was an initial exploration designed to discover any relationship between scores associated with measures of both locus of control and levels of interpersonal functioning. No research was found that dealt with both constructs.

Stated in global, superordinate constructs, the problem investigated in the study was phrased initially as follows: What relationships exist, if any, among leader behaviors and those personality variables subsumed under the concepts of locus of control and Schutz's variables of interpersonal behavior?

Statement of the Problem

The central problem of the study was as follows:

Are leader behaviors of business administration graduate students and educational administration graduate students related to their loci of control?

The subsidary problems of the study were as follows:

1. Are leader behaviors of business administration graduate students and educational administration graduate students related to their interpersonal behaviors?

2. Are loci of control variables related to interpersonal behavior variables for business administration graduate students and educational administration graduate students?

Purpose of the Study

The purpose of the study was to investigate the relationships between (a) leader behavior and locus of control; (b) leader behavior and interpersonal behavior; and (c) locus of control and interpersonal behavior. The intended outcome of the study was a clearer identification of the theoretical construct of leadership.

Literary and Operational Definitions

The following literary definitions were pertinent to the study:

Leadership: the process of influencing the activities of an organized group toward goal setting and goal achievement (Stogdill, 1950).

Leader Behavior: the specific behavior of a leader while in the process of directing and controlling the activities of a work unit (Stogdill 1963).

Locus of Control: a construct of perceived personal control based on Rotter's (1954) social learning theory. According to Rotter (1966), a person perceives positive and/or negative events as being a consequence of one's own actions or he/she perceives positive and/or negative events as being unrelated to one's own behaviors. The former perception is identified as internal control; the latter perception is identified as external control. The construct is identified also as a concept of Internal versus External

control of reinforcement, a microtheory of personality (Mischel, 1971).

Interpersonal Behavior: a construct composed of variables that have been identified and explained by psychologists like Bales (1970), Leary (1957), and Schutz (1958). The conclusions of Schutz were used in the study. Schutz (1958, 1966) concluded that interpersonal behavior can be accounted for by three dimensions or needs. The dimensions are (a) inclusion; (b) control; and (c) affection. Inclusion typically concerns the feelings and behavior of one person toward a group. Affection is always confined to a one-to-one relationship. Control is concerned with who bosses whom, and may operate in either a one-to-one relationship or a group situation.

Business Administration Graduate Student: a respondent in the study who was following an advanced degree in the College of Business Administration at the University of Oklahoma and was enrolled in a graduate course offered by the Divisions of Accounting, Business Administration and Management, Finance, or Marketing during the spring semester 1980.

Educational Administration Graduate Student: a respondent in the study who was following an advanced degree program in Educational Administration and/or a certification program in public school administration in the College of Education at the University of Oklahoma and was enrolled in

a graduate course offered by the Area of Educational Administration during the spring semester 1980.

Each of the three theoretical constructs investigated in the study was operationalized by a specific instrument. Thus, the following operational definitions were pertinent to the study:

Leader Behavior Description Questionnaire-Form XII: known commonly as the LBDQ-XII, the instrument revised by Stogdill (1963) is composed of 100 Likert scale items which measure leader behavior in 12 dimensions or scales. The LBDQ-XII scales used in the study are defined as follows in the order in which they were statistically analyzed:

LBDQ Scale 1, Representation: measured the extent to which a respondent spoke and acted as a representative of the group.

LBDQ Scale 2, Reconciliation: measured the extent to which a respondent reconciled conflicting demands and reduced disorders to system.

LBDQ Scale 3, Persuasion: measured the extent to which a respondent used persuasion and argument effectively and showed strong convictions.

LBDQ Scale 4, Role Assumption: measured the extent to which a respondent actively exercised the leadership role rather than surrendering leadership to others.

LBDQ Scale 5, Predictive Accuracy: measured the extent to which a respondent showed foresight and ability to predict outcomes accurately.

LBDQ Scale 6, Integration: measured the extent to which a respondent maintained a close-knit organization and resolved intermember conflicts.

LBDQ Scale 7, Superior Orientation: measured the extent to which a respondent maintained cordial relations with superiors, had influence with them, and contended for higher status.

LBDQ Scale 8, Tolerance of Uncertainty: measured the extent to which a respondent was able to tolerate uncertainty and postponement without anxiety or upset.

LBDQ Scale 9, Initiating Structure: measured the extent to which a respondent clearly defined one's leadership role, established channels of communication, and informed followers about what was expected of them.

LBDQ Scale 10, Tolerance of Freedom: measured the extent to which a respondent allowed staff members scope of initiative, decision, and action.

LBDQ Scale 11, Consideration: measured the extent to which a respondent regarded the comfort, well-being, status, and contributions of followers.

LBDQ Scale 12, Production Emphasis: measured the extent to which a respondent applied pressure for productive output.

Stogdill (1963) has divided the LBDQ-XII dimensions into two broad categories: person-oriented dimensions and system-oriented dimensions. The person-oriented dimensions are Reconciliation, Predictive Accuracy, Integration,

Tolerance of Uncertainty, Tolerance of Freedom, and Consideration. The system-oriented dimensions are Representation, Persuasion, Role Assumption, Superior Orientation, Initiating Structure, and Production Emphasis.

Multidimensional Locus of Control Scales: an instrument that measures locus of control by yielding three scale scores: Powerful Others; Internal; and Chance. The instrument is composed of 24 Likert scale items and is identified as a modification of Rotter's (1966) Internal-External Locus of Control Scale (Levenson, 1973; Levenson & Miller, 1976). Central to the study was the identification of a respondent's loci of control. Based on the three scale scores from the Multidimensional Locus of Control Scales, a respondent's perceptions of personal control were identified as follows in the order in which they were statistically analyzed:

LCPO scale score, Powerful Others, identified the extent to which a respondent believed the events in her/his life were mostly determined by powerful others.

LCI scale score, Internal, identified the extent to which a respondent believed he/she had personal control over events in her/his life.

LCC scale score, Chance, identified the extent to which a respondent believed that events in her/his life were controlled by accidental happenings.

Fundamental Interpersonal Relations Orientation-Behavior Scales: known commonly as the FIRO-B Scales, the

instrument written by Schutz (1967) measured a respondent's interpersonal behavior in the areas of inclusion, control, and affection. The instrument is a questionnaire composed of 54 Guttman scale items and yields six FIRO-B scale scores in two categories: Expressed Behavior and Wanted Behavior.

The interpersonal behaviors of the respondents in the study were measured by the following six FIRO-B scale scores which are listed in the order in which they were statistically analyzed:

FEI scale score, Expressed Inclusion: measured a respondent's inclination toward joining others and including others in her/his plans.

FWI scale score, Wanted Inclusion: measured a respondent's inclination toward wanting others to include her/him in their plans.

FEC scale score, Expressed Control: measured a respondent's inclination toward taking charge of affairs with people.

FWC scale score, Wanted Control: measured a respondent's inclination toward wanting people to lead her/him or letting others make the decisions.

FEA scale score, Expressed Affection: measured a respondent's inclination toward having close relationships with people.

FWA scale score, Wanted Affection: measured a respondent's inclination toward wanting others to act close and personal with her/him.

Demographic Information Sheet: an objective type instrument constructed by the investigator composed of questions which dealt with items such as a respondent's academic specialization, sex, age, marital status, ordinal position in the family, highest academic objective, employment, and career aspirations. The questionnaire was used to define the business administration or educational administration graduate students according to Guilford and Fruchter's (1973) sampling requirements.

Variables Selected for the Study

The three theoretical constructs of leader behaviors, loci of control, and interpersonal behaviors investigated in the study were operationalized by instruments which produced data for a total of 21 scales or variables. It was decided early in the study that 10 variables would be selected from the total number and submitted to hypothesis testing using univariate statistical techniques. The selection was done in the interest of keeping the number of null hypotheses to be tested by the Pearson product moment correlation coefficient at a manageable level, and certain criteria were used in the selection of the 10 variables (criteria will be discussed in forthcoming paragraphs). It is to be noted, however, that for the purposes of accomplishing the single classification analyses of variance and multiple statistical techniques, the total number of 21 variables was used.

The Selected LBDQ Variables

Five of the 12 variables of leader behavior as operationalized by the LBDQ-XII (Stogdill, 1963) were selected for hypothesis testing using the Pearson product moment correlation coefficient. The variables selected for particular emphasis in the study were the following: Tolerance of Uncertainty; Initiating Structure; Tolerance of Freedom; Consideration; and Production Emphasis.

The criteria for the selection of the five stated LBDQ-XII variables were the following: (a) Initiating Structure and Consideration, dimensions devised by Halpin (1952), are the primary leader behavior scales which have been widely used in empirical research, particularly in military organizations, industry, and education; (b) Production Emphasis, according to Halpin and Winer (1957), was rated by 52 B-29 commanders during training in 1950 as a major leadership dimension; (c) According to Stogdill (1963), Tolerance of Uncertainty, a person-oriented dimension, corresponds with Initiating Structure in the LBDQ-XII; (d) According to Stogdill (1963), Tolerance of Freedom, a person-oriented dimension, corresponds with Production Emphasis in the LBDQ-XII; (e) The system-oriented dimensions of Initiating Structure and Production Emphasis seem to be related to Internal locus of control; (f) The person-oriented dimensions of Consideration and Tolerance of Freedom seem to be related to Powerful Others locus of control; and (g) Tolerance of Uncertainty seems to

be related to Chance locus of control as well as Powerful Others locus of control.

The Selected LC and FIRO-B Variables

Each of the three scales scores of Powerful Others, Internal, and Chance as measured by the Multidimensional Locus of Control Scales (Levenson, 1973) was used in the testing of null hypotheses analyzed by the Pearson product moment correlation coefficient. Since the identification of a respondent's loci of control was central to the study, the three LC scale scores were used.

Only two of the six FIRO-B scale scores (Schutz, 1977) were submitted to hypothesis testing using the Pearson product moment correlation coefficient. The interpersonal behavior of control with its two levels of Expressed Control and Wanted Control was selected instead of the interpersonal behaviors of inclusion and affection. The criteria for the stated selection were the following: (a) Control, as defined by Schutz (1958), is a more versatile dimension than either inclusion or affection; (b) Control seems to relate better than either inclusion or affection to the five LBDQ variables of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis; and (c) Control seems to relate better than either inclusion or affection to the three LC variables of Powerful Others, Internal, and Chance.

The Research Questions

The research questions investigated in the study were as follows:

(1) Are the five leader behavior scores of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis as measured by Stogdill's (1963) LBDQ-XII related to the three locus of control scale scores of Powerful Others, Internal, and Chance as measured by Levenson's (1973) Multidimensional Locus of Control Scales?

(2) Are the five leader behavior scale scores of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis as measured by Stogdill's (1963) LBDQ-XII related to the two interpersonal behavior scale scores of Expressed Control and Wanted Control as measured by Schutz's (1977) FIRO-B Scales?

(3) Are the three locus of control scale scores of Powerful Others, Internal, and Chance as measured by Levenson's (1973) Multidimensional Locus of Control Scales related to the two interpersonal behavior scale scores of Expressed Control and Wanted Control as measured by Schutz's (1977) FIRO-B Scales?

The three research questions investigated in the study were non-directional; and the third research question was, in a sense, tangential to the main purpose of the study. Nonetheless, the third research question was retained, since a review of the literature indicated that

there had not been a study of the relationship of locus of control variables with interpersonal behavior variables for business administration graduate students and educational administration graduate students.

The basic hypothesis of the study was that a relationship exists between selected leader behaviors and loci of control for business administration graduate students and educational administration graduate students.

The Significance of the Study

The study was conducted because the investigator observed that in the literature of leadership and locus of control, few references exist on relationships between leader behaviors and loci of control. This gap in the empirical research is curious, since (based upon the research and theoretical writings in both constructs) there appeared to be some rather remarkable semantic similarities among the concepts subsumed under leader behaviors and the concepts subsumed under loci of control. From a theoretical viewpoint, the significance of the study was a better identification of the relationship between leader behaviors and loci of control. Also, at the beginning of the study, the investigator concluded that literary definitions of constructs (even though semantically similar) might be found to differ when they are operationalized--yielding far different results than one might expect because of semantic similarities. Thus, in a real sense the potential

significance of the study relates to an important theoretical desideratum of the constructs of leader behavior and locus of control--not only leadership theory but also personality theory. The investigator observed at the beginning of the study that if points of congruence could be ascertained in leader behavior and locus of control, then the study might constitute a contribution to the scientific study of both leadership theory and personality theory.

At the beginning of the study, the investigator observed that there existed a marked potential for pragmatic utilization of the relationships that could emerge from the proposed study. Thus, if the research questions could be answered affirmatively, then there could be constructed multiple linear regression models which might not only predict leader behaviors, but would also weigh the predictor variables in terms of their predictive powers. The investigator observed that there would be sufficient data on the respondents from which viable, prediction equations could be generated. Admittedly, these equations would not predict leadership style (composed of certain leader behaviors), but rather that particular component of leader behavior toward which any administrator is drawn. It would seem self-evident that in the construct of leadership one could not accept a phenomenological definition of leadership style, for that reason, it is not sufficient for any one person to state simply, "I am of the consideration school," or words to that effect. The phenomena are so complex that

objectively arrived at categorizations of leadership styles are preferable to subjective avowal by persons. It is for this reason that the study tapped various leader behavior factors (dimensions or variables), all of which have been extracted from the body of research on leadership (Stogdill, 1974; House & Baetz, 1979).

Summarily, an objective of the study was to isolate predictive indices of leadership styles within the framework of a microtheory of personality (locus of control) using both univariate and multivariate statistical techniques. Additionally, there was incorporated a set of personality variables: those operationalized by Schutz (1958, 1977) in the FIRO-B Scales.

The investigator observed that the research problem was a timely one; that in addition to its theoretical implications, there might also be practical sequelae. An influential and critical population of leaders was involved--educational administrators. Possibly, the findings of the study might also have implications for non-educational leaders--business administrators in the study.

Additionally, the results that have emanated from the study might assist professors in the Area of Educational Administration in the College of Education at the University of Oklahoma to identify personality factors which are present in a present or prospective educational administrator's style. This information could be built into selection and training programs for educational

administrators. Baumgartel (1957) observed that analyses of leadership styles and situations indicate that effective leadership is not beyond measurement, but rather can be identified and built into selection and training programs.

Limitations of the Study

At the beginning of the study, the investigator observed at least two possible flaws or weaknesses in the study. First, the respondents were to be asked to respond to a written demographic information sheet and three self-assessment instruments. This packet of information would require a considerable investment of time on the part of the respondent. Thus, it was anticipated that each respondent would be asked to invest approximately one hour of time. This amount of time could produce the fatigue effect in a respondent. Trial runs indicated that it would take a respondent on the average of 45 minutes to complete the packet of information. A second, possible flaw was in the use of variables from the FIRO-B Scales (Schutz, 1977). Unlike the items in the other two instruments (Stogdill's LBDQ-XII Questionnaire and Levenson's Multidirectional Locus of Control Scales) where each item loads only on one scale or factor, the scoring system of the FIRO-B Scales is such that a particular item score appears more than once in the scales. However, because of the widespread use of the FIRO-B Scales in previous research and its high internal consistency, the investigator chose to retain the

interpersonal behavior variables. However, the basic hypothesis of the study involved Stogdill's (1963) leader behavior inventory and Levenson's (1973) locus of control inventory.

During the data-collection phase of the study, a third weakness emerged. The investigator observed that respondents who were international graduate students asked questions of clarification on instructions and content of instruments. The investigator concluded that this behavior was an indication that international graduate students experienced difficulty reading and comprehending the instruments.

Organization of the Study

Chapter I introduced the theoretical constructs to be analyzed in the study with explanations on (a) setting of the problem; (b) statement of the problem; (c) purpose of the study; (d) literary and operational definitions; (e) variables selected for the investigation; (f) research questions; (g) significance of the study; and (h) limitations of the study. The basic hypothesis of the study was that a relationship exists between selected leader behaviors and loci of control for business administration graduate students and educational administration graduate students.

The remainder of the study is organized into four chapters. Chapter II presents the theoretical framework and

review of related literature for the study. The principal theoretical construct of leadership and leader behavior is reviewed from the theory of leader role differentiation derived by researchers associated with the Ohio State Leadership Studies (Stogdill, 1974). The subsidary theoretical constructs, loci of control and interpersonal behavior, are reviewed from frameworks developed by Rotter (1966) and Levenson (1973) for loci of control and Schutz (1958, 1978) for interpersonal behavior.

Chapter III presents the univariate and multivariate statistical plans used in the study, along with explanations on (a) populations and samples; (b) procedures for collecting data; (c) instruments used to measure the variables; (d) conceptual hypotheses; and (e) null hypotheses. There were 74 null hypotheses which were tested by univariate statistical analyses. The alpha level for univariate and multivariate statistical analyses was .05.

Chapter IV reports the findings and interpretations of the univariate and multivariate statistical analyses. The chapter begins with explanations on the demographic characteristics of the two samples. The statistical analyses are presented in two parts: (a) Univariate statistical analyses composed of (1) correlation analyses; and (2) analyses of variance; and (b) Multivariate statistical analyses composed of (1) canonical correlational analyses; (2) factor analysis; and (3) multiple linear

regression analyses. The data analyses are reported in Tables 1 through 33.

Chapter V presents the (a) summary of the study; (b) conclusions of the study; (c) set of recommendations for further research; and (d) statement on some practical implications of the study.

CHAPTER II

THEORETICAL FRAMEWORK AND REVIEW OF RELATED LITERATURE

The principal theoretical construct in the study was leadership with emphasis on leader behavior. The subsidiary theoretical constructs were locus of control and interpersonal behavior.

Leadership and Leader Behavior

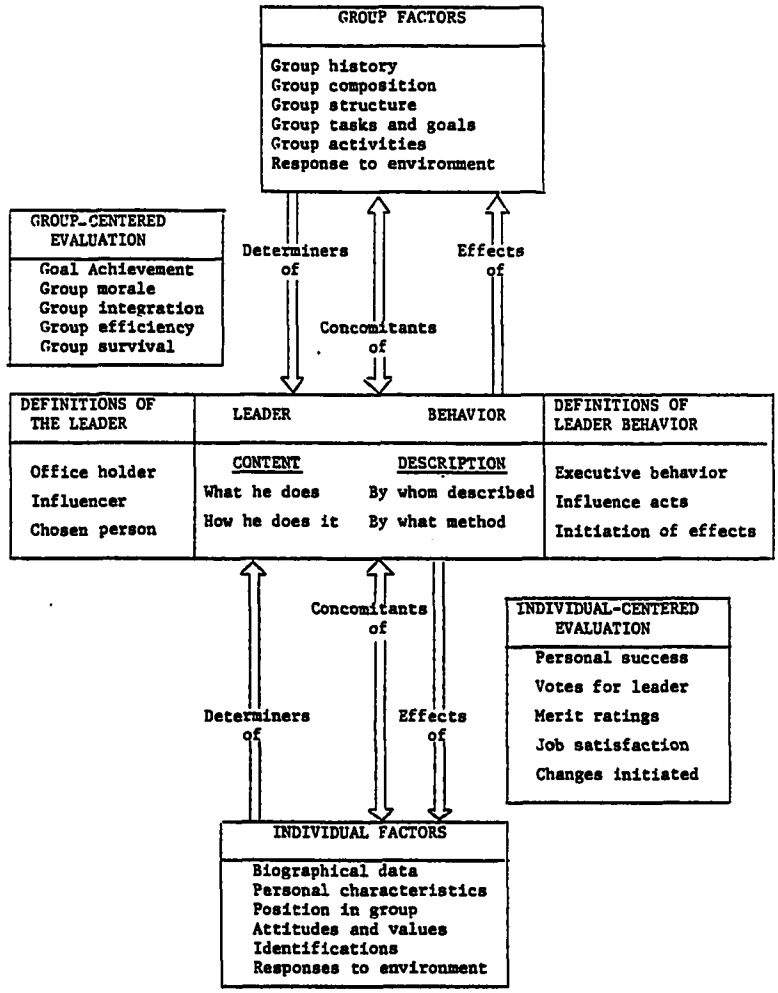
The theoretical framework for leadership and leader behavior in the study as identified by House and Baetz (1979) was the theory of leader role differentiation. Broadly defined, the theory states that a leader demonstrates certain behaviors as he/she guides a group toward the achievement of goals and tasks and the maintenance of social relations. This theoretical framework was derived from the research and results associated with the Ohio State Leadership Studies, an interdisciplinary project guided by psychologists, sociologists, and economists (Stogdill & Coons, 1957). The Project was initiated in 1945 and its research activities grew during the 1950s and 1960s; the 1970s were devoted primarily to

reviewing and evaluating the effects of the Ohio State Leadership Studies (Stogdill, 1974). The primary objective of the Ohio State Leadership Studies was to identify the dimensions of leader behavior in group settings (Shartle, 1957). The paradigm for the study of leadership (see Figure 1) as conceptualized by the Ohio State Leadership Studies has been recorded by Shartle (1957).

The principal investigators in the Ohio State Leadership Studies were the following: (a) Alvin E. Coons; (b) Edwin A. Fleishman; (c) Andrew W. Halpin; (d) John K. Hemphill; (e) Carroll L. Shartle; (f) Ralph M. Stogdill; and (g) B. James Winer (Stogdill & Coons, 1957). Each of these investigators made a specific contribution to the description and measurement of leader behavior. The primary result of their contributions was the development of the set of instruments identified as the Ohio State Leadership Scales, of which the Leader Behavior Description Questionnaire of 1957 was the major one (Stogdill & Coons, 1957).

Coons was one of the editors of two leadership monographs. Coons's (1957) principal monograph, Leader Behavior: Its Description and Measurement, was a collection of papers which described the development, analysis, and application of a set of items devised for the description of leader behavior. Coons's (1956) monograph, A Predictive Study of Administrative Work Patterns, described administrative behaviors of two groups of U.S. Navy officers

Figure 1: Paradigm for the Study of Leadership



SOURCE: Shartle, C. L. Introduction. In R. M. Stogdill & A. E. Coons (Eds.), Leader behavior: Its description and measurement. Columbus: The Ohio State University, 1957.

(with 21 officers in each group) before and after they were transferred from one assignment to another (for example, from shipboard positions to positions ashore) during the period from July 1950 to February 1951.

Fleishman (1953a, 1953b, 1957a, 1957b) specialized in the assessment of leadership attitudes, which resulted in the development of the Leadership Opinion Questionnaire in the 1950s. Using supervisors in industry, the Leadership Opinion Questionnaire measured supervisors' perceptions of how they ought to act in their leadership roles. Fleishman's (1973) article, "Twenty Years of Consideration and Structure," in Fleishman and Hunt's (1973) book, Current Developments in the Study of Leadership, focused on the development of Initiating Structure and Consideration as independent dimensions of leader behavior.

Halpin (1957), perhaps the most familiar leadership theorist to educational administrators, has been credited with the refinement of the Leader Behavior Description Questionnaire of 1957. Halpin (1955) was the principal investigator of a study whose purpose was to determine the relation between a leader's ideal behavior (how he thinks he should behave as a leader) and his actual leader behavior as observed by his subordinates. Halpin's sample consisted of two groups of respondents, 64 educational administrators and 132 aircraft commanders. Both the "Real" and "Ideal" forms of the Leader Behavior Description Questionnaire were scored on Initiating Structure and Consideration. An analysis of

the data indicated that the mean scores of administrators exceeded the mean scores of commanders for Consideration, but that the reverse was true for Initiating Structure. These differences were all significant at the .001 level for both "real" and "ideal" scores. The Consideration behavior of educational administrators was described as relatively independent of their Initiating Structure behavior. Aircraft commanders showed a greater tendency to score high on both Consideration and Initiating Structure behaviors. The highest correlation produced was that between the "real" and "ideal" Initiating Structure behavior of educational administrators. The results of Halpin's (1955) study on ideal and observed leader behaviors indicated that, generally, a leader's beliefs about how he should behave as a leader were not highly associated with his behavior as described by his followers. Halpin (1957) was the principal investigator of a study in the summer of 1951 whose purpose was to determine the relation between leader behavior descriptions and leader effectiveness for 89 commanders of B-29 aircraft engaged in flying combat missions over Korea. Initiating Structure and Consideration were the two leader behavior descriptions in the study. The results of the study may be summarized, generally, as follows: (a) Superiors tended to evaluate positively those aircraft commanders described high in Initiating Structure and to evaluate negatively those aircraft commanders described high in Consideration; (b) For crew members in

training, satisfaction was positively related to Consideraton (r=.48) and negatively related to Initiating Structure (r=-.17); (c) For the same crews in combat, both Consideration (r=.64) and Initiating Structure (r=.35) were positively related to crew member satisfaction; and (d) The effective aircraft commander was the leader whose behavior was above average or high in respect to both the Initiating Structure and Consideration dimensions rather than the leader who illustrated one form of leader behavior at the expense of the other. Although factor-analytic studies by Halpin (1954, 1955, 1956, 1957a, 1957b) produced two strongly defined leader behavior dimensions (Initiating Structure and Consideration), it was concluded by Halpin and Croft (1962) that two dimensions were not sufficient to describe all the complexities of leader behavior.

Hemphill, in association with Coons, has been credited with the development of the first Leader Behavior Description Questionnaire used by the Ohio State Leadership Studies (Hoy & Miskel, 1978). Hemphill's (1949) monograph, Situational Factors in Leadership, which developed 10 dimensions of group behavior and a leader behavior description questionnaire, provided the initiators of the Ohio State Leadership Studies with an operational definition of leadership and an approach for investigating it. Hemphill (Note 4, Note 5) specialized in studying leadership in small groups. Hemphill's (Note 5) research produced a theory of leadership in small groups: "To lead is to engage

in an act that initiates structure in the interaction as part of the process of solving a mutual problem" (p. 2). Hemphill (1955) used the Leader Behavior Description Questionnaire to study the leadership of 18 academic department heads in a university. A result of this study was that the department head's reputation for administrative competence correlated .36 with Consideration and .48 with Initiating Structure. Relative to leader behavior dimensions for business executives, Hemphill (1960) studied 93 business executives located in five companies. The positions represented three levels of organization and five specialties (Research and Development, Sales, Manufacturing, General Administration, and Industrial Relations). A factor analysis of 575 performance items produced 10 factors: staff services, supervision, control, technical, social and community affairs, planning, authority, business reputation, personal demands, and preservation of assets. The results of this study indicated a greater degree of similarity between positions in the same the speciality but in different organizations than between positions within the same level of organization.

Shartle's (1933) dissertation, Some Psychological Factors in Foremanship, marked the beginning of this investigator's involvement in the study of leadership. The dissertation, a study of factors which differentiated foremen from workers, paved the way for Shartle's (1949) professional association with the Personnel Research Board

at Ohio State University. It was the Personnel Research Board who initiated the Ohio State Leadership Studies in 1945. Stogdill and Shartle (1955) assessed the Ohio State Leadership Studies as a 10-year program of basic research whose primary aim was the development of methodology for the study of leadership. Shartle (1957) was responsible for the selection of economists, psychologists, and sociologists who carried out the research activities of the Project and the selection of respondents whose leadership status had been already established. Business executives, college administrators, school superintendents, aircraft commanders, and Navy officers viewed themselves according to the definitions of leaders and leadership proposed by Shartle (1951). Thus, the respondents in the Ohio State Leadership Studies were persons who (a) exercised positive leadership acts upon others; (b) exercised more important influence than others; (c) exerted more influence on goal setting and goal achievement; (d) were elected to position by the group; and (e) occupied an office or position of influence.

Stogdill has been identified by some observers as the principal leadership theorist and most prolific writer to emerge from the Ohio State Leadership Studies (Hunt & Larson, 1976, 1979). Stogdill's (1959) book, Individual Behavior and Group Achievement, illustrated an expectancy-reinforcement theory of role attainment which states that as group members interact and engage in mutual task performance, the group members reinforce the expectation

that each will continue to act and interact in accord with the member's previous performance. Thus, the individual's role is defined by mutually confirmed expectations relative to the performances and interactions an individual will be permitted to contribute to the group. The leadership potential of any given member is defined by the extent to which the member initiates and maintains structure in interaction and expectation. Stogdill's (1959) expectancy-reinforcement theory of role attainment suggested that a number of variables operate in the differentiation of the roles of leaders in groups. In addition to the two fundamental leader behavior factors of Initiating Structure and Consideration, Stogdill's (1959) theory suggested 10 other leader behavior factors involved in the differentiation of roles for leaders. These leader behavior factors were (a) Tolerance of Uncertainty; (b) Persuasiveness; (c) Tolerance of Member Freedom of Action; (d) Predictive Accuracy; (e) Integration of the Group; (f) Reconciliation of Conflicting Demands; (g) Representation of Group Interests; (h) Role Assumption; (i) Production Emphasis; and (j) Orientation toward Superiors. With Initiating Structure and Consideration as the fundamental leader behavior factors or dimensions, Stogdill's (1959) 10 leader behavior factors were used in the development of a leader behavior instrument which was to supersede Halpin's (1957) Leader Behavior Description Questionnaire. This new, expanded version came to be identified as the Leader

Behavior Description Questionnaire-Form XII (Stogdill, 1963).

Stogdill's association with the Ohio State Leadership Studies produced various books, journal articles, and monographs. The following literary works, for example, were pertinent to the review of leadership and leader behavior for the current study: (a) Stogdill and Shartle's (1955) monograph, Methods in the Study of Administrative Leadership, focused on the research methodology developed and implemented by the investigators of the Ohio State Leadership Studies; (b) Stogdill's (1974) book, Handbook of Leadership: A Survey of Theory and Research, reviewed various aspects of leadership (for example, leadership theory, emergence of the leadership role, leader-follower interactions, and leadership in group performance) which were documented by more than 3,000 studies of leadership; and (c) Stogdill's (1973) survey of trait theory and research, "The Trait Approach to the Study of Educational Leadership," a section which appeared in Cunningham and Gephart's (1973) book on "leadership."

Winer participated with Halpin in conducting factor analytic studies of the intercorrelations among eight hypothesized leader behavior dimensions, namely, leadership quality, domination, organization, production, communication, membership, goal direction, and initiative. These studies resulted in the emergence of four leader behavior factors. These factors were identified as

Consideration, Initiating Structure, Production Emphasis, and Social Awareness. Two factors, Consideration and Initiating Structure, accounted for 83 percent of the total factor variance (Halpin & Winer, 1957). Winer has been identified by Hoy and Miskel (1978) as one of the investigators responsible for the refinement of the Leader Behavior Description Questionnaire of 1957.

Halpin (1966) has summarized the major findings emerging from the Ohio State Leadership Studies as follows: (a) Initiating Structure and Consideration as measured by the Leader Behavior Description Questionnaire are fundamental dimensions of leader behavior; (b) Effective leader behavior tends most often to be associated with high performance on both dimensions; (c) Superiors and subordinates tend to evaluate the contributions of leader behavior dimensions oppositely in assessing effectiveness. Superiors tend to emphasize Initiating Structure, while subordinates are more concerned with Consideration. Hence, the leader often finds some degree of role conflict. (d) The leadership style characterized by Quadrant 1 (see Figure 2), high in both dimensions, is associated with such group characteristics as harmony, intimacy, procedural clarity, and with favorable changes in group attitude; (e) There is only a slight relationship between how leaders say they should behave and how subordinates describe that they do behave; and (f) Different industrial settings tend to foster different leadership styles.

Figure 2

Quadrants Formed by Using the LBDQ Dimensions

Initiating Structure Axis	
Quadrant II Low Consideration (-) High Initiating Structure (+) II=(-,+)	Quadrant I High Consideration (+) High Initiating Structure (+) I=(+,+) CONSIDERATION AXIS
Quadrant III Low Consideration (-) Low Initiating Structure (-) III=(-,-)	Quadrant IV High Consideration (+) Low Initiating Structure (-) IV=(+,-)

SOURCE: Hoy, W. K., & Miskel, C. G. Educational Administration Theory, Research, and Practice. New York: Random House. 1978.

Halpin (1966) reported that his studies of school superintendents in Ohio during the 1950s suggested that public school norms were supportive of Consideration. Halpin speculated that the inclination of these school superintendents to emphasize Consideration, combined by their disinclination to emphasize Initiating Structure, might reflect the fact that human relations and group dynamics are significant to educational administrators. Halpin's studies seem to suggest also that some superintendents hesitate on Initiating Structure, lest they be accused of being authoritarian. An effective leader, Halpin has concluded, is a person who is high on both Initiating Structure and Considration.

Locus of Control

The theoretical framework for locus of control in the study as identified by Rotter (1954, 1966) and used by other psychologists like Joe (1971),Lefcourt (1976), Levenson (1973, 1974), Levenson and Miller (1976), and Phares (1976) was social learning theory. In social learning theory, a reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future. Once an expectancy for such a behavior-reinforcement has been built up, the failure of the reinforcement to occur will reduce or extinquish the expectancy (Rotter, 1966). Expectancy as defined by Rotter (1954, 1966) is the probability held by a

person that a particular reinforcement will occur as a function of a specific behavior on a person's part in a specific situation or situations. Expectancy is systematically independent of the value or significance of the reinforcement. Expectancy or expectancies have been classified as either general or specific. General expectancies refer to broad expectations concerning the probable outcomes of a person's behavior based on that person's past experiences and total history and similar situations. Specific expectancies refer to a person's expectations that a particular set of behaviors illustrated by that person will result in particular outcomes or reinforcements in the specific situation which that person is facing. General and specific expectancies regarding future performance depend on information about past performance.

The major assumptions of Rotter's (1954) social learning theory have been summarized by Phares (1976) as follows: (a) The study of personality is carried out by focusing on the interaction of a person and her/his meaningful environment. A person's traits, needs, habits, and the situation or situations form the unit of investigation for the social learning theorist. A person responds subjectively to her/his environment on the basis of her/his particular history and experience. Whatever objective properties stimuli may possess are to be evaluated in the context of how they are interpreted by a respondent.

While the theory seems to possess phenomenological qualities, it has been based on a person's past experiences, previous conceptualizations, and common experiences with others. Hence, social learning theory cannot be explained exclusively by the methodology employed by phenomenologists like Carl Rogers. (b) The emphasis of the theory is on learned or acquired social behavior. Hence, in explaining a person's social behavior, learned attitudes, values, and expectations are of greater usefulness than unlearned biological determinants like instincts, hormones, and blood pressure. (c) There is a common thread or unity to personality. The experiences of persons, irrespective of variety, are characterized by a specific pattern. The pattern explains behavior by means of antecedents, expectancies, and reinforcements. Cause-effect relationship as an explanation of behavior is rejected by the theory. (d) Finally, behavior is purposive, for the social learning theorist believes that behavior is goal-directed in the sense that a person seeks to attain or avoid certain aspects of the environment. If a person's behavior is directed toward the attainment of a goal, the event or stimulus is identified as a positive reinforcement. If a person's behavior is directed toward the avoidance of a goal, the event or stimulus is identified as a negative reinforcement.

Summarily, Rotter's (1954) theory has stated that a person's actions are predicted on the basis of her/his

values, expectations, and the situations in which a person finds herself/himself. The formulation for predicting behavior at a specific time and place is as follows:

$$BP_{x,S_1,R_a} = f(E_{x,R_a,S_1} \& RV_{a,S_1})$$

This formula reads as follows: the potential for behavior x to occur in situation 1, in relation to reinforcement a, is a function of the expectancy of the occurrence of reinforcement a following behavior x, in situation 1, and the value of reinforcement a in situation 1 (Lefcourt, 1976).

The principal investigator of locus of control has been Julian B. Rotter. Rotter's (1966) monograph, Generalized Expectancies for Internal versus External Control of Reinforcement, presented the results of early empirical investigations at the Ohio State University during the 1950s which identified locus of control as a theoretical construct. Rotter (1966) defined internal-external locus of control as perceived personal control based on contingency relationships between a person's own behavior and events which follow that behavior. If a person perceives positive and/or negative events as being a consequence of one's own actions, he/she is internally-controlled. If a person perceives positive and/or negative events as being unrelated to one's own behaviors, he/she is externally-controlled. Rotter (1966) developed an Internal-External Locus of Control Scale to measure a person's

perceived control. In its present form, Rotter's I-E Scale consists of 23 question pairs, using a forced-choice format, plus six filler questions. Internal statements are paired with external statements. A participant is given one point for each external statement selected. The instrument is scored in the external direction, that is, the higher the score the more external the person. The most external person would make a score of 23; the most internal person would make a score of 0. Joe (1971) has reported that reliability measures for Rotter's I-E Scale have been consistent. The test-retest reliability measures for varying samples and for intervening time periods varying from one to two months have ranged between .49 and .83. These reliability measures conducted by Rotter (1966) have been corroborated by Hersch and Scheibe (1967) and Harrow and Ferrante (1969). Joe (1971) has reported also that Rotter's (1966) discriminant validity for the I-E Scale is acceptable.

In addition to Rotter's (1966) I-E Scale, several other scales have been developed and used to assess locus of control. A listing of these scales follows: (a) Bialer's Locus of Control Questionnaire (Bialer, 1961); (b) Crandall's Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky, & Crandall, 1965); (c) Dean's Alienation Scales (Dean, 1969); (d) The James I-E Scale (James, 1957); (e) Nowicki-Strickland Locus of Control Scale (Nowicki & Strickland, 1973); (f) Reid-Ware Three-

Factor I-E Scale (Reid & Ware, 1974); (g) Stanford Preschool I-E Scale (Mischel, Zeiss, & Zeiss, 1974); (h) Lefcourt-Reid-Ware Interview Questions (Lefcourt, 1976); and (i) Levenson's Multidimensional Locus of Control Scale (Levenson, 1973).

The principal theorist of locus of control in the study was Hanna Levenson, who has been associated with the Department of Psychology at Texas A&M University in College Station, Texas. Levenson (1973) has developed and used a tripartite division of locus of control which consists of Chance expectancies or control by Chance in addition to the other expectancies of Internality and Powerful Others. The three expectancies have been employed in the development of a Multidimensional Locus of Control Scale, which is a modification of Rotter's (1966) I-E Scale. The instrument is made up of 24 Likert scale items and yields three scale scores, Powerful Other, Internal, and Chance. The instrument has been used by Levenson and colleagues to identify the multidimensional locus of control in psychiatric patients and socio-political activists (Levenson, 1973; Levenson & Miller, 1976). These studies were able to illustrate (a) the utility of the Multidimensional Locus of Control Scale; (b) the conception that beliefs in Internal Control are differentiable from beliefs in Chance or Powerful Others; and (c) the possibility that all three expectancies can coexist independently within persons.

Joe (1971) has listed 119 references in which internal-external locus of control as a personality variable has been studied. The majority of these references have appeared in research-oriented journals like Journal of Experimental and Social Psychology, Journal of Consulting and Clinical Psychology, Journal of Personality, Journal of Psychology, and Journal of Protective Techniques and Personality Assessment. The studies have been divided into 12 categories. Locus of control, for example, has been studied in relation to anxiety, achievement motivation, ethnicity and social class, learning styles, and personality characteristics measured by the California Psychological Inventory. Joe (1971) did not report any research studies in which locus of control and leadership styles or leader behaviors were constructs. In the section on conclusions, Joe (1971) observed the following: (a) Further research on specific issues and areas involving locus of control was needed; and (b) The existing I-E scales need to be studied with the objective of attaining finer discrimination of belief in internal-external control.

The principal reviewer of the theoretical construct of locus of control with a focus on its historical development, process, and current status on research has been Herbert M. Lefcourt, a social learning theorist from the University of Waterloo in Canada. Lefcourt's (1976) book, Locus of Control: Current Trends in Theory and Research, was written to give psychologists and other

behavioral and social scientists a comprehensive and systematic overview of locus of control based on themes and issues of interest to researchers. Lefcourt (1976) has listed 302 citations in which locus of control as a personality variable has been studied. These citations consisted of articles in professional journals, books, and research papers read at professional meetings. No citations in which locus of control and leadership styles or leader behaviors were constructs were given. In the section on conclusions and prospects, Lefcourt wrote the following observations: (a) The perception of control should be defined as a single expectancy construct composed of interacting variables such as values of the reinforcements in question and the expectancy that the person will obtain that desired reinforcement, whether by one's own or external forces; (b) Researchers should observe that persons are not totally internals or externals. These two terms are used only for purposes of identification and should not be used to imply that perception of control is a trait or typology. (c) The perception of control is a process, the exercise of an expectancy regarding causation. Thus, the terms internal and external control depict a person's more common tendencies to expect events to be contingent or not contingent upon one's actions. (d) Researchers who are interested in using the perception of control as a powerful predictor will most always find it profitable to design one's own assessment devices for the criterion of interest;

and (e) Researchers should adhere to precise hypotheses with perception of control variables.

Locus of control as a theoretical construct has been studied regularly by graduate students, particularly by those in the areas of Clinical Psychology, Educational Psychology, Experimental Psychology, Guidance and Counseling, and Social Psychology. A dissertation search performed by University Microfilms International (Note 6) identified six dissertations in Clinical Psychology, three dissertations in Educational Psychology, and ten dissertations in Guidance and Counseling which had used locus of control. Thirteen of the 19 stated dissertations were completed in the 1970s. Generally speaking, these dissertations have the following characteristics: (a) Rotter's social learning theory has provided the theoretical framework; (b) Rotter's I-E Scale has been used to measure a person's perception of control; and (c) Special populations like the mentally retarded and smokers were used. In the Area of Clinical Psychology, Castaneda (1952) investigated the concept of expectancy within the framework of Rotter's social learning theory. In the Area of Educational Psychology, Rider (1974) investigated the relationship of locus of control to two other variables, leader behavior and consultation effectiveness, for school psychologists; Moazami (1975) compared the control perceptions of institutionalized and non-institutionalized mildly retarded populations. In the Area of Guidance and Counseling, Sharp

(1978) studied the Rotter I-E Scale as a criterion measure for selecting applicants to graduate study in Guidance and Counseling at Indiana University; Niland (1969) used social learning theory in an investigation of goal discrepancies among elementary school children.

Bertinot (1978) has summarized the characteristics or tendencies of persons who perceive their control to be either internally-directed or externally-directed. Internals are generally (a) considered to be more effective in learning situations that require skill rather than chance; (b) less susceptible to social pressure in groups; (c) better able to recall information related to control of one's environment; (d) considered to have a lower tolerance for ambiguity; (e) reported to be involved more actively in change strategies; and (f) more confident about their own independent judgments. Externals are generally (a) more acquiescent and less able to influence the attitudes of others; (b) more dependent on the consensual judgments of others; and (c) less adept at recalling and using relevant information for dealing with life situations. Bertinot's comparison of Internals and Externals was based on research studies conducted by Davis and Phares (1967), Strickland (1965), Seeman (1963) and Crowne and Liverant (1963).

Interpersonal Behavior

A third set of variables identified by the category of interpersonal behavior was used in the study. The

theoretical framework for interpersonal behavior as operationalized by Schutz (1958) is the three-dimensional theory of interpersonal behavior, known specifically as Fundamental Interpersonal Relations Orientation (FIRO) theory. FIRO theory postulates that every person has three interpersonal needs: inclusion, control, and affection. These three interpersonal needs constitute a sufficient set of areas of interpersonal behavior for the prediction and explanation of interpersonal phenomena.

Schutz (1958, 1966) has defined the term interpersonal as relations that happen between two persons or among several persons who are in the presence of each other. It is assumed that, owing to the psychological presence of other persons, the behavior of a person in interpersonal situations, for example, a group, will be different than when a person is alone. Within the framework of the term interpersonal, Schutz has behaviorally defined inclusion, control, and affection. Thus, inclusion is the need of a person to establish and maintain a satisfactory relation with other persons with respect to interaction and association. A satisfactory relation for inclusion refers to a person's level of comfort when he/she initiates interaction with others and when he/she wants others to initiate interaction with her/him. Control is the need of a person to establish and maintain a satisfactory relation with other persons with respect to control and power. A satisfactory relation for control refers to a person's level

of comfort when he/she initiates control over others and when he/she wants others to initiate control over her/him. Affection is the need of a person to establish and maintain a satisfactory relation with other persons with respect to love and affection. The interpersonal need for affection always refers to a two-person relation. A satisfactory relation for affection refers to a person's level of comfort when he/she initiates close, personal relations toward others and when he/she wants others to initiate close, personal relations toward her/him.

William C. Schutz, the primary theorist and proponent of FIRO theory, has developed seven scales that measure interpersonal behavior in various ways. The scales are FIRO-B (Fundamental Interpersonal Relations Orientation-Behavior), FIRO-F (Fundamental Interpersonal Relations Orientation-Feelings), LIPHE (Life InterPersonal History Enquiry), MATE (Marital ATtitudes Evaluation), VAL-ED (EDucational VALues), COPE (Coping Operations Preference Enquiry), and FIRO-BC (Fundamental Interpersonal Relations Orientation-Behavior, Children) (Schutz, 1978).

Interpersonal behavior in the study was measured by the FIRO-B Scale. The instrument has been designed to measure a person's characteristic behavior toward other persons in the areas of inclusion, control, and affection. It is designed not only to measure individual characteristics but also to assess relationships between persons, such as compatibility, or coefficiency (see Figure

3). Constructed as a questionnaire with 54 Guttman scale items, the instrument yields six scale scores in two categories: Expressed Behavior; and Wanted Behavior.

The reliability or coefficients of internal consistency for each of the six scales were determined, according to Guttman (1950), by means of reproducibility. The usual criterion for reproducibility is that 90 per cent of all responses are predictable from knowledge of scale scores. The FIRO-B Scale was developed on about 1000 participants and the reproducibility computed for the remainder of the sample (see Figure 4). The content validity and concurrent validity for the FIRO-B Scale have been defined as satisfactory (Schutz, 1978). Since the FIRO-B Scale has been designed to test a theory, the various research studies conducted by Schutz and his colleagues have shown the relevance of predictive validity (Schutz, 1958; 1966).

The FIRO-B Scale has been used for research purposes in a variety of fields, including the following: (a) Marriage Counseling and Marital Therapy; (b) Clinical Psychology; (c) Human Relations; (d) Criminology; and (e) Education. The use of the instrument in the stated fields reflects its versatility, especially in areas where group composition is a characteristic or an issue (Schutz, 1978).

Schutz (1978) has summarized the use of the FIRO-B Scale in the field of education. The instrument has been used in the following educational situations: (a) in

Figure 3

The FIRO-B Dimensions

	Inclusion	Control	Affection
Expressed Behavior	Expressed Inclusion (e^I)	Expressed Control (e^C)	Expressed Affection (e^A)
Wanted Behavior	Wanted Inclusion (w^I)	Wanted Control (w^C)	Wanted Affection (w^A)

SOURCE: Schutz, W. FIRO awareness scales manual. Palo Alto, Ca.: Consulting Psychologists Press, 1977.

Figure 4

Reproducibility of FIRO-B Scales

Scale	Reproducibility	Number of Subjects
Expressed Inclusion	.94	1615
Wanted Inclusion	.94	1582
Expressed Control	.93	1554
Wanted Control	.94	1574
Expressed Affection	.94	1467
Wanted Affection	.94	1467
Mean	.94	1543

SOURCE: Schutz, W. FIRO awareness scales manual. Palo Alto, Ca.: Consulting Psychologists Press, 1978.

distinguishing reticent from nonreticent students in beginning college speech courses (Rosenfeld & Frandsen, 1972); (b) in studying the interpersonal behaviors of 9th and 12th grade students from middle-class and working-class homes (Abrams & Abrams, 1974); (c) in studying the interpersonal behaviors of bilingual teachers and teacher aides in selected areas of the Midwest (Rincon & Ray, 1974); and (d) in staff development sessions for teachers of emotionally disturbed adolescents (Checkon et al., Note 7). In the area of Educational Administration, Schutz's (1977) book, Leaders of Schools, has focused on the application of FIRO theory to public school administrators in California. The results of the study have (a) established a relationship between variables of interpersonal behavior and leadership in public school settings; (b) extended the testing of FIRO theory; (c) produced additional scales for the measurement of interpersonal behavior, for example, COPE, LIPHE, and VAL-ED; (d) provided researchers in leadership with a particular methodology for the study of administration; and (e) enhanced the profession of educational administration by providing a tool for the recruitment, selection, development, evaluation, and retention of school administrators. It is interesting to note also that the aims, scope, and methods of Schutz's project parallel the aims, scope, and methods of the Ohio State Leadership Studies. Schutz's (1977) review of the literature on leadership refers to the works of such theorists as Barnard

(1938), Halpin (1956, 1958), Stogdill and Shartle (1948), and Stogdill (1948).

Interpersonal behavior as a theoretical construct has been studied by graduate students in the area of Educational Administration. A dissertation search performed by University Microfilms International (Note 8) identified 10 dissertations which had used variables of interpersonal behavior and variables of leadership. Nine of the 10 dissertations were completed in the 1970s. In the most recent dissertation, Williams (1979) investigated the relationship between fundamental interpersonal relations orientations and leader behavior for selected elementary principals in Mississippi. Elementary principals in Pennsylvania were compared on selected interpersonal and personal dimensions and leader behavior by Charlier (1977). Mansour (1968) compared the leader behavior of principals and interpersonal relations of teachers. Epstein (1976) studied the relationships between interpersonal relations orientations and leader behavior for selected community college administrators in Canada. Generally speaking, these dissertations have accomplished the following: (a) refined and strengthened the theory of interpersonal behavior, remarkably where FIRO theory has been used; (b) increased the knowledge base relative to the personality characteristics of educational administrators; and (c) established and advanced the field of educational administration as a social science.

Leadership, Leader Behavior, and Locus of Control

While an association or relationship has been empirically established and maintained for leadership or leader behavior and interpersonal behavior, the same definitive conclusion cannot be made for leadership or leader behavior and locus of control. House and Baetz's (1979) bibliography has listed but two of 177 references in which leader behavior and locus of control have been constructs. Runyon (1973) and Mitchell, Smyser, and Weed (Note 1) have illustrated that a subordinate's score on Rotter's I-E Locus of Control Scale moderates the relationship between participative leadership style and subordinate satisfaction. The two studies have shown the following: (a) Internals were more satisfied with a participative leadership style; and (b) Externals were more satisfied with a directive leadership style. Stogdill (1977) has summarized five research studies in which leadership and locus of control (identified as internal-external personality) have been investigated. For example, Lichtman's (1968) dissertation showed that internal locus of control was correlated positively with job satisfaction and correlated negatively with role strain for selected middle managers. In a study of a government agency, Lichtman (1970) showed that satisfaction, tension, and internal control for workers and managers were intercorrelated. Lopez-Roig's (1972) dissertation was a factor analytic study

of 133 items in a locus of control scale which yielded three factors. The factors were as follows: (a) externality concerning control over rewards from the company; (b) internality regarding achievement; and (c) internality regarding rewards from subordinates.

Lefcourt (1976), whose major task has been to review and summarize the current trends in theory and research of locus of control, has not listed any research studies which showed an association or relationship between leadership or leader behavior and locus of control. The dearth of references to relationships between the two theoretical constructs seems to be supported by Joe (1971) and Phares (1976).

Locus of control as a theoretical construct has been studied by graduate students in the area of Educational Administration. A dissertation search performed by University Microfilms International (Note 9) identified two dissertations which had used variables of locus of control and variables of leadership or leader behavior. A third dissertation in the area of Social Psychology, a field allied with Educational Administration, was identified also. Charlier's (1977) dissertation was a study of the relationship between selected personal and interpersonal dimensions of 55 elementary principals and their leadership behavior. The following dimensions were investigated: (a) Locus of control was measured by Rotter's I-E Scale; (b) Manipulative tendency was measured by the Mach V Scale; and

(c) Leadership style was measured by the Least Preferred Co-worker Scale. The teaching staffs of the elementary principals involved in the study were asked to assess the leader behaviors of their principals using the Leader Behavior Description Questionnaire (Halpin, 1957). The correlational analyses revealed the following: (a) A small positive relationship (r=.348, P=.005) was found between external control and the manipulative tendency. No relationships at the .05 level of significance were found between either locus of control and leadership style or manipulative tendency and leadership style. (b) No correlations were significant between locus of control and LBDQ scores; (c) No correlations were significant between manipulative tendency and LBDQ scores; and (d) No correlations were significant between leadership style and LBDQ scores. Additionally, step-wise multiple regression analyses between the independent variables and the LBDQ scores indicated that locus of control, manipulative tendency, and leadership style had little effect on Initiating Structure, Consideraton, or the combined LBDQ score. The results of Charlier's (1977) study demonstrated the following: (a) the difficulty in determining relationships between personality dimensions and leadership behavior in a complex setting such as an elementary school; (b) that leadership is a complex interrelationship between the leader, those led, and the situation in which they must interact; (c) that future research using Locus of Control,

Mach V, or Least Preferred Co-worker Scale should focus or analyze more critically the situation or situations where leader-follower relations occur.

McCarthy's (1977) dissertation was a study of the relationship between leadership behavior, locus of control, and decision-making style of 145 public high school principals in Connecticut. The following instruments were used: (a) The Vroom-Yetton Model of Leadership and Decision-Making (Vroom & Yetton, 1973) measured decision-making style; (b) The Least Preferred Co-worker Scale (Fiedler, 1967) measured leader behavior; and (c) The Nowicki-Strickland Locus of Control Scale for Adults (Nowicki & Strickland, 1973) measured locus of control. To test the hypotheses of the study, discriminant function analysis, stepwise multiple regression, and Pearson product moment correlations were computed. The statistical analyses were conducted on two levels: (a) primary analyses; and (b) secondary analyses. In the primary analyses (where problem type could be predicted for two of the six simulated decision situations), decision-making style could not be predicted by knowing either the level of internality or externality and/or the level of least preferred co-worker. In the secondary analyses (where problem type could not be predicted for any of the six simulated decision situations), a relationship was found between decision-making style and locus of control in one problem or decision situation. By knowing a secondary school principal's level of internality

or externality, the principal's decision-making style could be predicted. McCarthy's major conclusion was that there was no expressed relationship between the personal characteristics of principals and their decision-making styles. It was also concluded that the Vroom-Yetton Model of Leadership and Decision-Making (Vroom & Yetton, 1973) as a conceptual framework for determining decision-making styles might best serve the participants as a predictive tool rather than an analytical tool.

The dissertation by Gaskins (1978) in the area of Social Psychology reported on the relationship of locus of control to religious denominations. Because of conflicting results reported in past research on locus of control in leadership situations, other relationships were analyzed: (a) the relationship between the leader's and the follower's perceptions of the leader's behavior; and (b) the relationship between the leader's and the follower's locus of control and the leader's perceptions of her/his behavior. The variables in the study were measured by a survey questionnaire developed by the researcher. The instrument consisted of a combination of items from a modified Locus of Control Scale developed by Gaskins, the Consideration and Initiating Structure scales from the LBDQ-Form XII, and Rokeach's Value Scales. A factor analysis of the Locus of Control, Consideration, and Initiating Structure scales produced four Locus of Control factors and three LBDQ factors. Zero-order correlations, multiple-range tests, and

multiple regression analysis were used to analyze the study's conceptual hypotheses. One of the four results indicated that there were significant, complex relationships existing between the leader's and follower's locus of control factors and the leader's and the follower's perceptions of the leader's behavior. Summarily, the results from the study by Gaskins (1978) indicated the following: (a) The full implications of the relationship between locus of control and leadership behavior had not been determined, thus, further research would be justified; (b) Leadership is a complex phenomenon; and (c) Further research would be required to determine whether or not religion may be an antecedent of locus of control.

Interpersonal Behavior and Locus of Control

While an association or relationship does not seem to have been established and maintained for leadership, leader behavior, and locus of control, the same, definitive conclusion can be made for interpersonal behavior and locus of control. Swenson's (1973) bibliography has not listed any references in which interpersonal behavior and locus of control have been constructs. This observation seems to be supported by Lefcourt (1976). CIJE and ERIC searches performed by the GIPSY Program (Harmon, Note 10) identified but five research studies in which the two theoretical constructs had been used. Generally speaking, the stated

research studies had used variables like sex, culture, and cognitive style in analyzing interpersonal behavior (referred to also by such terms as interpersonal attraction, interpersonal functioning, interpersonal distance, and interpersonal relationship) and locus of control for normal and special populations. In one of the stated studies, Drasgow et al. (1974) conducted an analysis of over 1000 studies that had used either locus of control or levels of interpersonal functioning. It was concluded from this exploratory review that there were no research studies that dealt with both locus of control and interpersonal functioning.

Summary of Theoretical Constructs

The theoretical constructs analyzed in this review were as follows: (a) leadership and/or leader behavior; (b) locus of control; and (c) interpersonal behavior. The review of the literature yielded the following information: (a) Each theoretical construct is the product of empirical research which has been based on the testing of a theory; (b) As a result of empirical research, each theoretical construct has acquired a legitimate knowledge base; (c) A relationship between leadership and/or leader behavior and interpersonal behavior has been empirically established and maintained; (d) A relationship between leadership and/or leader behavior and locus of control has been empirically initiated, but further research is required to establish and

maintain it; and (e) Empirical research dealing with relationships between interpersonal behavior and locus of control, seems to be lacking. Relative to the use of the three theoretical constructs by researchers in the area of Educational Administration, it can be concluded that leadership, leader behavior, and interpersonal behavior have been analyzed with the most frequency and consistency; locus of control has been used infrequently and inconsistently.

CHAPTER III

RESEARCH DESIGN

Population and Sample

The populations from which the samples for the study were drawn consisted of business administration graduate students and educational administration graduate students enrolled in the College of Business Administration and the College of Education, respectively, at the University of Oklahoma at Norman during the spring semester of 1980. Initially, the investigator proposed to draw samples of at least 50 graduate students enrolled in graduate courses taught by the Divisions of Accounting, Business Administration and Management, Finance, or Marketing in the College of Business Administration (see Figure 5) and at least 50 graduate students enrolled in graduate courses taught by the Area of Educational Administration in the College of Education (see Figure 6). The actual samples consisted of 83 business administration graduate students (28 females; 55 males) and 71 educational administration graduate students (20 females; 51 males). There were 154 graduate students (48 females; 106 males) who participated in the study. The samples may be subsumed

Figure 5

Population: OU College of Business Administration

(A sample was taken from graduate students enrolled in these courses)

ACCT	5013	Quantitative Financial Controls
ACCT	5970	International Management & Control
ACCT	5970	Seminar in Corporation Tax Research
ACCT	6313	Seminar-Controllership
ACCT	6353	Seminar in Accounting Theory
ACCT	6603	Seminar-Tax Planning
B AD	5123	Corporate Planning
B AD	6013	Business & Its Environment
FIN	5043	Financial Administration of Firms
FIN	5723	Tax Theory & Policy
FIN	6973	Seminar in International Finance
FIN	6973	Real Estate Investments-Taxation
FIN	6973	Investments/Portfolio Management
FIN	6973	Quantitative Methods-Mba
MGT	5053	Production & Operation Analysis
MGT	5083	Organizational Behavior
MGT	6023	Business Policy
MGT	6253	Seminar in Organization & Administration
MGT	6403	Seminar in Management of Information Systems
MGT	6973	Management-Human Resources
MKT	5063	Managerial Marketing
MKT	5973	Seminar-Applied Statistical Research II
MKT	5973	Seminar-Production/Promotion Management

Figure 6

Population: Area of Educational Administration/OU College of Education

(A sample was taken from graduate students enrolled in these courses)

EDAD	5213	The Social Sciences & Educational Administration
EDAD	5223	Administrative & Organizational Theory
EDAD	5233	The Organization of Education
EDAD	5243	Managing Educational Institutions
EDAD	6212	Evaluation of Educational Institutions
EDAD	6222	Policy Planning & Development in Education
EDAD	6242	Education & the Law
EDAD	6252	Financing Education
EDAD	6970	POMS-Management Principles
EDAD	6970	POMS-Prospectus Development
EDAD	6980	Research-Doctoral Dissertation

under incidental sampling as defined by Guilford and Fruchter (1973) and the caveats set forth by these two statisticians in describing the samples (see Figure 7).

Procedures for Collecting Data

The collection of data was done during the period beginning February 5, 1980, and ending May 1, 1980. A pilot study was conducted in a graduate class in Educational Administration on January 24, 1980, for the purpose of checking out such particulars as the willingness of graduate students to be respondents in the study, instructions, time required to complete instruments, and the fatique effect. In the first week of April, the Institutional Review Board, Norman Campus, approved the study to be in accordance with guidelines on human subject involvement in research (see Appendix A).

The following two procedures were used by the investigator in obtaining respondents for the study: (a) The four professors in the Area of Educational Administration were requested to donate one hour of class time, so that their graduate students could be given an opportunity to participate. Similarly, selected professors in the Divisions of Accounting, Business Administration and Management, Finance, and Marketing were asked to donate their graduate classes. (b) Graduate students who met the criteria for participation, but were not enrolled in a regular graduate class, were asked to participate on an

Figure 7

Incidental Samples

The term incidental samples is applied to those samples which are taken because they are the most available. Many psychological studies have been made with utilization of students of beginning psychology as the samples merely because they are most convenient. Results thus obtained can be generalized beyond such groups with some risk.

Generalizations beyond any sample can be made safely only when we have defined the population that the sample represents in every significant respect. If we know the significant properties of the incidental sample well enough and can show that those properties apply to new individuals, those new individuals may be said to belong to the same population as the members of the sample. By significant properties is meant those variables which correlate with the experimental variables involved. They are the kind of properties considered above in connection with stratification of samples. It is unlikely that membership in a political party would have much bearing upon the results of certain experiments performed upon sophomores in a beginning psychology course, but such variables as age, education, social background, and the like may definitely be pertinent.

SOURCE: Guilford, J.P., & Fruchter, B. Fundamental statistics in psychology and education (5th ed.). New York: McGraw-Hill, 1973.

individual basis. The graduate class procedure provided over 90% of the respondents in the study (see Figure 8).

Once a graduate class had been identified for participation, the investigator adhered to the following steps during the administration of the instruments: (a) A brief overview of the study was presented to the potential respondents; (b) The graduate students were asked specifically to participate. This gave each graduate student an opportunity to reject participation; (c) Each graduate student who accepted was given the packet of instruments and a #2 pencil; (d) Each packet contained (1) a cover letter; (2) a table of contents and directions; (3) the Demographic Information Sheet; (4) the FIRO-B (Schutz, 1977); (5) one General Purpose-NCS-Answer Sheet; (6) the Multidimensional Locus of Control Scale (Levenson, 1973); (7) the LBDQ-Form XII (Stogdill, 1963); and (8) four commemorative U.S. stamps which the respondents were asked to keep as a reward. With few exceptions, respondents completed the four instruments in 40 minutes.

To assure the confidentiality of a respondent's data, the investigator adhered to the following procedures: (a) A respondent was identified by the last four digits of one's current OU identification number, College (Business Administration or Education), and sex (female or male); (b) Other information requested in the Demographic Information Sheet (age, birth order) became group data and was statistically analyzed as group data only; (c) No proper

Figure 8

Graduate Classes Participating in Study

Sample 1	Number	Sample 2	Number
ACCT 6353	5	EDAD 5213	20
B AD 6013	12	EDAD 5233	15
*FIN 6973	18	EDAD 5243	15
MGT 6253	12	EDAD 6242	5
MKT 5063	20	EDAD 6252	12
**MKT 5973	14		
Total	81	Total	67

Individuals Participating in Study

Business Administration	2	Educational Administration	4
Total Number in Sample	83	Total Number in Sample	71

*Seminar in Investments/Portfolio Management

**Seminar-Production/Promotion Management

names were requested of respondents or used by the investigator; (d) The investigator answered any questions which respondents had prior to their consenting to be involved in the study; (e) The investigator answered any questions which respondents had during the time the instruments were being administered; (f) A respondent had the option to withdraw one's consent and discontinue participation any time before the completion of the instruments. To assure that steps d, e, and f were implemented fully, the investigator was present during the time the instruments were being completed. It is to be noted that a graduate student was a respondent in the sample only once. Thus, when a graduate student was enrolled in more than one class participating in the sample, that graduate student was not a respondent again. Additional information about the respondents is to be noted: (a) No graduate student in either business administration or educational administration rejected the investigator's invitation to be a respondent in the study; (b) No respondent in either business administration or educational administration withdrew her/his consent for participation during the time the instruments were being completed; and (c) The respondents were told that the results of their profiles would be open to them for their inspection and evaluation; a few respondents did avail themselves of the offer.

Instruments Used in the Study

The Demographic Information Sheet was a 17-item questionnaire which was developed by the investigator for the purpose of defining and describing each respondent according to the requirements of incidental sampling (Guilford & Fruchter, 1973) (Figure 9a-c).

The FIRO-B Instrument (Schutz, 1977) was a 54-item questionnaire which measured the six personality variables of interpersonal behavior used in the study: (a) Nine items measured Expressed Inclusion; (b) Nine items measured Wanted Inclusion; (c) Nine items measured Expressed Control; (d) Nine items measured Wanted Control; (e) Nine items measured Expressed Affection; and (f) Nine items measured Wanted Affection (see Figure 10a-c). Information on the reliability for each of the six scales determined by reproducibility was listed in Figure 4. Scores on the FIRO-B ranged from 0 to 9. Scores of 0-1 were extremely low; 2-3, low; 4-5, borderline; 6-7, high; and 8-9, extremely high. The closer the score was to the extremes of the range, the more applicable were the behavioral descriptions for high and low scores in each dimension. Thus, a low Expressed Control score (0-1-2-3) suggested that a person avoids making decisions and taking on responsibility; a low Wanted Control score (0-1-2-3) suggested that a person does not want to be controlled by others. High expressed and wanted scores on Control (6-7-8-9) suggested the opposite (Ryan, 1977). The FIRO-B yielded (a) six scale scores for the

Figure 9a

Demographic Information Sheet

Please indicate the correct response by using the appropriate number to indicate a choice or by writing out the correct response. Responses will be used for research purposes only.

_____1. What are the last four digits of your OU Student Identification Number?

_____2. In what College are you presently enrolled as a graduate student?

1. College of Business Administration
2. College of Education

_____3. Sex: 1. Female 2. Male

_____4. Age: Record to nearest birthday

_____5. Marital Status: 1. Married 2. Single

_____6. How many siblings (brothers & sisters) did you have?

_____7. What is your ordinal position among your brothers and sisters? Use one of the following choices for your response.

1. First born
2. In the middle
3. Youngest

_____ 8. Which one of the following groups best describes you?

1. Black (non-Hispanic)
2. Hispanic
3. American Indian
4. Caucasian
5. Other (please specify_____)

Figure 9b

Demographic Information Sheet

_____9. What is your highest academic objective at the present time?

1. Master of Business Administration
2. Juris Doctor/Master of Business Administration
3. Master of Accountancy
4. Master of Arts in Accounting
5. Master of Arts in Business Statistics
6. Master of Arts in Management
7. Doctor of Philosophy in Business Administration
8. Master of Education
9. Doctor of Education
10. Doctor of Philosophy in Education
11. Other
(please specify_____)

_____10. Are you pursuing or will you be pursuing at some future time a program of studies that results in your earning a type of professional certificate or recognition such as a Superintendent's Certificate, Secondary Administrator's Certificate, or Certified Public Accountant's Certificate?

1. Yes
2. No

If your response is Yes, please specify the name of the certificate:

_____

_____11. At the present time, are you a superior or supervisor in an educational organization or other work organization?

1. Yes
2. No

Figure 9c

_____12. If your response to number 11 is Yes, how many persons do you supervise?

1. under 20 persons
2. 20 to 40 persons
3. over 40 persons

_____13. If you are not now a superior or supervisor in an educational organization or other work organization, have you been one in the past?

1. Yes 2. No

_____14. Below is a list of some educational issues which probably will affect the policies and administrative regulations
_____ of public school systems in Oklahoma during the 1980's. From the stated list, choose what you perceive to be the
_____ three most important issues in the 1980's. Identify your three choices in descending order on the blanks at the left of #14: first, the most important; second, the next most important; third, the least most important.

1. The development and implementation of instructional programs for students of limited English proficiency
2. The development and implementation of alternative or new plans for financing public schools
3. The development and implementation of alternative ways of managing the behaviors of students
4. The development and implementation of desegregation plans
5. The development and implementation of competency-based education programs
6. The continued expansion of the federal government's role in public school education
7. The building of new physical facilities and the maintenance of existing ones
8. Additional pressures in the administration of school personnel, e.g., those pressures resulting from collective negotiations or bargaining
9. The consolidation of public school systems for greater administrative effectiveness and efficiency
10. The development and implementation of programs in lifelong learning, e.g., vocational-technical programs, adult education programs, community education programs, etc.
11. The development and implementation of tax-reduction programs like Proposition 13 in California
12. The use of systems theory and tools by public school administrators for the managing of a public school system's information system

Figure 9d

_____15. Would you favor the hiring of a non-educator (a person who has neither been a teacher nor an administrator in public schools) as a Superintendent of a public school system in Oklahoma?

1. Yes 2. No

If you are a graduate student in business administration, please respond to the following question.

_____16. Which one of the following academic areas in business administration best describes what you anticipate doing as a career?

1. Accounting
2. Banking
3. Finance
4. Insurance
5. Investments
6. Labor Relations
7. Management of Information Systems
8. Management Science
9. Marketing
10. Organization Behavior
11. Personnel Management
12. Production
13 Promotion
14. Statistics
15. Other
(please specify_____)

Figure 9e

If you are a graduate student in educational administration, please respond to the following question.

_____17. Which one of the following levels in educational administration best describes what you anticipate doing as a career?

1. Principal, Elementary School Level
2. Principal, Middle School or Junior High School Level
3. Principal, High School Level
4. A member of a public school system's Central Office Administration
5. An Assistant or Associate Superintendent in a public school system
6. A Superintendent of Schools in a public school system
7. An administrator in a privately-owned and operated school system
8. An administrator in a post-secondary institution
9. An administrator in an agency such as a State Department of Education or a Federal agency
10. A college or university professor
11. Other

(please specify_____

_____)

Figure 10a

FIRO-B: Classification of Items

Scale 1: Expressed Inclusion (FEI)

1. I try to be with people.
3. I join social groups.
5. I tend to join social organizations when I have an opportunity.
7. I try to be included in informal social activities.
9. I try to include other people in my plans.
11. I try to have people around me.
13. When people are doing things together I tend to join them.
15. I try to avoid being alone.
16. I try to participate in group activities.

Scale 2: Wanted Inclusion (FWI)

28. I like people to invite me to things.
31. I like people to invite me to join in their activities.
34. I like people to include me in their activities.
37. I like people to ask me to participate in their discussions.
39. I like people to invite me to participate in their activities.
42. I like people to invite me to things.
45. I like people to invite me to join their activities.
48. I like people to include me in their activities.
51. I like people to invite me to participate in their activities.

Figure 10b

FIRO-B: Classification of Items

Scale 3: Expressed Control (FEC)

30. I try to influence strongly other people's actions.
33. I try to take charge of things when I am with people.
36. I try to have other people do things the way I want them done.
41. I try to be the dominant person when I am with people.
44. I try to have other people do things I want done.
47. I try to influence strongly other people's actions.
50. I try to take charge of things when I'm with people.
53. I try to have other people do things the way I want them done.
54. I take charge of things when I'm with people.

Scale 4: Wanted Control (FWC)

2. I let other people decide what to do.
6. I let other people strongly influence my actions.
10. I let other people control my actions.
14. I am easily led by people.
18. I let other people decide what do.
20. I let other people take charge of things.
22. I let other people strongly influence my actions.
24. I let other people control my actions.
26. I am easily led by people.

Figure 10c

FIRO-B: Classification of Items

Scale 5: Expressed Affection (FEA)

4. I try to have close relationships with people.
8. I try to have close, personal relationships with people.
12. I try to get close and personal with people.
17. I try to be friendly with people.
19. My personal relations with people are cool and distant.
21. I try to have close relationships with people.
23. I try to get close and personal with people.
25. I act cool and distant with people.
27. I try to have close, personal relationships with people.

Scale 6: Wanted Affection (FWA)

29. I like people to act close and personal with me.
32. I like people to act close toward me.
35. I like people to act cool and distant toward me.
38. I like people to act friendly toward me.
40. I like people to act distant toward me.
43. I like people to act close toward me.
46. I like people to act cool and distant toward me.
49. I like people to act close and personal with me.
52. I like people to act distant toward me.

---

stated personality variables; and (b) 10 combination scores denoting sums and/or differences between expressed and wanted behaviors.

The Multidimensional Locus of Control Scale (Levenson, 1973) was a 24-item questionnaire which measured the three dimensions of locus of control by means of a 5-choice, Likert-type scale. The items were divided as follows: (a) Eight items measured Powerful Others control; (b) Eight items measured Internal control; and (c) Eight items measured Chance control (see Figure 11). The five choices from which a respondent indicated one's thinking or feeling on a stated situation may be listed as follows: (a) Choices one and two showed a person's positive thinking or feeling; (b) Choice three showed neutrality; and (c) Choices four and five showed a person's negative thinking or feeling. Choice one indicated a person's most intense positive thinking or feeling; choice five, a person's most intense negative thinking or feeling. For the purpose of rating, values of 5,4,3,2,1 were assigned to choices 1,2,3,4,5, respectively. Scores on each of the three scales ranged from 8 to 40. Scores of 8-12 were extremely low; 13-18, low; 19-29, medium; 30-35, high; and 36-40, extremely high. The closer the score was to the extremes of the range, the more applicable were the descriptions for high and low scores in each dimension. Factor analytic studies (Levenson, 1974) indicated that there was almost no overlap of items on the three factors, with about 75% of the items

Figure 11

Multidimensional Locus of Control Scale: Classification of Items

Scale 1: Powerful Others (LCPO)

3. I feel like what happens in my life is mostly determined by powerful people.
8. Even if I were a good leader, I would not be made a leader unless I play up to those in positions of power.
11. My life is chiefly controlled by powerful others.
13. People like myself have very little chance of protecting our personal interests when they conflict with those of powerful others.
15. Getting what I want means I have to please those people above me.
17. If important people were to decide they did not like me, I probably wouldn't make many friends.
20. How soon I leave my present profession depends on other people who have power over me.
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.

Scale 2: Internal (LCI)

1. Whether or not I get to be a leader depends on my ability.
4. My behavior will determine when I am ready to leave my present profession.
5. When I make plans, I am almost certain to make them work.
9. How many friends I have depends on how nice a person I am.
18. I can pretty much determine what will happen in my life.
19. I am usually able to protect my personal interests.
21. When I get what I want, it is usually because I worked hard for it.
23. My life is determined by my own actions.

Scale 3: Chance (LCC)

2. To a great extent my life is controlled by accidental happenings.
6. Often there is no chance of protecting my personal interests from bad luck happenings.
7. When I get what I want, it is usually because I am lucky.
10. I have often found that what is going to happen will happen.
12. It is impossible for anyone to say how long I will be in my present profession.
14. It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.
16. Whether or not I get to be leader depends on whether I am lucky enough to be in the right place at the right time.
24. It's chiefly a matter of fate whether or not I have a few friends or many friends.

loading greater than + or -.50. In an earlier analysis of the Multidimensional Locus of Control Scale (Levenson, 1973), Kuder-Richardson reliabilities of .82 for Powerful Others control, .67 for Internal control, and .79 for Chance control were obtained.

The Leader Behavior Description Questionnarie (LBDQ), Form XII (Stogdill, 1963) was a 100-item questionnaire which measured a respondent's perceptions about herself/himself on the 12 dimensions of leader behavior by means of a 5-choice, Likert-type scale. The items were divided into 12 sets with either five or 10 situations associated with a set: (a) Five items measured Representation; (b) Five items measured Reconciliation; (c) Ten items measured Persuasion; (d) Ten items measured Role Assumption; (e) Five items measured Predictive Accuracy; (f) Five items measured Integration; (g) Ten items measured Superior Orientation; (h) Ten items measured Tolerance of Uncertainty; (i) Ten items measured Initiating Structure; (j) Ten items measured Tolerance of Freedom; (k) Ten items measured Consideration; and (l) Ten items measured Production Emphasis (see Figure 12a-e). In answering each item, the respondent was asked to decide whether he/she as a leader of a group should act (a) always; (b) often; (c) occasionally; (d) seldom; or (e) never as described by the item. To meet Stogdill's (1963) criteria for the scoring of the LBDQ, Form XII, values of 5,4,3,2,1 were assigned to choices 1,2,3,4,5, respectively. Eighty of the 100 items

Figure 12a

LBDQ, Form XII: Classification of Items

When acting as a leader of a group, I should...

Scale 1: Representation

1. act as the spokesperson of the group
11. publicize the activities of the group
21. speak as the representative of the group
31. speak for the group when visitors are present
41. represent the group at outside meetings

Scale 2: Reconciliation

51. handle complex problems efficiently
61. get swamped by details
71. get things all tangled up
81. be able to reduce a madhouse to system and order
91. get confused when too many demands are made on me

Scale 3: Persuasion

3. make pep talks to stimulate the group
13. use arguments that are convincing
23. argue persuasively for my point of view
33. be a very persuasive talker
43. be very skillful in an argument
53. not be a very convincing talker
63. speak from a strong inner conviction
73. be an inspiring talker
83. persuade others that my ideas are to their advantage
93. inspire enthusiasm for a project

Scale 4: Role Assumption

6. be hesitant about taking initiative in the group
16. fail to take necessary action
26. let other persons take away my leadership in the group
36. let other members take advantage of me
46. be the leader of the group in name only
56. stand firm and not back down
66. let some members have authority that I should keep
76. take full charge when emergencies arise
86. overcome attempts to challenge my leadership
96. be easily recognized as the leader of the group

Figure 12b

LBDQ, Form XII: Classification of Items

When acting as a leader of a group, I should...

Scale 5: Predictive Accuracy

9. make accurate decisions
29. be able to predict what is coming next
49. find things usually turn out as I predict
59. be accurate in predicting the trend of events
89. anticipate problems and plan for them

Scale 6: Integration

19. keep the group working together as a team
39. settle conflicts when they occur in the group
69. see to it that the work of the group is coordinated
79. help group members settle their differences
99. maintain a closely knit group

Scale 7: Superior Orientation

10. get along well with the people above me
20. keep the group in good standing with higher authority
30. work hard for a promotion
40. get my superiors to act favorably on most of my suggestions
50. enjoy the privileges of my position
60. get my superiors to act for the welfare of the group
70. get my superiors to rely heavily on my word
80. get what I ask from my superiors
90. work my way to the top
100. maintain cordial relations with my superiors

Figure 12c

When acting as a leader of a group, I should:

Scale 8: Tolerance of Uncertainty

2. wait patiently for the results of a decision
12. become anxious when I cannot find out what is coming next
22. accept defeat in stride
32. accept delays without becoming upset
42. become anxious when waiting for new developments
52. be able to tolerate postponement and uncertainty
62. wait just so long, then blow up
72. remain calm when uncertain about coming events
82. be able to delay action until the proper time occurs
92. worry about the outcome of any new procedure

Scale 9: Initiating Structure

4. let group members know what is expected of them
14. encourage the use of uniform procedures
24. try out my ideas in the group
34. make my attitudes clear to the group
44. decide what shall be done and how it shall be done
54. assign group members to particular tasks
64. make sure that my part in the group is understood by the group members
74. schedule the work to be done
84. maintain definite standards of performance
94. ask that group members follow standard rules and regulations

Scale 10: Tolerance of Freedom

5. allow the members complete freedom in their work
15. permit the members to use their own judgment in solving problems
25. encourage initiative in the group members
35. let the members do their work the way they think best
45. assign a task, then let the members handle it
55. turn the members loose on a job, and let them go to it
65. be reluctant to allow the members any freedom of action
75. allow the group a high degree of initiative
85. trust the members to exercise good judgment
95. permit the group to set its own pace

Figure 12d

When acting as a leader of a group, I should... .

Scale 11: Consideration

7. be friendly and approachable
17. do little things to make it pleasant to be a member of the group
27. put suggestions made by the group into operation
37. treat all group members as my equals
47. give advance notices of changes
57. keep to myself
67. look out for the personal welfare of group members
77. be willing to make changes
87. refuse to explain my actions
97. act without consulting the group

Scale 12: Production Emphasis

8. encourage overtime work
18. stress being ahead of competing groups
28. needle members for greater effort
38. keep the work moving at a rapid rate
48. push for increased production
58. ask the members to work harder
68. permit the members to take it easy in their work
78. drive hard when there is a job to be done
88. urge the group to beat its previous record
98. keep the group working up to capacity

were scored by values 5,4,3,2,1; the other 20 items were scored by values 1,2,3,4,5. Scores on a set of five items would range from a low of 5 to a high of 25. Scores on a set of 10 items would range from a low of 10 to a high of 50. The closer the score was to the extremes of the range, the more applicable were the descriptions for high and low scores in each dimension of leader behavior. Stogdill (1963) has reported modified Kuder-Richardson reliability coefficients for each of the 12 scales using nine categories of leaders (see Figure 13). Schriesheim and Kerr (1974) have evaluated reliability and validity information on the LBDQ, Form XII and compared the results with earlier Ohio State Leadership Scales (see Figure 14).

The study produced data on 21 variables for 154 respondents. So as to keep the number of null hypotheses to be tested by the Pearson product moment correlation coefficient at a manageable level, the study focused on 10 scales or variables, namely, five LBDQ-XII scales, three LC scales, and two FIRO-B scales. The rationale for the selection of 10 variables was stated in Chapter 1. It is to be noted, however, that the 21 variables were used for the formation of the null hypotheses tested by single classification analysis of variance.

The Conceptual Hypotheses

The three nondirectional, conceptual hypotheses in the study were the following:

Figure 13

Modified Kuder-Richardson Reliability Coefficients for LBDQ, Form XII

Scale	Army Division	Highway Patrol	Aircraft Executives	Ministers	Community Leaders	Corporation Presidents	Labor Presidents	College Presidents	Senators
1. Representation	.82	.85	.74	.55	.59	.54	.70	.66	.80
2. Demand Reconciliation			.73	.77	.58	.59	.81		.81
3. Tolerance Uncertainty	.58	.66	.82	.84	.85	.79	.82	.80	.83
4. Persuasiveness	.84	.85	.84	.77	.79	.69	.80	.76	.82
5. Initiating Structure	.79	.75	.78	.70	.72	.77	.78	.80	.72
6. Tolerance Freedom	.81	.79	.86	.75	.86	.84	.58	.73	.64
7. Role Assumption	.85	.84	.84	.75	.83	.57	.86	.75	.65
8. Consideration	.76	.87	.84	.85	.77	.78	.83	.76	.85
9. Production Emphasis	.70	.79	.79	.59	.79	.71	.65	.74	.38
10. Predictive Accuracy	.76	.82	.91	.83	.62	.84	.87		
11. Integration	.73	.79							
12. Superior Orientation	.64	.75	.81			.66		.60	

SOURCE: Stogdill, R. M. Manual for the leader behavior description questionnaire: Form XII an experimental revision. Columbus: The Ohio State University, Bureau of Business, 1963.

Figure 14

Summary of Instrument Properties

Ohio State Leadership Studies

Property	LOQ	SBDQ	Early LBDQ	Revised LBDQ[a]
Internal consistency reliability	Acceptable	Acceptable	Acceptable	Acceptable
Test-retest reliability	Acceptable	Marginally acceptable	Unknown	Marginally acceptable
Content validity	Unacceptable	Unacceptable	Unacceptable	Marginally acceptable
Construct validity	Unknown	Unknown	Unknown	Unknown
Convergent and discriminant validity	Unknown	Unknown	Unknown	Unknown
Experimental validity	Unknown	Unknown	Unknown	Marginally acceptable
Concurrent validity	Marginally acceptable	Acceptable	Acceptable	Acceptable
Predictive validity	Unknown	Unknown	Unknown	Unknown
Absence of response skewedness	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Absence of social desirability and leniency	Unknown	Unknown	Unknown	Unknown
Scale independence and lack of halo	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Reflected items (partial control of agreement response tendency)	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Equal response intervals	Unknown	Unknown	Unknown	Unknown
Distinction between frequency and magnitude	Unacceptable	Unacceptable	Acceptable	Acceptable

[a]Revised LBDQ is Stogdill's (1963) LBDQ-XII.

H_1 The five leader behavior scale scores of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis as measured by the LBDQ, Form XII are related to the three locus of control scores of Powerful Others, Internal, and Chance as measured by the Multidimensional Locus of Control Scale.

H_2 The five leader behavior scale scores of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis as measured by the LBDQ, Form XII are related to the two scale scores of Expressed Control and Wanted Control as measured by the FIRO-B Scales.

H_3 The three locus of control scores of Powerful Others, Internal, and Chance as measured by the Multidimensional Locus of Control Scale are related to the two scale scores of Expressed Control and Wanted Control as measured by the FIRO-B Scales.

The Null Hypotheses

The null hypotheses generated and tested in the study are listed in Figure 15a-15i. Null hypotheses Ho_1 to Ho_{62} are phrased in the format of testing for relationships. Null hypotheses Ho_{63} to Ho_{74} are phrased in the format for significant differences in means between two groups. All univariate and multivariate statistical analyses in the study were run at the 0.05 level of significance.

Figure 15a

The following null hypotheses were used to test for significant relationships between LBDQ-XII scales and LC scales (the alpha level was .05):

Ho_1 The correlation coefficient between Tolerance of Uncertainty scores and Powerful Others scores for business administration graduate students is zero.

Ho_2 The correlation coefficient between Tolerance of Uncertainty scores and Powerful Others scores for educational administration graduate students is zero.

Ho_3 The correlation coefficient between Tolerance of Uncertainty scores and Internal scores for business administration graduate students is zero.

Ho_4 The correlation coefficient between Tolerance of Uncertainty scores and Internal scores for educational administration graduate students is zero.

Ho_5 The correlation coefficient between Tolerance of Uncertainty scores and Chance scores for business administration graduate students is zero.

Ho_6 The correlation coefficient between Tolerance of Uncertainty scores and Chance scores for educational administration graduate students is zero.

Ho_7 The correlation coefficient between Initiating Structure scores and Powerful Others scores for business administration graduate students is zero.

Ho_8 The correlation coefficient between Initiating Structure scores and Powerful Others scores for educational administration graduate students is zero.

Ho_9 The correlation coefficient between Initiating Structure scores and Internal scores for business administration graduate students is zero.

Ho_{10} The correlation coefficient between Initiating Structure scores and Internal scores for educational administration graduate students is zero.

Figure 15b

The following null hypotheses were used to test for significant relationships between LBDQ-XII scales and LC scales (the alpha level was .05):

Ho_{11} The correlation coefficient between Initiating Structure scores and Chance scores for business administration graduate students is zero.

Ho_{12} The correlation coefficient between Initiating Structure scores and Chance scores for educational administration graduate students is zero.

Ho_{13} The correlation coefficient between Tolerance of Freedom scores and Powerful Others scores for business administration graduate students is zero.

Ho_{14} The correlation coefficient between Tolerance of Freedom scores and Powerful Others scores for educational administration graduate students is zero.

Ho_{15} The correlation coefficient between Tolerance of Freedom scores and Internal scores for business administration graduate students is zero.

Ho_{16} The correlation coefficient between Tolerance of Freedom scores and Internal scores for educational administration graduate students is zero.

Ho_{17} The correlation coefficient between Tolerance of Freedom scores and Chance scores for business administration graduate students is zero.

Ho_{18} The correlation coefficient between Tolerance of Freedom scores and Chance scores for educational administration graduate students is zero.

Ho_{19} The correlation coefficient between Consideration scores and Powerful Others scores for business administration graduate students is zero.

Ho_{20} The correlation coefficient between Consideration scores and Powerful Others scores for educational administration graduate students is zero.

Figure 15c

The following null hypotheses were used to test for significant relationships between LBDQ-XII scales and LC scales (the alpha level was .05):

Ho_{21} The correlation coefficient between Consideration scores and Internal scores for business administration graduate students is zero.

Ho_{22} The correlation coefficient between Consideration scores and Internal scores for educational administration graduate students is zero.

Ho_{23} The correlation coefficient between Consideration scores and Chance scores for business administration graduate students is zero.

Ho_{24} The correlation coefficient between Consideration scores and Chance scores for educational administration graduate students is zero.

Ho_{25} The correlation coefficient between Production Emphasis scores and Powerful Others scores for business administration graduate students is zero.

Ho_{26} The correlation coefficient between Production Emphasis scores and Powerful Others scores for educational administration graduate students is zero.

Ho_{27} The correlation coefficient between Production Emphasis scores and Internal scores for business administration graduate students is zero.

Ho_{28} The correlation coefficient between Production Emphasis scores and Internal scores for educational administration graduate students is zero.

Ho_{29} The correlation coefficient between Production Emphasis scores and Chance scores for business administration graduate students is zero.

Ho_{30} The correlation coefficient between Production Emphasis scores and Chance scores for educational administration graduate students is zero.

Figure 15d

The following null hypotheses were used to test for significant relationships between LBDQ-XII scales and FIRO-B scales (the alpha level was .05):

Ho_{31} The correlation coefficient between Tolerance of Uncertainty scores and Expressed Control scores for business administration graduate students is zero.

Ho_{32} The correlation coefficient between Tolerance of Uncertainty scores and Expressed Control scores for educational administration graduate students is zero.

Ho_{33} The correlation coefficient between Tolerance of Uncertainty scores and Wanted Control scores for business administration graduate students is zero.

Ho_{34} The correlation coefficient between Tolerance of Uncertainty scores and Wanted Control scores for educational administration graduate students is zero.

Ho_{35} The correlation coefficient between Initiating Structure scores and Expressed Control scores for business administration graduate students is zero.

Ho_{36} The correlation coefficient between Initiating Structure scores and Expressed Control scores for educational administration graduate students is zero.

Ho_{37} The correlation coefficient between Initiating Structure scores and Wanted Control scores for business administration graduate students is zero.

Ho_{38} The correlation coefficient between Initiating Structure scores and Wanted Control scores for educational administration graduate students is zero.

Ho_{39} The correlation coefficient between Tolerance of Freedom scores and Expressed Control scores for business administration graduate students is zero.

Ho_{40} The correlation coefficient between Tolerance of Freedom scores and Expressed Control scores for educational administration graduate students is zero.

Figure 15e

The following null hypotheses were used to test for significant relationships between LBDQ-XII scales and FIRO-B scales (the alpha level was .05):

Ho_{41} The correlation coefficient between Tolerance of Freedom scores and Wanted Control scores for business administration graduate students is zero.

Ho_{42} The correlation coefficient between Tolerance of Freedom scores and Wanted Control scores for educational administration graduate students is zero.

Ho_{43} The correlation coefficient between Consideration scores and Expressed Control scores for business administration graduate students is zero.

Ho_{44} The correlation coefficient between Consideration scores and Expressed Control scores for educational administration graduate students is zero.

Ho_{45} The correlation coefficient between Consideration scores and Wanted Control scores for business administration graduate students is zero.

Ho_{46} The correlation coefficient between Consideration scores and Wanted Control scores for educational administration graduate students is zero.

Ho_{47} The correlation coefficient between Production Emphasis scores and Expressed Control scores for business administration graduate students is zero.

Ho_{48} The correlation coefficient between Production Emphasis scores and Expressed Control scores for educational administration graduate students is zero.

Ho_{49} The correlation coefficient between Production Emphasis scores and Wanted Control scores for business administration graduate students is zero.

Ho_{50} The correlation coefficient between Production Emphasis scores and Wanted Control scores for educational administration graduate students is zero.

Figure 15f

The following null hypotheses were used to test for significant relationships between LC scales and FIRO-B scales (the alpha level was .05):

Ho_{51} The correlation coefficient between Powerful Others scores and Expressed Control scores for business administration graduate students is zero.

Ho_{52} The correlation coefficient between Powerful Others scores and Expressed Control scores for educational administration graduate students is zero.

Ho_{53} The correlation coefficient between Powerful Others scores and Wanted Control scores for business administration graduate students is zero.

Ho_{54} The correlation coefficient between Powerful Others scores and Wanted Control scores for educational administration graduate students is zero.

Ho_{55} The correlation coefficient between Internal scores and Expressed Control scores for business administration graduate students is zero.

Ho_{56} The correlation coefficient between Internal scores and Expressed Control scores for educational administration graduate students is zero.

Ho_{57} The correlation coefficient between Internal scores and Wanted Control scores for business administration graduate students is zero.

Ho_{58} The correlation coefficient between Internal scores and Wanted Control scores for educational administration graduate students is zero.

Ho_{59} The correlation coefficient between Chance scores and Expressed Control scores for business administration graduate students is zero.

Ho_{60} The correlation coefficient between Chance scores and Expressed Control scores for educational administration graduate students is zero.

Figure 15g

The following null hypotheses were used to test for significant relationships between LC scales and FIRO-B scales (the alpha level was .05):

Ho_{61} The correlation coefficient between Chance scores and Wanted Control scores for business administration graduate students is zero.

Ho_{62} The correlation coefficient between Chance scores and Wanted Control scores for educational administration graduate students is zero.

The following null hypotheses were used to test for significant differences in mean scores at the .05 alpha level between two groups on LC scales, LBDQ-XII scales, and FIRO-B scales:

Ho_{63} There is no significant difference in mean scores of the two groups (business administration graduate students versus educational administration graduate students) on the LC scales of (a) Powerful Others; (b) Internal; and (c) Chance.

Ho_{64} There is no significant difference in mean scores of the two groups (business administration graduate students versus educational administration graduate students) on the LBDQ-XII scales of (a) Representation; (b) Reconciliation; (c) Persuasion; (d) Role Assumption; (e) Predictive Accuracy; (f) Integration; (g) Superior Orientation; (h) Tolerance of Uncertainty; (i) Initiating Structure; (j) Tolerance of Freedom; (k) Consideration; and (l) Production Emphasis.

Ho_{65} There is no significant difference in mean scores of the two groups (business administration graduate students versus educational administration graduate students) on the FIRO-B scales of (a) Expressed Inclusion; (b) Wanted Inclusion; (c) Expressed Control; (d) Wanted Control; (e) Expressed Affection; and (f) Wanted Affection.

Ho_{66} There is no significant difference in mean scores between high Powerful Others and low Powerful Others graduate students on the LC scales of (a) Internal; and (b) Chance.

Ho_{67} There is no significant difference in mean scores between high Internal and low Internal graduate students on the LC scales of (a) Powerful Others; and (b) Chance.

Figure 15h

The following null hypotheses were used to test for significant differences in mean scores at the .05 alpha level between two groups on LC scales, LBDQ-XII scales, and FIRO-B scales:

Ho_{68} There is no significant difference in mean scores between high Chance and low Chance graduate students on the LC scales of (a) Powerful Others; and (b) Internal.

Ho_{69} There is no significant difference in mean scores between high Powerful Others and low Powerful graduate students on the LBDQ-XII scales of (a) Representation; (b) Reconciliation; (c) Persuasion; (d) Role Assumption; (e) Predictive Accuracy; (f) Integration; (g) Superior Orientation; (h) Tolerance of Uncertainty; (i) Initiating Structure; (j) Tolerance of Freedom; (k) Consideration; and (l) Production Emphasis.

Ho_{70} There is no significant difference in mean scores between high Internal and low Internal graduate students on the LBDQ-XII scales of (a) Representation; (b) Reconciliation; (c) Persuasion; (d) Role Assumption; (e) Predictive Accuracy; (f) Integration; (g) Superior Orientation; (h) Tolerance of Uncertainty; (i) Initiating Structure; (j) Tolerance of Freedom; (k) Consideration; and (l) Production Emphasis.

Ho_{71} There is no significant difference in mean scores between high Chance and low Chance graduate students on the LBDQ-XII scales of (a) Representation; (b) Reconciliation; (c) Persuasion; (d) Role Assumption; (e) Predictive Accuracy; (f) Integration; (g) Superior Orientation; (h) Tolerance of Uncertainty; (i) Initiating Structure; (j) Tolerance of Freedom; (k) Consideration; and (l) Production Emphasis.

Ho_{72} There is no significant difference in mean scores between high Powerful Others and low Powerful Others graduate students on the FIRO-B scales of (a) Expressed Inclusion; (b) Wanted Inclusion; (c) Expressed Control; (d) Wanted Control; (e) Expressed Affection; and (f) Wanted Affection.

Ho_{73} There is no significant difference in mean scores between high Internal and low Internal graduate students on the FIRO-B scales of (a) Expressed Inclusion; (b) Wanted Inclusion; (c) Expressed Control; (d) Wanted Control; (e) Expressed Affection; and (f) Wanted Affection.

Figure 15i

The following null hypothesis was used to test for significant differences in mean scores at the .05 alpha level between two groups on FIRO-B scales:

Ho_{74} There is no significant difference in mean scores between high Chance and low Chance graduate students on the FIRO-B scales of (a) Expressed Inclusion; (b) Wanted Inclusion; (c) Expressed Control; (d) Wanted Control; (e) Expressed Affection; and (f) Wanted Affection.

The Design for Statistical Analyses

Since the study was fundamentally a correlational study, the data associated with null hypotheses Ho_1 through Ho_{62} were analyzed initially by the Pearson product moment coefficient. Null hypotheses Ho_{63} through Ho_{74} were analyzed by single classification analysis of variance. To form the groups necessary to conduct single classification analysis of variance, locus of control scores were used as the independent variables with LBDQ-XII scores and FIRO-B scores as the dependent variables. The technique of a split at the median was used to describe the locus of control inclinations of members in the samples (Gourevitch, 1965). Thus, the null hypotheses were either not rejected or rejected by using the stated univariate analyses.

Multivariate statistics were used also to analyze the data in the study. For example, the multivariate counterpart of correlational analysis is known as canonical correlation in which factors extracted from the LBDQ, Form XII were correlated as a set with the three scales of Levenson's (1973) Multidimensional Locus of Control Scale. Additionally, canonical correlation was accomplished between the LBDQ, Form XII factors and the FIRO-B factors.

The design for statistical analyses included also factor analyses of the LBDQ, Form XII not only to ascertain whether factors extracted from the samples of business administration graduate students and educational administration graduate students were similar to factors

extracted from Stogdill's (1963) subjects but also to reduce the factors in the LBDQ, Form XII from a possible 12 to perhaps fewer. When this technique was done, either principal axis factor scores or varimax rotated factors scores were used (Bennett & Bowers, 1976).

The multivariate statistic known as multiple linear regression analysis was used also. The multiple regression technique provided weights of various predictor variables which could predict a dependent variable. In this situation, leader behavior factor scores were used as dependent variables with locus of control factors and interpersonal behavior factors providing the independent or predictor variables. In these particular statistical analyses, there was one analysis in which the Consideration factor was the variable to be predicted; the Initiating Structure factor was another variable to be predicted.

The paradigm for multiple regression was as follows:

$$Y(LB)_{(IS)} = f(LC)(FIRO\text{-}B)$$

$$Y(LB)_{(C)} = f(LC)(FIRO\text{-}B)$$

Thus, leader behavior would be the criterion variable in the first of these equations with LC and FIRO-B as predictor variables. Factor scores were used also as the criterion variables.

Three computer-packaged programs available at the University of Oklahoma Computing Services were used for the statistical analyses of the data. The programs were the following (a) Biomedical Computer Programs, BMD, (Dixon,

1977); (b) Statistical Package for the Social Sciences, SPSS, (Nie et al., 1975); and (c) The EDSTAT Package (Veldman, 1967). The nominal and ordinal data generated by the Demographic Information Sheet were analyzed by the SPSS Package. The TESTAT Program, a component of the EDSTAT Package, was used to score the Multidimensional Locus of Control Scale and the LBDQ, Form XII.

Summary of Research Design

The salient features of the research design in the study may be summarized as follows: (a) The samples consisted of 154 graduate students from the College of Business Administration and the College of Education at the University of Oklahoma; (b) The samples were subsumed under incidental sampling; thus, each respondent was defined and described through a Demographic Information Sheet; (c) Each respondent answered three self-assessment instruments with a total of 21 variables; (d) The conceptual hypotheses illustrated that the study was fundamentally a correlational one; and (e) Statistical analyses at the .05 alpha level were conducted through univariate and multivariate techniques.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

The analyses and interpretations of data in the study are listed in this chapter in the following sequence: (a) Demographic characteristics of the samples; (b) Univariate statistical analyses; and (c) Multivariate statistical analyses. The data generated by the study were based on the administration of a Demographic Information Sheet, FIRO-B Scales (Schutz, 1977), Multidimensional Locus of Control Scale (Levenson, 1973), and LBDQ-XII (Stogdill, 1963) to samples drawn from the populations of business administration graduate students and educational administration graduate students enrolled in the Colleges of Business Administration and Education, respectively, at the University of Oklahoma during the spring semester of 1980.

Demographic Characteristics of Samples

As previously indicated in Chapter III (see Figure 7), the two samples in the study were "incidental" in the Guilford and Fruchter (1973) meaning of the term. To observe their caveats, it is necessary to describe the salient characteristics (see Tables 1 & 2).

Table 1

Demographic Characteristics of Samples

Characteristic	B AD Majors	ED AD Majors	Sum
1. Number in Samples	83	71	154
2. Sex			
a. Females	28	20	48
b. Males	55	51	106
3. Age			
a. 22-25	27	3	30
b. 26-30	34	19	53
c. 31-35	15	19	34
d. 36-40	5	12	17
e. 41-50	2	16	18
f. 50+	0	1	1
g. not given	0	1	1
4. Marital Status			
a. Married	46	57	103
b. Single	37	14	51
5. Ordinal Position in Family			
a. First Born	39	28	67
b. Middle	23	24	47
c. Youngest	21	19	40
6. Race			
a. Black	0	4	4
b. Hispanic	0	2	2
c. American Indian	2	3	5
d. Caucasian	74	49	123
e. Others	7	13	20
7. Academic Objective			
a. Master's degree	66	25	91
b. Doctor's degree	12	33	45
c. Other	5	13	18
8. Pursuing or intending to pursue a certification program	22	41	63
9. Presently a superior or supervisor	22	37	59

Table 2

Demographic Characteristics of Samples
Using Frequency Percentages

Characteristic	B AD Majors (N=83)	EDAD Majors (N=71)	Cum % (N=154)
1. College Enrolled	53.9%	46.1%	100%
2. Sex			
a. Females	33.7%	28.2%	31.2%
b. Males	66.3%	71.8%	68.8%
3. Age			
a. 22-25	32.5%	4.2%	19.5%
b. 26-30	41.0%	26.8%	34.4%
c. 31-35	18.1%	26.8%	22.1%
d. 36-40	6.0%	16.9%	11.1%
e. 41-50	2.4%	22.5%	11.7%
f. 50+	0.0%	1.4%	0.6%
g. not given	0.0%	1.4%	0.6%
4. Marital Status			
a. Married	55.4%	80.3%	66.9%
b. Single	44.6%	19.7%	33.1%
5. Ordinal Position in Family			
a. First Born	47.0%	39.4%	43.5%
b. Middle	27.7%	33.8%	30.5%
c. Youngest	25.3%	26.8%	26.0%
6. Race			
a. Black	0.0%	5.6%	2.6%
b. Hispanic	0.0%	2.9%	1.3%
c. American Indian	2.4%	4.2%	3.2%
d. Caucasian	89.2%	69.0%	79.9%
e. Others	8.4%	18.3%	13.0%
7. Academic Objective			
a. Master's degree	79.5%	35.2%	59.1%
b. Doctor's degree	14.5%	46.5%	29.2%
c. Other	6.0%	18.3%	11.7%
8. Pursuing or intending to pursue a certification program	26.5%	57.7%	40.9%
9. Presently a superior or supervisor	26.5%	52.1%	38.3%

Number and Sex of Respondents

The total sample consisted of 154 respondents of which 83 or 53.9% were business administration graduate students and 71 or 46.1% were educational administration graduate students. On the characteristic of sex, 106 respondents or 68.8% were males and 48 respondents or 31.2% were females. From the College of Business Administration, there were 28 females or 33.7% and 55 males or 66.3% of that subsample. From the College of Education, there were 20 females or 28.2% and 51 males or 71.8% of that subsample.

Age of Respondents

On the characteristic of age, 53 respondents or 34.4% of the total sample were from 26 to 30 years of age; 117 respondents or 76% of the total sample claimed ages that ranges from 22 to 35 years. The respondents from the College of Business Administration were younger than their counterparts from the College of Education with 76 business administration graduate students or 91.6% of that subsample claiming ages from 22 to 35 years; only 41 educational administration graduate students or 57.8% of that subsample claimed ages in the same range. One possible explanation for the younger business administration subsample is that the respondents had begun their graduate studies immediately or shortly after earning their baccalaureate degrees. There were 28 educational administration graduate students or 39.4% of that subsample whose ages ranged from 36 to 50 years; only seven business administration graduate students

or 8.4% of that subsample claimed ages in the same range. There were no respondents in either subsample below the age of 22 years and only one respondent in either subsample claimed an age over 50 years. One educational administration respondent did not state his age.

To determine whether or not age was a confounding variable in the study, correlational statistical analyses between age and the 21 variables were performed. The 153 respondents who stated their ages were divided into two groups: (a) One group represented ages 31 and above; and (b) The other group represented ages 30 and below. There were 70 respondents in the group representing ages 31 and above. There were 83 respondents in the group representing ages 30 and below. None of the Pearson product moment correlation coefficients which emerged were statistically significant at the .05 alpha level. These findings indicated that age was not a confounding variable in the study.

Other Demographic Characteristics

Marital status. The demographic characteristics indicated that 103 respondents or 66.9% of the total sample were married; the remaining 51 respondents or 33.1% of the total sample stated they were single. From the College of Business Administration, there were 46 married respondents or 55.4% of that subsample. From the College of Education there were 57 married graduate students or 80.3% of that subsample.

Ordinal position in the family. The classification according to ordinal position in the family was as follows: (a) 67 respondents or 43.5% of the total sample were first born; (b) 47 respondents or 30.5% of the total sample were in the middle; (c) 40 respondents or 26.0% of the total sample were the youngest; (d) 39 business administration respondents or 47.0% of that subsample were first born; (e) 23 business administration respondents or 27.7% of that subsample were in the middle; (f) 21 business administration respondents or 25.3% of that subsample were the youngest; (g) 28 educational administration respondents or 39.4% of that subsample were first born; (h) 24 educational administration respondents or 33.8% of that subsample were in the middle; and (i) 19 educational administration respondents or 26.8% of that subsample were the youngest.

Race. The classification according to race was as follows: (a) 123 respondents or 79.9% of the total sample listed themselves as Caucasian; (b) Four respondents or 2.6% of the total sample were Black; (c) Two respondents or 1.3% of the total sample were Hispanic; (d) Five respondents or 3.2% of the total sample were American Indian; (e) 20 respondents or 13.0% of the total sample listed themselves as Others or International Graduate Students; (f) 74 business administration respondents or 89.2% of that subsample were Caucasian; (g) There were neither Blacks nor Hispanics in the business administration subsample; (h) Two business administration respondents or 2.4% of that

subsample were American Indian; (i) Seven business administration respondents identified themselves as Others or International Graduate Students; (j) 49 educational administration respondents or 69.0% of that subsample were Caucasian; (k) Four educational administration respondents or 5.6% of that subsample were Black; (l) Two educational administration respondents or 2.9% of that subsample were Hispanic; (m) Three educational administration respondents or 4.2% of that subsample were American Indian; and (n) 13 educational administration respondents or 18.3% of that subsample were Others or International Graduate Students. Summarily, the following can be reported relative to racial compositions: (a) Both the business administration and educational administration subsamples were overwhelmingly Caucasian; and (b) the educational administration subsample had a slightly better racial mix than the business administration subsample.

Academic objective. The findings on the academic objectives of the 154 respondents showed the following: (a) 91 respondents or 59.1% of the total sample were pursuing graduate programs leading to a Master's degree; (b) 45 respondents or 29.2% of the total sample were pursing graduate programs leading to a Doctor's degree; (c) 18 respondents or 11.7% of the total sample stated other academic objectives; (d) 66 business administration respondents or 79.5% of that subsample were pursuing Master's degrees, principally the Master in Business

Administration; (e) 12 business administration respondents or 14.5% of that subsample were engaged in graduate programs leading to a Doctor's degree; (f) Five business administration respondents or 6.0% of that subsample stated other academic objectives; (g) 25 educational administration respondents or 35.2% of that subsample were pursuing graduate programs leading to a Master of Education degree; (h) 33 educational administration respondents or 46.5% of that sample were pursuing graduate programs leading to either a Doctor of Education degree or Doctor of Philosophy degree; (i) 13 educational administration respondents or 18.3% of that subsample stated other academic objectives, for example the completion of the program leading to Oklahoma certification for public school superintendents. Summarily, it can be reported that the greatest percentage of business administration respondents (79.5% of that subsample) were pursuing Master's degrees; the greatest percentage of educational administration respondents (46.5% of that subsample) were pursuing Doctor's degrees.

Certification program. The respondents were asked to indicate whether they were pursuing or intended to pursue a certification program like the Certified Public Accountant's certificate for business administration graduate students or the Oklahoma Superintendent's certificate for educational administration graduate students. The findings on the stated question were as follows: (a) 63 respondents or 40.9% of the total sample

stated that they were pursuing or intended to pursue a certification program; (b) 22 business administration respondents or 26.5% of that subsample identified themselves with certification programs; and (c) 41 educational administration respondents or 57.7% of that subsample identified themselves with certification programs.

Supervisory employment. On the question of whether a respondent was employed as a superior or supervisor, 59 respondents or 38.3% of the total sample listed themselves as being employed in supervisory positions. From the College of Business Administration, 22 respondents or 26.5% of that subsample were superiors or supervisors. From the College of Education, 37 respondents or 52.1% of that subsample were superiors or supervisors, for example, public school superintendents.

Univariate Statistical Analyses

The phrasing of the null hypotheses was couched in terms of requiring two inferential statistical techniques for their testing. Those null hypotheses which posited a relationship or an association between two variables were tested by the Pearson product moment correlation coefficient (symbol: r), while those null hypotheses which used the phrase "significant differences in mean scores between two groups" were tested by single classification analysis of variance. It is to be noted that the three major sets of variables (also called scales), namely, loci of control

(LC), leader behaviors (LBDQ), and interpersonal behaviors (FIRO-B) were expressed as interval data, so that both Pearson r and single classification analysis of variance were appropriate.

Correlational Analyses: An Overview

The relationships between LC and LBDQ-XII scales, FIRO-B and LBDQ-XII scales, and LC and FIRO-B scales were analyzed for the (a) total sample of 154 respondents; (b) subsample of 83 business administration respondents; and (c) subsample of 71 educational administration respondents. It is to be noted that null hypotheses were written and analyzed for the two subsamples only, using five of the 12 LBDQ scales (Scale 8, Tolerance of Uncertainty; Scale 9, Initiating Structure; Scale 10, Tolerance of Freedom; Scale 11, Consideration; and Scale 12, Production Emphasis); three LC scales (LCPO, Powerful Others, LCI, Internal; and LCC, Chance); and two of the six FIRO-B scales (FEC, Expressed Control; and FWC, Wanted Control) (see Chapter 3, Figure 15, Ho_1 through Ho_{62}). The results of the testing of these null hypotheses are listed in Table 3a-b.

Correlational Analysis: LC and LBDQ Scales for Total Sample

The results of the correlational analyses for 154 respondents when the scales were LC and LBDQ are listed in Table 4. The LC Powerful Others Scale (LCPO) was significantly related to four LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; LBDQ 2, Reconciliation, $p<.05$; LBDQ

Table 3a

Testing of Null Hypotheses
Regarding a Relationship between Two Scales

B AD	EDAD	Scales	B AD Respondents (N=83)	EDAD Respondents (N=71)	Probability level if Rejected	
Ho_1	Ho_2	LBDQ 8; LCPO	REJECTED	REJECTED	0.026*[a]	0.048*
Ho_3	Ho_4	LBDQ 8; LCI	Not Rejected	Not Rejected		
Ho_5	Ho_6	LBDQ 8; LCC	Not Rejected	REJECTED		0.007**
Ho_7	Ho_8	LBDQ 9; LCPO	Not Rejected	Not Rejected		
Ho_9	Ho_{10}	LBDQ 9; LCI	Not Rejected	Not Rejected		
Ho_{11}	Ho_{12}	LBDQ 9; LCC	Not Rejected	Not Rejected		
Ho_{13}	Ho_{14}	LBDQ 10; LCPO	Not Rejected	Not Rejected		
Ho_{15}	Ho_{16}	LBDQ 10; LCI	Not Rejected	Not Rejected		
Ho_{17}	Ho_{18}	LBDQ 10; LCC	Not Rejected	Not Rejected		
Ho_{19}	Ho_{20}	LBDQ 11; LCPO	Not Rejected	Not Rejected		
Ho_{21}	Ho_{22}	LBDQ 11; LCI	Not Rejected	REJECTED		0.007**
Ho_{23}	Ho_{24}	LBDQ 11; LCC	Not Rejected	Not Rejected		
Ho_{25}	Ho_{26}	LBDQ 12; LCPO	Not Rejected	Not Rejected		
Ho_{27}	Ho_{28}	LBDQ 12; LCI	REJECTED	Not Rejected	0.049*	
Ho_{29}	Ho_{30}	LBDQ 12; LCC	Not Rejected	Not Rejected		

Note. Scale Names: LBDQ 8, Tolerance of Freedom; LBDQ 9, Initiating Structure; LBDQ 10, Tolerance of Freedom; LBDQ 11, Consideration; LBDQ 12, Production Emphasis; LCPO, Locus of Control Powerful Others; LCI, Locus of Control Internal; LCC, Locus of Control Chance.

[a] First column indicates probability level for B AD respondents; second column indicates probability level for EDAD respondents.

*$p < .05$

**$p < .01$

Table 3b

Testing of Null Hypotheses
Regarding a Relationship between Two Scales

B AD	EDAD	Scales	B AD Respondents (N=83)	EDAD Respondents (N=71)	Probability level if Rejected	
Ho_{31}	Ho_{32}	LBDQ 8; FEC	REJECTED	Not Rejected	0.032*	
Ho_{33}	Ho_{34}	LBDQ 8; FWC	Not Rejected	REJECTED		0.003**
Ho_{35}	Ho_{36}	LBDQ 9; FEC	Not Rejected	Not Rejected		
Ho_{37}	Ho_{38}	LBDQ 9; FWC	Not Rejected	REJECTED		0.000**
Ho_{39}	Ho_{40}	LBDQ 10; FEC	Not Rejected	Not Rejected		
Ho_{41}	Ho_{42}	LBDQ 10; FWC	Not Rejected	Not Rejected		
Ho_{43}	Ho_{44}	LBDQ 11; FEC	Not Rejected	Not Rejected		
Ho_{45}	Ho_{46}	LBDQ 11; FWC	REJECTED	REJECTED	0.043*	0.047*
Ho_{47}	Ho_{48}	LBDQ 12; FEC	Not Rejected	Not Rejected		
Ho_{49}	Ho_{50}	LBDQ 12; FWC	Not Rejected	Not Rejected		
Ho_{51}	Ho_{52}	LCPO; FEC	Not Rejected	Not Rejected		
Ho_{53}	Ho_{54}	LCPO; FWC	REJECTED	Not Rejected	0.012*	
Ho_{55}	Ho_{56}	LCI; FEC	Not Rejected	Not Rejected		
Ho_{57}	Ho_{58}	LCI; FWC	Not Rejected	Not Rejected		
Ho_{59}	Ho_{60}	LCC; FEC	Not Rejected	Not Rejected		
Ho_{61}	Ho_{62}	LCC; FWC	REJECTED	Not Rejected	0.027*	

Note. Scale Names: FEC, FIRO-B Expressed Control; FWC, FIRO-B Wanted Control.

*$p<.05$

**$p<.01$

Table 4

Correlational Matrix
LC & LBDQ Scales
154 Respondents
(only statistically significant r's are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
LCPO	0.16[a]	-0.19						-0.20	0.17			
	0.048**	0.018**						0.013**	0.040**			
LCI	0.26	0.20	0.21	0.23	0.28	0.19	0.25				0.16	
	0.001***	0.015**	0.010***	0.004***	0.000***	0.019**	0.002***				0.045**	
LCC		-0.23		-0.17				-0.23	0.16			
		0.005***		0.035**				0.004***	0.055*			

Note. 12 LBDQ Scale Names: 1, Representation; 2, Reconciliation; 3, Persuasion; 4, Role Assumption; 5, Predictive Accuracy; 6, Integration; 7, Superior Orientation; 8, Tolerance of Uncertainty; 9, Initiating Structure; 10, Tolerance of Freedom; 11, Consideration; 12, Production Emphasis. Three LC Scales: LCPO, Locus of Control Powerful Others; LCI, Locus of Control Internal; LCC, Locus of Control Chance.

[a]First number is Pearson correlation coefficient for two-tailed tests; number below Pearson r is the probability.

*$p<.056$

**$p<.05$

***$p<.01$

8, Tolerance of Uncertainty, $p<.05$; and LBDQ 9, Initiating Structure, $p<.05$. The statistically significant relationships between Powerful Others and the LBDQ scales of Reconciliation and Tolerance of Uncertainty were inverse. The LC Internal Scale (LCI) was significantly related to eight LBDQ scales, namely, LBDQ 1, Representation, $p<.01$; LBDQ 2, Reconciliation, $p<.05$; LBDQ 3, Persuasion, $p<.01$; LBDQ 4, Role Assumption, $p<.01$; LBDQ 5, Predictive Accuracy, $p<.01$; LBDQ 6, Integration, $p<.05$; LBDQ 7, Superior Orientation, $p<.01$; and LBDQ 11, Consideration, $p<.05$. All eight statistically significant relationships between LCI and the stated LBDQ scales were positive. The LC Chance Scale (LCC) was significantly related to four LBDQ scales, namely, LBDQ 2, Reconciliation, $p<.01$; LBDQ 4, Role Assumption, $p<.05$; LBDQ 8, Tolerance of Uncertainty, $p<.01$; and LBDQ 9, Initiating Structure, $p<.056$. The statistically significant relationships between LCC and the LBDQ scales of Reconciliation, Role Assumption, and Tolerance of Uncertainty were inverse.

Summarily, it can be reported that the LC Internal Scale (LCI), with eight statistically significant relationships, was the most powerful predictor of leader behavior for the total sample of 154 respondents. The LC Internal Scale was not significantly related to the LBDQ scales of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, and Production Emphasis. The LC Powerful Others Scale (LCPO) and LC Chance Scale (LCC), each

with four statistically significant relationships, were the least powerful predictors of leader behavior.

Other findings include the following: (a) LBDQ 2, Reconciliation, was significantly related to each of the three LC scales; (b) LBDQ 10, Tolerance of Freedom, and LBDQ 12, Production Emphasis, were not significantly related to any of the three LC scales; (c) The statistically significant relationships between Powerful Others and Tolerance of Uncertainty and Chance and Tolerance of Uncertainty were inverse; and (d) The statistically significant relationships between Powerful Others and Initiating Structure and Chance and Initiating Structure were positive.

Correlational Analysis: LC and LBDQ Scales for Business Administration Respondents

The results of the correlational analyses for 83 business administration respondents when the scales were LC and LBDQ are listed in Table 5. The LC Powerful Others Scales (LCPO) was significantly related to two LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; and LBDQ 8, Tolerance of Uncertainty $p<.05$. The statistically significant relationship between Powerful Others and Tolerance of Uncertainty was inverse. The LC Internal Scale (LCI) was significantly related to six LBDQ scales, namely, LBDQ 2, Reconciliation, $p<.05$; LBDQ 3, Persuasion, $p<.05$; LBDQ 4, Role Assumption, $p<.01$; LBDQ 5, Predictive Accuracy, $p<.01$; LBDQ 7, Superior Orientation, $p<.01$; and LBDQ 12,

Table 5

Correlational Matrix
LC & LBDQ Scales
83 B AD Respondents
(only statistically significant r's are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
LCPO	0.24[a] 0.032**							-0.24 0.026**				
LCI		0.26 0.016**	0.25 0.023**	0.29 0.007***	0.29 0.008***		0.32 0.003***					0.22 0.049**
LCC												

Note. 12 LBDQ Scale Names: 1, Representation; 2, Reconciliation; 3, Persuasion; 4, Role Assumption; 5, Predictive Accuracy; 6, Integration; 7, Superior Orientation; 8, Tolerance of Uncertainty; 9, Initiating Structure; 10, Tolerance of Freedom; 11, Consideration; 12, Production Emphasis. Three LC Scales: LCPO, Locus of Control Powerful Others; LCI, Locus of Control Internal; LCC, Locus of Control Chance.

[a]First number is Pearson correlation coefficient for two-tailed tests; number below Pearson r is the probability.

*$p < .056$
**$p < .05$
***$p < .01$

Production Emphasis, $p<.05$. All six statistically significant relationships between LCI and the stated LBDQ scales were positive. The LC Chance Scale (LCC) was not significantly related to any of the 12 LBDQ scales.

Summarily, it can be reported that the LC Internal Scale (LCI), with six statistically significant relationships, was the most powerful predictor of leader behavior for the subsample of 83 business administration respondents. The LC Internal Scale was not significantly related to the LBDQ scales of Representation, Integration, Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, and Consideration. The LC Chance Scale (LCC), with zero statistically significant relationships, was the least powerful predictor of leader behavior for business administration respondents. It is to be noted that LC Powerful Others (LCPO), with two statistically significant relationships, was a weak predictor of leader behavior for business administration respondents. Another finding to be noted was that LBDQ 6, Integration, LBDQ 9, Initiating Structure LBDQ 10, Tolerance of Freedom, and LBDQ 11, Consideration, were not significantly related to any of the three LC scales.

Null Hypotheses: LC and LBDQ Scales

The following null hypotheses (see Table 3a) which posited a relationship between two scales (one LBDQ scale and one LC scale) were rejected:

Ho_1 The correlation coefficient between Tolerance of Uncertainty scores and Powerful Others scores for business administration graduate students is zero. $r = -0.24$ $p<.05$

Ho_{27} The correlation coefficient between Production Emphasis scores and Internal scores for business administration graduate students is zero. $r = 0.22$ $p<.05$

Correlational Analysis: LC and LBDQ Scales for Educational Administration Respondents

The results of the correlational analysis for 71 educational administration respondents when the scales were LC and LBDQ are listed in Table 6. The LC Powerful Others Scale (LCPO) was significantly related to two LBDQ scales, namely, LBDQ 7, Superior Orientation, $p<.05$; and LBDQ 8, Tolerance of Uncertainty, $p<.05$. The significant relationship between Powerful Others and Superior Orientation was positive, while the significant relationship between Powerful Others and Tolerance of Uncertainty was inverse. The LC Internal Scale (LCI) was significantly related to three LBDQ scales, namely, LBDQ 1, Representation, $p<.01$; LBDQ 5, Predictive Accuracy, $p<.05$; and LBDQ 11, Consideration, $p<.01$. All three statistically significant relationships between LCI and the stated LBDQ scales were positive. The LC Chance Scale (LCC) was significantly related to three LBDQ scales, namely, LBDQ 2, Reconciliation, $p<.056$; LBDQ 7, Superior Orientation, $p<.05$; and LBDQ 8, Tolerance of Uncertainty, $p<.01$. The statistically significant relationships between LCC and the LBDQ scales of Reconciliation and Tolerance of Uncertainty

Table 6

Correlational Matrix
LC & LBDQ Scales
71 EDAD Respondents
(only statistically significant r's are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
LCPO							0.24[a]	-0.24				
							0.046**	0.048**				
LCI	0.41				0.27						0.32	
	0.000***				0.021**						0.007***	
LCC		-0.23					0.26	-0.32				
		0.053*					0.027**	0.007***				

Note. 12 LBDQ Scale Names: 1, Representation; 2, Reconciliation; 3, Persuasion; 4, Role Assumption; 5, Predictive Accuracy; 6, Integration; 7, Superior Orientation; 8, Tolerance of Uncertainty; 9, Initiating Structure; 10, Tolerance of Freedom; 11, Consideration; 12, Production Emphasis. Three LC Scales: LCPO, Locus of Control Powerful Others; LCI, Locus of Control Internal; LCC, Locus of Control Chance.

[a]First number is Pearson correlation coefficient for two-tailed tests; number below Pearson r is the probability.

*$p \leq .056$
**$p \leq .05$
***$p \leq .01$

were inverse, while the statistically significant relationship between LCC and Superior Orientation was positive.

Summarily, it can be reported that none of the three LC scales was a powerful predictor of leader behavior for the subsample of 71 educational administration respondents. The LC Internal Scale (LCI), with only three statistically significant relationships, was a less powerful predictor of leader behavior for the subsample of educational adminstration respondents than it was for either the subsample of business administration respondents or the total sample of 154 respondents. Both the LC Powerful Others Scale and LC Chance Scale, with two statistically significant relationships and three statistically significant relationships, respectively, were weak predictors of leader behavior of educational administration respondents. It is to be noted also that LBDQ 3, Persuasion, LBDQ 4, Role Assumption, LBDQ 6, Integraton, LBDQ 9, Initiating Structure, LBDQ 10, Tolerance of Freedom, and LBDQ 12, Production Emphasis, were not significantly related to any of the three LC scales.

Null Hypotheses: LC and LBDQ Scales

The following null hypotheses (see Table 3a) which posited a relationship between two scales (one LBDQ scale and one LC scale) were rejected:

Ho_2 The correlation coefficient between Tolerance of Uncertainty scores and Powerful

Others scores for educational administration graduate students is zero. $r = 0.24$ $p<.05$

Ho_6 The correlation coefficient between Tolerance of Uncertainty scores and Chance scores for educational administration graduate students is zero. $r = 0.32$ $p<.01$

Ho_{22} The correlation coefficient between Consideration scores and Internal scores for educational administration graduate students is zero. $r = 0.32$ $p<.01$

The Multidimensional LC Scale and The LBDQ Form XII: Internal Consistency of Items

The Cronbach Alpha reliability coefficients which ascertained the internal consistency of items in the Multidimensional Locus of Control Scale (Levenson, 1973) and the LBDQ, Form-XII, (Stogdill, 1963) were satisfactory for research purposes (see Table 7). The following observations about the internal consistency of the individual scales in each instrument are noted: (a) The Cronbach Alpha coefficients for each of the three scales of the Multidimensional Locus of Control were over 0.600; (b) Scale 1, Powerful Others, had the highest internal consistency with a Cronbach Alpha coefficient of 0.8245; (c) Scale 3, Chance, had the lowest internal consistency with a Cronbach Alpha coefficient of 0.6075; (d) The Cronbach Alpha coefficients for each of the 12 scales of the LBDQ, Form XII were over 0.6000; (e) LBDQ 10, Tolerance of Freedom, LBDQ 3, Persuasion, and LBDQ 2, Reconciliation, had the highest internal consistencies with Cronbach Alpha coefficients of 0.7890, 07751, and 07462, respectively; (f) LBDQ 9,

Table 7

Cronbach Alpha Reliability Coefficients
(Internal Consistency)
for
154 Respondents.

Multidimensional Locus of Control Scale

	Scale	Item N	Means	Sigmas	Alphas
1	Powerful Others	8.00	27.6169	6.4043	0.8245
2	Internal	8.00	28.9156	5.0104	0.6554
3	Chance	8.00	23.8701	4.9645	0.6075

LBDQ, Form XII

	Scale	Item N	Means	Sigmas	Alphas
1	Representation	5.00	19.1429	2.4691	0.6819
2	Reconciliation	5.00	20.6753	2.8647	0.7462
3	Persuasion	10.00	39.4415	4.6530	0.7751
4	Role Assumption	10.00	37.6493	4.9157	0.7289
5	Predictive Accuracy	5.00	19.8377	2.0113	0.6261
6	Integration	5.00	20.9610	2.5910	0.7198
7	Superior Orientation	10.00	39.9156	3.8156	0.6979
8	Tolerance of Uncertainty	10.00	36.1039	4.5345	0.6888
9	Initiating Structure	10.00	40.1753	4.1218	0.7083
10	Tolerance of Freedom	10.00	38.1234	4.1800	0.7890
11	Consideration	10.00	40.0000	3.9345	0.6355
12	Production Emphasis	10.00	34.8377	3.7407	0.6612

Initiating Structure, and LBDQ 11, Consideration, the fundamental leader behavior scales of the Ohio State Leadership Studies (Stogdill, 1974), had low internal consistencies with Cronbach Alpha coefficients of 0.7083 and 0.6355, respectively; and (g) LBDQ 11, Consideration, and LBDQ 5, Predictive Accuracy, had the lowest consistencies of the 12 LBDQ scales with Cronbach Alpha coefficients of 0.6355 and 0.6261, respectively.

Correlational Analysis: FIRO-B and LBDQ Scales for Total Sample

The results of the correlational analysis for 154 respondents when the scales were FIRO-B and LBDQ are listed in Table 8. The FIRO-B Expressed Inclusion Scales (FEI) was significantly related to eight LBDQ scales, namely, LBDQ 1, Representation, $p<.01$; LBDQ 3, Persuasion, $p<.05$; LBDQ 5, Predictive Accuracy, $p<.05$; LBDQ 6, Integration, $p<.01$; LBDQ 7, Superior Orientation, $p<.01$; LBDQ 9 Initiating Structure, $p<.05$; LBDQ 11, Consideration, $p<.05$; and LBDQ 12, Production Emphasis, $p<.01$. All eight statistically significant relationships between FEI and the stated LBDQ scales were positive. The FIRO-B Wanted Inclusion Scale (FWI) was significantly related to four LBDQ scales, namely LBDQ 1, Representation, $p<.01$; LBDQ 6, Integration, $p<.05$; LBDQ 10, Tolerance of Freedom, $p<.056$; and LBDQ 11, Consideration, $p<.01$. All four statistically significant relationships between FWI and the stated LBDQ scales were positive.

Table 8

Correlational Matrix
FIRO-B & LBDQ Scales
154 Respondents
(only statistically significant r's are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
FEI	0.22 *** 0.006		0.16 ** 0.042		0.19 ** 0.019	0.29 *** 0.000	0.29 *** 0.000		0.20 ** 0.011		0.19 ** 0.021	0.22 *** 0.005
FWI	0.21 *** 0.008					0.20 ** 0.013				0.16 * 0.054	0.21 *** 0.008	
FEC	0.17 ** 0.039		0.16 * 0.052		0.16 * 0.054			-0.16 ** 0.050			-0.17 ** 0.031	
FWC		-0.22 *** 0.007	-0.22 *** 0.006	-0.29 *** 0.000	-0.18 ** 0.025		-0.17 ** 0.034					
FEA	0.21 *** 0.008					0.25 *** 0.002	0.16 ** 0.041				0.17 ** 0.037	
FWA											0.18 ** 0.029	

Note. Six FIRO-B Scale Names: FEI, Expressed Inclusion; FWI, Wanted Inclusion; FEC, Expressed Control; FWC, Wanted Control; FEA, Expressed Affection; FWA, Wanted Affection.

* $p < .056$
** $p < .05$
*** $p < .01$

The FIRO-B Expressed Control Scale (FEC) was significantly related to five LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; LBDQ 3, Persuasion, $p<.056$; LBDQ 5, Predictive Accuracy, $p<.056$; LBDQ 8, Tolerance of Uncertainty, $p<.05$; and LBDQ 11, Consideration, $p<.05$. The significant relationships between FEC and the LBDQ variables of Tolerance of Uncertainty and Consideraton were inverse. The FIRO-B Wanted Control Scale (FWC) was significantly related to five LBDQ scales, namely, LBDQ 2, Reconciliation, $p<.01$; LBDQ 3, Persuasion, $p<.01$, LBDQ 4, Role Assumption, $p<.01$; LBDQ 5, Predictive Accuracy, $p<.05$; and LBDQ 7, Superior Orientation, $p<.05$. All five significant relationships between FWC and the stated LBDQ scales were inverse.

The FIRO-B Expressed Affection Scale (FEA) was significantly related to four LBDQ scales, namely, LBDQ 1, Representation, $p<.01$; LBDQ 6, Integration, $p<.01$; LBDQ 7, Superior Orientation, $p<.05$; and LBDQ 11, Consideration, $p<.05$. All four significant relationships between FEA and the stated LBDQ scales were positive. The FIRO-B Wanted Affection Scale (FWA) was significantly related to one LBDQ scale, namely, Consideration, $p<.05$. This particular significant relationship was positive.

Summarily, it can be reported that the FIRO-B scales of Expressed Inclusion, Expressed Control, and Expressed Affection (interpersonal behaviors which a person expresses toward others) were more powerful predictors of leader

behavior for the total sample of 154 respondents than the FIRO-B scales of Wanted Inclusion, Wanted Control, and Wanted Affection (interpersonal behaviors which a person wants from others). The expressed interpersonal behaviors had a total of 17 statistically significant relationships with the LBDQ scales, while the wanted interpersonal behaviors had a total of 10 statistically significant relationships with the LBDQ scales.

Other findings include the following: (a) The FIRO-B Expressed Scale (FEI), with eight statistically significant relationships, was the most powerful predictor of leader behavior for the total sample; (b) The FIRO-B scales of Expressed Control and Wanted Control, each with five statistically significant relationships, were moderate predictors of leader behavior for the total sample; (c) The FIRO-B Wanted Affection Scale (FWA), with only one statistically significant relationship, was the least powerful predictor of leader behavior for the total sample; (d) LBDQ 11, Consideration, was significantly related to five of the six FIRO-B scales, the exception was Wanted Control; (e) LBDQ 1, Representation, was significantly related to four of the six FIRO-B scales; the exceptions were Wanted Control and Wanted Affection; and (f) LBDQ 2, Reconciliation, LBDQ 4, Role Assumption, LBDQ 8, Tolerance of Uncertainty, LBDQ 9, Initiating Structure, LBDQ 10, Tolerance of Freedom, and LBDQ 12, Production Emphasis, were significantly related to only one FIRO-B scale.

Correlational Analysis: FIRO-B and LBDQ Scales for Business Administration Respondents

The results of the correlational analysis for 83 business administration respondents when the scales were FIRO-B and LBDQ are listed in Table 9. The FIRO-B Expressed Inclusion Scale (FEI) was significantly related to eight LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; LBDQ 3, Persuasion, $p<05$; LBDQ 5, Predictive Accuracy, $p<.05$; LBDQ 6, Integration, $p<.05$; LBDQ 7, Superior Orientation, $p<.01$; LBDQ 9, Initiating Structure, $p<.05$; LBDQ 11, Consideration, $p<.05$; and LBDQ 12, Production Emphasis, $p<.01$. All eight statistically significant relationships between FEI and the stated LBDQ scales were positive. The FIRO-B Wanted Inclusion Scale (FWI) was significantly related to eight LBDQ scales, namely, LBDQ 1, Representation, $p<.01$; LBDQ 2, Reconciliation, $p<.01$; LBDQ 3, Persuasion, $p<.01$; LBDQ 5, Predictive Accuracy, $p<.01$; LBDQ 6, Integration, $p<.01$; LBDQ 7, Superior Orientation, $p<.01$; LBDQ 11, Consideration, $p<.01$; and LBDQ 12, Production Emphasis, $p<.01$. All eight statistically significant relationships between FWI and the stated LBDQ scales were positive.

The FIRO-B Expressed Control Scale (FEC) was significantly related to four LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; LBDQ 5, Predictive Accuracy, $p<.01$; LBDQ 7, Superior Orientation, $p<.056$; and LBDQ 8, Tolerance of Uncertainty, $p<.05$. The significant relationship between FEC and Tolerance of Uncertainty was inverse. The FIRO-B

Table 9

Correlational Matrix
FIRO-B & LBDQ Scales
83 B AD Respondents
(only statistically significant r's are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
FEI	0.24 ** 0.031		0.24 ** 0.031		0.23 ** 0.034	0.25 ** 0.022	0.34 *** 0.001		0.22 ** 0.046		0.22 ** 0.045	0.28 *** 0.009
FWI	0.29 *** 0.008	0.34 *** 0.002	0.31 *** 0.005		0.32 *** 0.003	0.34 *** 0.002	0.30 *** 0.006				0.28 *** 0.010	0.34 *** 0.002
FEC	0.22 ** 0.041				0.28 *** 0.010		0.21 * 0.052	-0.24 ** 0.032				
FWC											0.22 ** 0.043	
FEA	0.27 ** 0.012					0.27 ** 0.014	0.26 ** 0.017					
FWA		0.22 ** 0.043						0.24 ** 0.032			0.23 ** 0.035	

Note. Six FIRO-B Scale Names: FEI, Expressed Inclusion; FWI, Wanted Inclusion; FEC, Expressed Control; FWC, Wanted Control; FEA, Expressed Affection; FWA, Wanted Affection.

* $p \leq .056$
** $p \leq .05$
*** $p \leq .01$

Wanted Control Scale (FWC) was significantly related to one LBDQ scale, namely, LBDQ 11, Consideration, $p<.05$. This particular significant relationship was positive.

The FIRO-B Expressed Affection Scale (FEA) was significantly related to three LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; LBDQ 6, Integration, $p<.05$; and LBDQ 7, Superior Orientation, $p<.05$. The three statistically significant relationships between FEA and the stated LBDQ scales were positive. The FIRO-B Wanted Affection Scale (FWA) was significantly related to three LBDQ scales, namely, LBDQ 2, Reconciliation, $p<.05$; LBDQ 8, Tolerance of Uncertainty, $p<.05$; and LBDQ 11, Consideration, $p<.05$. The three statistically significant relationships between FWA and the stated LBDQ scales were positive.

Summarily, it can be reported that the FIRO-B scales of Expressed Inclusion, Expressed Control, and Expressed Affection (interpersonal behaviors which a person expresses toward others) showed more statistically significant relationships for the subsample of 83 business administration respondents than the FIRO-B scales of Wanted Inclusion, Wanted Control, and Wanted Affection (interpersonal behaviors which a person wants from others). The Expressed FIRO-B scales had a total of 15 statistically significant relationships with the LBDQ scales; the Wanted FIRO-B scales has a total of 12 statistically significant relationships with the LBDQ scales.

Other findings include the following: (a) The FIRO-B Expressed Inclusion Scale (FEI) and FIRO-B Wanted Inclusion Scale (FWI), each with eight statistically significant relationships, were the most powerful predictors of leader behavior for the subsample of business administration respondents; (b) Both Expressed Inclusion and Wanted Inclusion predicted the leader behaviors of Representation, Persuasion, Predictive Accuracy, Integration, Superior Orientation, Consideration, and Production Emphasis; (c) The FIRO-B Wanted Control Scale (FWC), with only one statistically significant relationship, was the least powerful predictor of leader behavior for the subsample of business administration respondents; (d) LBDQ 1, Representation, and LBDQ 11, Consideration, were positively related to four of the six FIRO-B scales; and (e) LBDQ 4, Role Assumption, and LBDQ 10, Tolerance of Freedom, showed no statistically significant relationships with any of the six FIRO-B scales.

Null Hypotheses: FIRO-B and LBDQ Scales

The following null hypotheses (see Table 3b) which posited a relationship between two scales (one LBDQ scale and one FIRO-B scale) were rejected:

Ho_{31} The correlation coefficient between Tolerance of Uncertainty scores and Expressed Control scores for business administration graduate students is zero. $r=-0.24$ $p<.05$

Ho_{45} The correlation coefficient between Consideration scores and Wanted Control scores for business administration graduate students is zero. $r = 0.22$ $p<.05$

Correlational Analysis: FIRO-B and LBDQ Scales for Educational Administration Respondents

The results of the correlational analysis for 71 educational administration respondents when the scales were FIRO-B and LBDQ are listed in Table 10. The FIRO-B Expressed Inclusion Scale (FEI) was significantly related to two LBDQ scales, namely, LBDQ 6, Integration, $p<.01$; and LBDQ 7, Superior Orientation, $p<.05$. The two significant relationships between FEI and the stated LBDQ scales were positive. The FIRO-B Wanted Inclusion Scale (FWI) was not significantly related to any LBDQ scale.

The FIRO-B Expressed Control Scale (FEC) was not significantly related to any LBDQ scale. However, the FIRO-B Wanted Control Scale (FWC) was significantly related to nine LBDQ scales, namely, LBDQ 1, Representation, $p<.05$; LBDQ 2, Reconciliation, $p<.05$; LBDQ 3, Persuasion, $p<.01$; LBDQ 4, Role Assumption, $p<.05$; LBDQ 6, Integration, $p<.05$; LBDQ 7, Superior Orientation, $p<.05$; LBDQ 8, Tolerance of Uncertainty, $p<.01$; LBDQ 9, Initiating Structure, $p<.01$; and LBDQ 11, Consideration, $p<.05$. All nine statistically significant relationships between FWC and the stated LBDQ scales were inverse. It is to be noted that an inverse relationship was the result of one of two occurrences: (a) If an educational administration respondent had a high score on Wanted Control, then the respondent had a low score on each of the stated LBDQ scales; and (b) If an educational

Table 10

Correlational Matrix
FIRO-B & LBDQ Scales
71 EDAD Respondents
(only statistically significant r's are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
FEI						0.34 *** 0.003	0.24 ** 0.040					
FWI												
FEC												
FWC	-0.24 ** 0.042	-0.27 ** 0.021	-0.31 *** 0.009	-0.30 ** 0.012		-0.29 ** 0.013	-0.26 ** 0.030	-0.34 *** 0.003	-0.41 *** 0.000		-0.24 ** 0.047	
FEA						0.23 * 0.054						
FWA												

Note. Six FIRO-B Scale Names: FEI, Expressed Inclusion; FWI, Wanted Inclusion; FEC, Expressed Control; FWC, Wanted Control; FEA, Expressed Affection; FWA, Wanted Affection.

* $p < .056$
** $p < .05$
*** $p < .01$

administration respondent had a low score on Wanted Control, then the respondent had a high score on each of the stated LBDQ scales.

The FIRO-B Expressed Affection Scale (FEA) was significantly related to only one LBDQ scale, namely, LBDQ 6, Integration, p>.056. This statistically significant relationship was positive. The FIRO-B Wanted Affection Scale (FWA) was not significantly related to any LBDQ scale.

Summarily, it can be reported that, with the exception of the FIRO-B Wanted Control Scale, none of the FIRO-B scales were powerful predictors of leader behavior for the subsample of educational administration respondents. Thus, the FIRO-B scales of Expressed Inclusion, Expressed Control, and Expressed Affection (interpersonal behaviors which a person expresses toward others) were not powerful predictors of leader behavior for the stated subsample. The FIRO-B scales of Wanted Inclusion and Wanted Affection (interpersonal behaviors which a person wants from others) were not significantly related to any of the 12 LBDQ scales. LBDQ 5, Predictive Accuracy, LBDQ 10, Tolerance of Freedom, and LBDQ 12, Production Emphasis, were not significantly related to any of the six FIRO-B scales.

Null Hypotheses: FIRO-B and LBDQ Scales

The following null hypotheses (see Table 3b) which posited a relationship between two scales (one LBDQ scale and one FIRO-B scale) were rejected:

Ho_{34} The correlation coefficient between Tolerance of Uncertainty scores and Wanted Control scores for educational administration graduate students is zero. $r=-0.34$ $p<.01$

Ho_{38} The correlation coefficient between Initiating Structure scores and Wanted Control scores for educational administration graduate students is zero. $r=-0.41$ $p<.01$

Ho_{46} The correlation coefficient between Consideration scores and Wanted Control scores for educational administration graduate students is zero. $r=-0.24$ $p<.05$

Correlational Analyses: LC and FIRO-B Scales

The results of the correlational analyses between the locus of control scales and FIRO-B scales were as follows: (a) The three LC scales of Powerful Others (LCPO), Internal Control (LCI), and Chance Control (LCC) were not significantly related to any of the six FIRO-B scales for the total sample of 154 respondents; (b) For the subsample of 83 business administration respondents (see Table 11), there were two statistically significant relationships, namely, the LC Powerful Others Scale (LCPO) was positively related to the FIRO-B Wanted Control Scale (FWC), $p<.05$; and the LC Chance Scale (LCC) was positively related to the FIRO-B Wanted Control Scale (FWC), $p<.05$; and (c) For the subsample of 71 educational administration respondents, there were no statistically significant relationships between any of the three LC scales and any of the six FIRO-B scales.

Summarily, it can be reported that none of the three LC scales were powerful predictors of interpersonal behavior

Table 11

Correlational Matrix
LC & FIRO-B Scales
83 B AD Respondents
(only statistically significant r's are listed)

	COLUMN/SIX FIRO-B SCALES					
	1	2	3	4	5	6
LCPO				0.28		
				0.012**		
LCI						
LCC				0.24		
				0.027**		

Note. Six FIRO-B Scale Names: 1, Expressed Inclusion; 2, Wanted Inclusion; 3, Expressed Control; 4, Wanted Control; 5, Expressed Affection; 6, Wanted Affection.

** $p < .05$

for the total sample of 154 respondents, the subsample of 83 business administration respondents, or the subsample of 71 educational administration respondents. The two exceptions were the following: (a) The LC Powerful Others scale was positively related to the FIRO-B Wanted Control scale; and (b) The LC Chance scale was positively related to the FIRO-B Wanted Control scale. Both statistically significant relationships involved the subsample of business administration respondents.

Null Hypotheses: LC and FIRO-B Scales

The following null hypotheses (see Table 3b) which posited a relationship between two scales (one LC scale and one FIRO-B scale) were rejected:

Ho_{53} The correlation coefficient between Powerful Others scores and Wanted Control scores for business administration graduate students is zero. $r = 0.28$ $p<.05$

Ho_{61} The correlation coefficient between Chance scores and Wanted Control scores for business administration graduate students is zero. $r = 0.24$ $p<.05$

Analyses of Variance: Differences between Means of Two Groups on LC, LBDQ, and FIRO-B Scales

Null hypotheses Ho_{63}, Ho_{64} and Ho_{65} (phrased to test for significant differences in mean scores between administration graduate students and educational administration graduate students on LC, LBDQ, and FIRO-B scales) were analyzed by single classification analysis of variance. The results of the testing of these null hypotheses are summarized in Tables 12a, 12b, 13a, and 13b.

Table 12a

Testing of Null Hypotheses
Regarding Significance of Differences in Means
between Business Administration Graduate Students & Educational Administration Graduate Students
on LC, LBDQ, and FIRO-B Scales

Number	Scales	Results	Probability level if Rejected ($p \leq .05$)
Ho_{63}	Powerful Others	REJECTED	0.0042[c]
Ho_{63}	Internal Control	Not Rejected	
Ho_{63}	Chance Control	Not Rejected	
Ho_{64}	Representation	Not Rejected	
Ho_{64}	Reconciliation	REJECTED	0.0228[b]
Ho_{64}	Persuasion	REJECTED	0.052[a]
Ho_{64}	Role Assumption	REJECTED	0.0182[b]
Ho_{64}	Predictive Accuracy	REJECTED	0.0208[b]
Ho_{64}	Integration	Not Rejected	
Ho_{64}	Superior Orientation	Not Rejected	

[a]Probability is greater than the usual alpha level of .05.

[b]Probability denotes exact level of significance; probability could have been stated as $p < .05$.

[c]Probability denotes exact level of significance; probability could have been stated as $p < .01$.

Table 12b

Testing of Null Hypotheses
Regarding Significance of Differences in Means
between Business Administration Graduate Students & Educational Administration Graduate Students
on LC, LBDQ, and FIRO-B Scales

Number	Scales	Results	Probability level if Rejected ($p < .05$)
Ho_{64}	Tolerance of Uncertainty	Not Rejected	
Ho_{64}	Initiating Structure	Not Rejected	
Ho_{64}	Tolerance of Freedom	Not Rejected	
Ho_{64}	Consideration	Not Rejected	
Ho_{64}	Production Emphasis	Not Rejected	
Ho_{65}	Expressed Inclusion	Not Rejected	
Ho_{65}	Wanted Inclusion	Not Rejected	
Ho_{65}	Expressed Control	Not Rejected	
Ho_{65}	Wanted Control	REJECTED	0.0000[d]
Ho_{65}	Expressed Affection	Not Rejected	
Ho_{65}	Wanted Affection	Not Rejected	

[d]Probability denotes exact level of significance; probability could have been stated as $p < .001$.

Table 13a

Significance of Differences in Means
between two groups on LC, LBDQ, and FIRO-B Scales
N=83 Business Administration Graduate Students
N=71 Educational Administration Graduate Students
(only statistically significant differences are listed)

Scale: Locus of Control, Powerful Others

Source	Mean Square	D.F.	F-Ratio	Probability
Total	30.09	153		
Groups	246.71	1	8.61	0.0042
Error (G)	28.66	152		
Mean	B AD 17.94	EDAD 20.48		

Scale: LBDQ 2, Reconciliation

Source	Mean Square	D.F.	F-Ratio	Probability
Total	8.35	153		
Groups	42.06	1	5.18	0.0228
Error (G)	8.13	152		
Mean	B AD 21.13	EDAD 20.08		

Scale: LBDQ 3, Persuasion

Source	Mean Square	D.F.	F-Ratio	Probability
Total	21.79	153		
Groups	80.00	1	3.74	0.052[a]
Error (G)	21.41	152		
Mean	B AD 40.11	EDAD 38.66		

[a] probability is greater than the usual alpha level of .05.

Table 13b

Significance of Differences in Means
between two groups on LC, LBDQ, and FIRO-B Scales
N=83 Business Administration Graduate Students
N=71 Educational Administration Graduate Students
(only statistically significant differences are listed)

Scale: LBDQ 4, Role Assumption

Source	Mean Square	D.F.	F-Ratio	Probability
Total	24.32	153		
Groups	132.13	1	5.60	0.0182
Error (G)	23.61	152		
Mean	B AD 38.51	EDAD 36.65		

Scale: LBDQ 5, Predictive Accuracy

Source	Mean Square	D.F.	F-Ratio	Probability
Total	4.07	153		
Groups	21.19	1	5.35	0.0208
Error (G)	3.96	152		
Mean	B AD 20.18	EDAD 19.44		

Scale: FIRO-B, Wanted Control

Source	Mean Square	D.F.	F-Ratio	Probability
Total	3.92	153		
Groups	79.01	1	23.07	0.0000
Error (G)	3.43	152		
Mean	B AD 2.17	EDAD 3.61		

On the three LC scales, there was only one statistically significant difference, namely, on Powerful Others. Note that the educational administration graduate students had the higher mean score, 20.48, compared to 17.94 for the business administration graduate students on the Powerful Others scale. This finding is an indication that educational administration respondents in the study were more inclined to seek their locus of control from Powerful Others than business administration respondents. The findings indicated that there were no statistically significant differences between business administration graduate students and educational administration graduate students on the other two LC scales of Internal and Chance. Summarily, it can be reported that area of specialization, Business Administration or Educational Administration, did not affect locus of control, except for Powerful Others.

On the 12 LBDQ scales, there were four statistically significant differences, namely, on Reconciliation, Persuasion, Role Assumption, and Predictive Accuracy. Note that business administration graduate students had higher mean scores than educational administration graduate students on each of the four statistically significant LBDQ scales; (a) Reconciliation B AD, 21.13; EDAD, 20.08; (b) Persuasion, B AD, 40.11; EDAD, 38.66; (c) Role Assumption, B AD, 38.51; EDAD, 36.65; and (d) Predictive Accuracy, B AD, 20.18; EDAD, 19.44. The other findings indicated that there were no statistically significant differences between

business administration graduate students and educational administration graduate students on the remaining LBDQ scales of Representation, Integration, Superior Orientation, Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideraton, and Production Emphasis. Summarily, it can be reported that area of specialization, Business Administration or Educational Administration, did not affect leader behaviors, except for the four stated LBDQ scales.

On the six FIRO-B scales, there was only one statistically significant difference, namely, on Wanted Control. Note that the educational administration graduate students had the higher mean score, 3.61, compared to 2.17 for business administration graduate students on the Wanted Control scale. This finding (a) indicated that educational administration graduate students were more inclined to want people to lead them than business administration graduate students; and (b) validated the finding on the LC scale of Powerful Others that educational administration graduate students were more inclined to being controlled by Powerful Others. Summarily, it can be reported that area of specialization, Business Administration or Educational Administration, did not affect interpersonal behaviors, except in the one instance of Wanted Control.

Analyses of Variance: Median Split

Univariate correlations have a wide variety of statistical complications (McNemar, 1969; Walker & Lev, 1953). For example, the observed correlation is almost

always lower than the "true correlation" (Walker & Lev, 1953). Under certain circumstances, problems also exist with regard to correlation of scores near the center of the distribution. Finally, the whole issue of the effect of "restriction of range" is well-documented, i.e., in two distributions of scores if the range is relatively great, the correlations will be large as compared with the correlations that emerge when the range is restricted. For these and other reasons, a number of statisticians have advised the use of a procedure known as "median split" (Gourevitch, 1965; Guilford & Fruchter, 1973). It must be stated, however, that although median splits are widely used, not all statisticians recommend their use.

Despite these conflicting points of view, the investigator accomplished a median split on the three LC scales, in order to test null hypotheses Ho_{66} through Ho_{74} (phrased to test for significant differences in mean scores between high Powerful Others and low Powerful Others graduate students, high Internal and low Internal graduate students, and high Chance and low Chance graduate students on LC, LBDQ, and FIRO-B scales). The results of the median split analyses are listed in Table 14a-f. In accomplishing the median split, the three locus of control scales become the "independent" variables, while the 12 LBDQ scales and six FIRO-B scales become the "dependent" variables. Rather than diminish the number of respondents (N=154), as in the case of Chance graduate students, the split was made at a

Table 14a

Testing of Null Hypotheses
Regarding Significance of Differences in Means
Using LC Scales as Independent Variables
and LBDQ & FIRO-B Scales as Dependent Variables

There is no significant difference in mean scores between high Powerful Others and low Powerful Others graduate students on...

Number	Scales	Results	Probability level if Rejected ($p<.05$)[a]
Ho_{66}	Internal	Not Rejected	
Ho_{66}	Chance	REJECTED	0.0001[c]
Ho_{69}	Representation	Not Rejected	
Ho_{69}	Reconciliation	Not Rejected	
Ho_{69}	Persuasion	Not Rejected	
Ho_{69}	Role Assumption	Not Rejected	
Ho_{69}	Predictive Accuracy	Not Rejected	
Ho_{69}	Integration	Not Rejected	
Ho_{69}	Superior Orientation	Not Rejected	
Ho_{69}	Tolerance of Uncertainty	REJECTED	0.0259[b]
Ho_{69}	Initiating Structure	Not Rejected	
Ho_{69}	Tolerance of Freedom	Not Rejected	
Ho_{69}	Consideration	Not Rejected	
Ho_{69}	Production Emphasis	Not Rejected	

[a] Homogeneity of variance prevailed throughout median split analyses.
[b] Probability denotes exact level of significance; probability could have been stated as $p<.05$.
[c] Probability denotes exact level of significance; probability could have been stated as $p<.001$.

Table 14b

Testing of Null Hypotheses
Regarding Significance of Differences in Means
Using LC Scales as Independent Variables
and LBDQ & FIRO-B Scales as Dependent Variables

There is no significant difference in mean scores between high Powerful Others and low Powerful Others graduate students on...

Number	Scales	Results	Probability level if Rejected ($p<.05$)
Ho_{72}	Expressed Inclusion	Not Rejected	
Ho_{72}	Wanted Inclusion	Not Rejected	
Ho_{72}	Expressed Control	Not Rejected	
Ho_{72}	Wanted Control	Not Rejected	
Ho_{72}	Expressed Affection	Not Rejected	
Ho_{72}	Wanted Affection	Not Rejected	

Table 14c

Testing of Null Hypotheses
Regarding Significance of Differences in Means
Using LC Scales as Independent Variables
and LBDQ & FIRO-B Scales as Dependent Variables

There is no significant difference in mean scores between high Internal and low Internal graduate students on...

Number	Scales	Results	Probability level if Rejected ($p<.05$)[a]
Ho_{67}	Powerful Others	REJECTED	0.0372[b]
Ho_{67}	Chance	Not Rejected	
Ho_{70}	Representation	REJECTED	0.0021[c]
Ho_{70}	Reconciliation	Not Rejected	
Ho_{70}	Persuasion	REJECTED	0.0179[b]
Ho_{70}	Role Assumption	Not Rejected	
Ho_{70}	Predictive Accuracy	REJECTED	0.0099[c]
Ho_{70}	Integration	Not Rejected	
Ho_{70}	Superior Orientation	REJECTED	0.0077[c]
Ho_{70}	Tolerance of Uncertainty	Not Rejected	
Ho_{70}	Initiating Structure	Not Rejected	
Ho_{70}	Tolerance of Freedom	REJECTED	0.0315[b]
Ho_{70}	Consideration	Not Rejected	
Ho_{70}	Production Emphasis	Not Rejected	

[a] Homogeneity of variance prevailed throughout median split analyses.
[b] Probability denotes exact level of significance; probability could have been stated as $p<.05$.
[c] Probability denotes exact level of significance; probability could have been stated as $p<.01$.

Table 14d

Testing of Null Hypotheses
Regarding Significance of Differences in Means
Using LC Scales as Independent Variables
and LBDQ & FIRO-B Scales as Dependent Variables

There is no significant difference in mean scores between high Internal and low Internal graduate students on...

Number	Scales	Results	Probability level if Rejected ($p < .05$)
Ho_{73}	Expressed Inclusion	Not Rejected	
Ho_{73}	Wanted Inclusion	Not Rejected	
Ho_{73}	Expressed Control	Not Rejected	
Ho_{73}	Wanted Control	Not Rejected	
Ho_{73}	Expressed Affection	Not Rejected	
Ho_{73}	Wanted Affection	Not Rejected	

Table 14e

Testing of Null Hypotheses
Regarding Significance of Differences in Means
Using LC Scales as Independent Variables
and LBDQ & FIRO-B Scales as Dependent Variables

There is no significant difference in mean scores between high Chance and low Chance graduate students on...

Number	Scales	Results	Probability level if Rejected ($p<.05$)[a]
Ho_{68}	Powerful Others	REJECTED	0.0000[c]
Ho_{68}	Internal	Not Rejected	
Ho_{71}	Representation	Not Rejected	
Ho_{71}	Reconciliation	Not Rejected	
Ho_{71}	Persuasion	Not Rejected	
Ho_{71}	Role Assumption	Not Rejected	
Ho_{71}	Predictive Accuracy	Not Rejected	
Ho_{71}	Integration	Not Rejected	
Ho_{71}	Superior Orientation	Not Rejected	
Ho_{71}	Tolerance of Uncertainty	REJECTED	0.0198[b]
Ho_{71}	Initiating Structure	Not Rejected	
Ho_{71}	Tolerance of Freedom	Not Rejected	
Ho_{71}	Consideration	Not Rejected	
Ho_{71}	Production Emphasis	Not Rejected	

[a]Homogeneity of variance prevailed throughout median split analyses.
[b]Probability denotes exact level of significance; probability could have been stated as $p<.05$.
[c]Probability denotes exact level of significance; probability could have been stated as $p<.001$.

Table 14f

Testing of Null Hypotheses
Regarding Significance of Differences in Means
Using LC Scales as Independent Variables
and LBDQ & FIRO-B Scales as Dependent Variables

There is no significant difference in mean scores between high Chance and low Chance graduate students on...

Number	Scales	Results	Probability level if Rejected ($p<.05$)
Ho_{74}	Expressed Inclusion	Not Rejected	
Ho_{74}	Wanted Inclusion	Not Rejected	
Ho_{74}	Expressed Control	Not Rejected	
Ho_{74}	Wanted Control	Not Rejected	
Ho_{74}	Expressed Affection	Not Rejected	
Ho_{74}	Wanted Affection	Not Rejected	

gap in the distribution in the cases of high Powerful Others and low Powerful Others graduate students and high Internal and low Internal graduate students. While deviations from an exact median split may result in heterogeneity of variance, there is a procedure described by McNemar (1968) for handling the problem, namely, changing the alpha level for rejecting the null hypotheses from .05 to .025. In Tables 15, 16a-b, and 17 are shown the analyses of variance when the three LC scales were approximately split at the median. Note that the Internal scale (see Table 16a-b) yielded six statistically significant findings, namely, with LC Powerful Others and LBDQ scales of Representation, Persuasion, Predictive Accuracy, Superior Orientation, and Tolerance of Freedom. The Internal scale was not significantly related to any FIRO-B scale. In fact, the median split analyses indicated that the Powerful Others and Chance scales are related one to another, but not so with the Internal scale (see Tables 15 & 17). The reader is reminded that for the purpose of the median split analyses, the alpha level would have been changed to .025 in instances where heterogeneity of variance existed, but homogeneity of variance prevailed throughout.

Summarily, the results of the median split analyses indicated the following: (a) The Internal scale had the strongest association with the LBDQ scales; (b) Neither the Powerful Others nor Chance scales showed any association with the 12 LBDQ scales, with the exception of Tolerance of

Table 15

Significance of Differences in Means
between high Powerful Others and low Powerful Others Graduate Students
on LC, LBDQ, and FIRO-B Scales
N=77 high Powerful Others Graduate Students
N=77 low Powerful Others Graduate Students
(only statistically significant differences are listed)

Scale: Locus of Control, Chance

Source	Mean Square	D.F.	F-Ratio	Probability
Total	28.40	153		
Groups	520.06	1	20.67	0.0001
Error (G)	25.16	152		
Mean	high PO 21.00	low PO 17.32		

Scale: LBDQ 8, Tolerance of Uncertainty

Source	Mean Square	D.F.	F-Ratio	Probability
Total	20.70	153		
Groups	99.81	1	4.95	0.0259
Error (G)	20.17	152		
Mean	high PO 35.30	low PO 36.91		

Table 16a

Significance of Differences in Means
between high Internal and low Internal Graduate Students
on LC, LBDQ, and FIRO-B Scales
N=80 high Internal Graduate Students
N=74 low Internal Graduate Students
(only statistically significant differences are listed)

Scale: Locus of Control, Powerful Others

Source	Mean Square	D.F.	F-Ratio	Probability
Total	30.09	153		
Groups	126.85	1	4.31	0.0372
Error (G)	29.45	152		
Mean	high I 18.24	low I 20.05		

Scale: LBDQ 1, Representation

Source	Mean Square	D.F.	F-Ratio	Probability
Total	6.14	153		
Groups	58.87	1	10.17	0.0021
Error (G)	5.79	152		
Mean	high I 19.74	low I 18.50		

Scale: LBDQ 3, Persuasion

Source	Mean Square	D.F.	F-Ratio	Probability
Total	21.79	153		
Groups	119.06	1	5.63	0.0179
Error (G)	21.15	152		
Mean	high I 40.29	low I 38.53		

Table 16b

Significance of Differences in Means
between high Internal and low Internal Graduate Students
on LC, LBDQ, and FIRO-B Scales
N=80 high Internal Graduate Students
N=74 low Internal Graduate Students
(only statistically significant differences are listed)

Scale: LBDQ 5, Predictive Accuracy

Source	Mean Square	D.F.	F-Ratio	Probability
Total	4.07	153		
Groups	26.62	1	6.79	0.0099
Error (G)	3.92	152		
Mean	high I 20.24	low I 19.41		

Scale: LBDQ 7, Superior Orientation

Source	Mean Square	D.F.	F-Ratio	Probability
Total	14.65	153		
Groups	102.50	1	7.28	0.0077
Error (G)	14.08	152		
Mean	high I 40.70	low I 39.07		

Scale: LBDQ 10, Tolerance of Freedom

Source	Mean Square	D.F.	F-Ratio	Probability
Total	17.59	153		
Groups	79.06	1	4.60	0.0315
Error (G)	17.18	152		
Mean	high I 38.81	low I 37.38		

Table 17

Significance of Differences in Means
between high Chance and low Chance Graduate Students
on LC, LBDQ, and FIRO-B Scales
N=71 high Chance Graduate Students
N=68 low Chance Graduate Students
(only statistically significant differences are listed)

Scale: Locus of Control, Powerful Others

Source	Mean Square	D.F.	F-Ratio	Probability
Total	30.86	138		
Groups	792.31	1	31.31	0.0000
Error (G)	25.31	137		
Mean	high C 21.41	low C 16.63		

Scale: LBDQ 8, Tolerance of Uncertainty

Source	Mean Square	D.F.	F-Ratio	Probability
Total	21.38	138		
Groups	112.88	1	5.45	0.0198
Error (G)	20.71	137		
Mean	high C 35.18	low C 36.99		

Uncertainty which was significantly related to Powerful Others and Chance (c) The three LC scales were not associated with the six FIRO-B scales; and (d) The statistically significant findings involving Powerful Others and Chance scales indicated that the two LC scales were not statistically orthogonal, i.e., a common variance may have existed.

Summarily, it may be stated that the LC Internal scale and leader behaviors were associated, but a similar statement cannot be made vis-à-vis Powerful Others and LBDQ nor Chance and LBDQ.

Multivariate Statistical Analyses

The data generated on 154 respondents lend themselves to certain multivariate techniques which often detect relationships not seen in univariate analyses. Among the multivariate techniques utilized were the following: (a) Canonical correlation; (b) Factor analysis; and (c) Multiple linear regression analysis. First, canonical correlational analyses will be reported.

Canonical Correlational Analysis

The primary purpose of canonical correlational analysis is to define or maximize the correlations that exist between two sets of variables. Canonical correlational analysis is generally considered to answer questions concerning the number of ways in which two sets of variables are related, the strengths of the relationship,

and the nature of the relationship (Veldman, 1967). To accomplish the canonical correlational analysis with the data of the study, it was decided to use this statistical technique, first, between the LC and LBDQ sets of variables; second, between the LBDQ and FIRO-B sets; and finally, between the LC and FIRO-B sets. The results will be discussed in that order. It is to be noted that only loadings of + or - .30 and greater are reported in the tables.

Canonical Correlational Analysis: LC and LBDQ Sets for Total Sample

The results of the canonical correlational analysis for 154 respondents when the two sets of variables were LC and LBDQ are listed in Table 18. It is to be noted that two statistically significant canonical variates emerged. The first root (R_c=.23, p=.0007 was highly statistically significant. This root was best defined by Chance (r=.86) and Powerful Others (r=.84) on the LC side and by Reconciliation (r=-.58), Tolerance of Uncertainty (r=-.53), and Role Assumption (r=-.48) on the LBDQ side. The second root (R_c=.18, p=.0051) was also statistically significant. This root was best defined by Internal (r=.92) on the LC side and by Representation (r=.72), Superior Orientation (r=.67), Predictive Accuracy (r=.67), Integration (r=.47), Persuasion (r=.44) and Role Assumption (r=.42) on the LBDQ side.

Table 18

Canonical Correlation--X^2 Tests of
Latent Roots Predictor Variables:
Three LC and 12 LBDQ Scales
154 Respondents
(only statistically significant roots are listed)

	1		2
Roots (3 were extracted)	0.23		0.18
Chi Square	38.72		28.68
D.F.	14.00		12.00
Probability	0.0007[a]		0.0051[b]
100% of Trace was extracted by 3 Roots			
LBDQ	1	LBDQ	2
Reconciliation	-0.58	Representation	0.72
Role Assumption	-0.48	Reconciliation	0.32
Tolerance of Uncertainty	-0.53	Persuasion	0.44
Initiating Structure	0.31	Role Assumption	0.42
		Predictive Accuracy	0.67
		Integration	0.47
		Superior Orientation	0.67
		Initiating Structure	0.33
		Tolerance of Freedom	0.30
		Consideration	0.33
LC		LC	
Powerful Others	0.84	Powerful Others	0.31
Chance	0.86	Internal	0.92

[a]Probability denotes exact level of significance; probability could have been stated as $p<.001$.

[b]Probability denotes exact level of significance; probability could have been stated as $p<.01$.

Summarily, it can be reported that in reference to the total sample of 154 respondents, there were two statistically significant sets of relationships between the LC and LBDQ variables. The strength of each statistically significant relationship was not high. The canonical correlation for the first root was .23. When the root was squared, an R_c^2 of .05 emerged, which accounted for a small common variance of 5%. The canonical correlation for the second root was .18, which yielded an R_c^2 of .03 or 3% common variance: an indication of low association between the two sets of variables. The nature of the relationship for the first root was described by Chance and Powerful Others on the LC side; on the LBDQ side, the nature of the relationship was described by Reconciliation, Tolerance of Uncertainty, and Role Assumption. Note that these three variables were inversely related to the first canonical root. For the second root, the nature of the relationship was on the Internal variable on the LC side; on the LBDQ side, the nature of the relationship was described by Representation, Superior Orientation, Predictive Accuracy, Integration, Persuasion, and Role Assumption. Note that these six LBDQ variables were positively related to the second canonical root.

Canonical Correlational Analysis: LC and LBDQ Sets for Males

The results of the canonical correlational analysis for 106 male respondents when the two sets of variables were LC and LBDQ are listed in Table 19. It is to

Table 19

Canonical Correlation—X^2 Tests of
Latent Roots Predictor Variables:
Three LC and 12 LBDQ Scales
106 Male Respondents
(only statistically significant roots are listed)

	1		1
Roots (3 were extracted)	0.24	D.F.	14.00
Chi Square	27.06	Probability	0.0199[a]
100% of Trace was extracted by 3 Roots			
LBDQ		LC	
Representation	0.53	Powerful Others	0.84
Predictive Accuracy	0.52	Internal	0.42
Integration	0.30	Chance	0.61
Superior Orientation	0.66		
Tolerance of Uncertainty	-0.33		
Initiating Structure	0.35		
Production Emphasis	0.35		

[a]Probability denotes exact level of significance; probability could have been stated as $p.<05$.

be noted that one statistically significant canonical variate emerged. This root (R_c=.24, p=.0199) was statistically significant. This root was best defined by Powerful Others (r=.84) and Chance (r=.61) on the LC side and by Superior Orientation (r=.66), Representation (r=.53), and Predictive Accuracy (r=.52) on the LBDQ side. Two other results are to be noted: (a) The Internal variable on the LC side also loaded on the statistically significant canonical root with an r of .42; and (b) Initiating Structure (r=.35), but not Consideration, on the LBDQ side also loaded on the canonical root.

Summarily, it can reported that in reference to the subsample of 106 male respondents, there was one statistically significant relationship between the LC and LBDQ sets of variables. The strength of the one statistically significant relationship was not high. The canonical correlation for the root was .24. When the root was squared, an R_c^2 of .06 or 6% common variance emerged, which did not account for much of the common variance. This amount indicated a low association between the two sets of variables. The nature of the relationship for the one statistically significant canonical root was described by Powerful Others and Chance on the LC side; on the LBDQ side, the nature of the relationship was described by Superior Orientation, Representation, and Predictive Accuracy. Note that the LBDQ variable of Tolerance of Uncertainty (r=.33)

was inversely related to the one statistically significant canonical root.

Canonical Correlational Analysis: LC and LBDQ Sets for Females

The results of the canonical correlational analysis for 48 female respondents when the two sets of variables were LC and LBDQ are listed in Table 20. It is to be noted that one statistically significant variate emerged. The root (R_c=.60, p=.0016) was highly statistically significant. This root was best defined by all three LC variables as follows: (a) Powerful Others (r=.82); (b) Chance (r=.72); and (c) Internal (r=-.54). Note that Chance followed Powerful Others in strength of loading, and that the Internal variable was inversely related to the canonical variate. On the LBDQ side, the statistically significant canonical root was best described by five variables with strong loadings: (a) Reconciliation (r=-.61); (b) Consideration (r=-.56); (c) Predictive Accuracy (r=-.53); (d) Role Assumption (r=-.51); and (e) Tolerance of Uncertainty (r=-.42). All five LBDQ variables were inversely related to the canonical variate.

Summarily, it can be reported that in reference to the subsample of 48 female respondents, a different set of findings emerged from the findings which described the subsample of 106 male respondents. One specific difference was the much stronger association between the LC and LBDQ sets of variables. Note the high statistically significant

Table 20

Canonical Correlation--X^2 Tests of
Latent Roots Predictor Variables:
Three LC and 12 LBDQ Scales
48 Female Respondents
(only statistically significant roots are listed)

	1		1
Roots (3 were extracted)	0.60	D.F.	14.00
Chi Square	35.73	Probability	0.0016[a]
100% of Trace was extracted by 3 Roots			
LBDQ		LC	
Reconciliation	-0.61	Powerful Others	0.82
Role Assumption	-0.51	Internal	-0.54
Predictive Accuracy	-0.53	Chance	0.72
Tolerance of Uncertainty	-0.42		
Consideration	-0.56		

[a]Probability denotes exact level of significance; probability could have been stated as $p < .01$.

canonical root, R_c=.60. When the root was squared, an R_c^2 of .36 emerged, which accounted for a common variance of 36%. A comparison of this 36% with the 6% common variance for male respondents supported the fact that the strength of the relationship between the LC and LBDQ sets for females was stronger than the statistically significant relationship between the LC and LBDQ sets for males. The findings from the canonical correlational analyses between the LC and LBDQ sets for females demonstrated one of the advantages of multivariate techniques. In the univariate techniques used to analyze the data in the study, the sex of respondents was not a major differentiating point insofar as the LBDQ variables were concerned; however, it is to be noted that the reverse was true in canonical correlational analyses.

Canonical Correlational Analysis: LC and LBDQ Sets for Business Administration Respondents

The results of the canonical correlational analysis for 83 business administration respondents when the two sets of variables were LC and LBDQ are listed in Table 21. It is to be noted that one statistically significant canonical variate emerged. This root (R_c=.32, p=.0121) was statistically significant. This root was best defined by Internal (r=.85) and Powerful Others (r=-.56) on the LC side and by Role Assumption (r=.58), Predictive Accuracy (r=.57), Reconciliation, (r=.55), and Superior Orientation (r=.53) on the LBDQ side.

Summarily, it can be reported that in reference to

Table 21

Canonical Correlation—X^2 Tests of
Latent Roots Predictor Variables:
Three LC and 12 LBDQ Scales
83 Business Administration Respondents
(only statistically significant roots are listed)

	1		1
Roots (3 were extracted)	0.32	D.F.	14.00
Chi Square	28.77	Probability	0.0121[a]

100% of Trace extracted by 3 Roots

LBDQ		LC	
Reconciliation	0.55	Internal	0.85
Persuasion	0.37	Powerful Others	-0.56
Role Assumption	0.58		
Predictive Accuracy	0.57		
Superior Orientation	0.53		

[a]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

the subsample of 83 business administration respondents, there was one statistically significant relationship between the LC and LBDQ sets of variables. The strength of the one statistically significant relationship was not high, although it was higher than the R_c for the 106 male respondents. The canonical correlation for the root was .32. When the root was squared, an R_c^2 of .10 emerged, which accounted for a common variance of 10%. This amount indicated a low association between the LC and LBDQ sets of variables. It is to be noted, however, that this common variance of 10% was larger than the common variance of 5% which emerged for the one statistically significant canonical variate in the case of the total sample of 154 respondents (see Table 18). An R_c^2 of .10 also accounted for more of the variance than did the one statistically significant canonical variate for the subsample of male respondents (see Table 19). The nature of the relationshiip for the one statistically significant canonical root of the 83 business administration respondents was on the Internal variable on the LC side, although Powerful Others (inversely related to the canonical variate) was next in strength of loading. On the LBDQ side, the nature of the relationship was described by Role Assumption, Predictive Accuracy, Reconciliation, and Superior Orientation. Note that these four LBDQ variables were positively related to the one statistically significant canonical root. The LBDQ variable of Persuasion (r=.37) also displayed a moderate loading.

Canonical Correlational Analysis: LC and LBDQ Sets for Educational Administration Respondents

The results of the canonical correlational analysis for 71 educational administration respondents when the two sets of variables were LC and LBDQ are listed in Table 22. It is to be noted that two statistically significant canonical variates emerged. The first root (R_c=.34, p=.0318) was statistically significant. This root was best defined by Internal (r=.88) and Chance (r=.55) on the LC side and by Representation (r=.75), Predictive Accuracy (r=.50), and Superior Orientation (r=.49) on the LBDQ side. The second root (R_c=.29, p=.0447) was statistically significant. This root was best defined by Chance (r=.81) and Powerful Others (r=.78) on the LC side, while the Internal variable (r=.45) also loaded. The second root was best defined by Tolerance of Uncertainty (r=-.67), Consideration (r=-.52), Reconciliation (r=-.48), Role Assumption (r=-.45) and Production Emphasis (r=.41).

Summarily, it can be reported that in reference to the subsample of 71 educational administration respondents, there were two statistically significant relationships between the LC and LBDQ sets of variables. The strength of each statistically significant relationship was not high. The canonical correlation for the first root was .34. When the root was squared, the R_c^2 of .12 or 12% common variance emerged. This amount indicated a low association between the LC and LBDQ sets of variables. The canonical

Table 22

Canonical Correlation--X^2 Tests of
Latent Roots Predictor Variables:
Three LC and 12 LBDQ Scales
71 Educational Administration Respondents
(only statistically significant roots are listed)

	1	2
Roots (3 were extracted)	0.34	0.29
Chi Square	25.43	21.50
D.F.	14.00	12.00
Probability	0.0318[a]	0.0447[b]

100% of Trace was extracted by 3 Roots

LBDQ	1	LBDQ	2
Representation	0.75	Reconciliation	-0.48
Persuasion	0.34	Role Assumption	-0.45
Predictive Accuracy	0.50	Tol of Uncertainty	-0.67
Superior Orientation	0.49	Consideration	-0.52
Initiating Structure	0.36	Production Emphasis	0.41
Consideration	0.34		
LC		LC	
Powerful Others	0.34	Powerful Others	0.78
Internal	0.88	Internal	-0.45
Chance	0.55	Chance	0.81

[a]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

[b]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

correlation for the second root was .29. When the root was squared, an R_c^2 of .08 or 8% common variance emerged. It is to be noted that both 12% and 8% common variances were small. The nature of the relationship for the first root was described by Internal and Chance on the LC side, while Powerful Others displayed a strong loading; on the LBDQ side, the nature of the relationship was described by Representation, Predictive Accuracy, and Superior Orientation. It is to be noted that Initiating Structure (r=.36) and Consideration (r=.34) also displayed strong loadings on the LBDQ side of the first canonical root. All variables on the LC side and LBDQ side were positively related to the first root. For the second root, the nature of the relationship was described by Chance and Powerful Others on the LC side, while the Internal variable displayed an inverse relationship. On the LBDQ side, the nature of the relationship was described by Tolerance of Uncertainty, Consideration, Reconciliation, Role Assumption, and Production Emphasis. Only Production Emphasis displayed a positive relationship. Note that for the 71 educational administration respondents, two statistically significant canonical variates were extracted, whereas only one statistically significant canonical variate was extracted for the 83 business administration respondents.

Canonical Correlational Analysis: FIRO-B and LBDQ Sets for Total Sample

The results of the canonical correlational analysis for 154 respondents when the two sets of variables were FIRO-B and LBDQ are listed in Table 23. It is to be noted that two statistically significant canonical variates emerged. The first root (R_c=.22, p=.0053) was best defined by Expressed Inclusion (r=.82) and Expressed Affection (r=.60) on the FIRO-B side; on the LBDQ side, the first root was best defined by Integration (r=.72), Superior Orientation (r=.68), Predictive Accuracy (r=.59), and Initiating Structure (r=.56). The second root (R_c=.17, p=.0275) was best defined by Expressed Control (r=-.75), Wanted Control (r=.48), and Wanted Affection (r=.48) on the FIRO-B side and by Consideration (r=.58), Predictive Accuracy (r=-.49), and Persuasion (r=-.47) on the LBDQ side.

Summarily, it can be reported that in reference to the total sample of 154 respondents, there were two statistically significant relationships between the FIRO-B and LBDQ sets of variables. The strength of each statistically significant relationship was not high. The canonical correlation for the first root was .22. When the root was squared, the R_c^2 of .05 or 5% common variance emerged, which accounted for little of the variance. The canonical correlation for the second root was .17, which yielded the R_c^2 of .03 or 3% common variance. This amount also indicated a low association between the FIRO-B and LBDQ

Table 23

Canonical Correlation—X^2 Tests of Latent Roots Predictor Variables: Six FIRO-B and 12 LBDQ Scales 154 Respondents (only statistically significant roots are listed)

	1		2
Roots (6 were extracted)	0.22		0.17
Chi Square	36.02		27.31
D.F.	17.00		15.00
Probability	0.0053[a]		0.0275[b]
100% of Trace was extracted by 6 Roots			
LBDQ	1	LBDQ	2
Representation	0.56	Persuasion	-0.47
Persuasion	0.42	Role Assumption	-0.37
Role Assumption	0.41	Predictive Accuracy	-0.49
Predictive Accuracy	0.59	Superior Orientation	-0.32
Integration	0.72	Tol of Uncertainty	0.33
Superior Orientation	0.68	Consideration	0.58
Initiating Structure	0.56	Production Emphasis	-0.43
Consideration	0.40		
Production Emphasis	0.52		
FIRO-B		FIRO-B	
Expressed Inclusion	0.82	Expressed Control	-0.75
Wanted Inclusion	0.44	Wanted Control	0.48
Expressed Affection	0.60	Expressed Affection	0.36
		Wanted Affection	0.48

[a]Probability denotes exact level of significance; probability could have been stated as $p<.01$.

[b]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

sets of variables. The nature of the relationship for the first root was on Expressed Inclusion followed by Expressed Affection and Wanted Inclusion on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Integration, Superior Orientation, Predictive Accuracy, and Initiating Structure on the LBDQ side. The two FIRO-B variables and four LBDQ variables which loaded on the first root were positively related to the root. For the second statistically significant canonical root, the nature of the relationship was described by Expressed Control on the FIRO-B side, while Wanted Control and Wanted Affection displayed strong loadings. On the LBDQ side, the nature of the relationship was described by Consideration, Predictive Accuracy, and Persuasion. It is to be noted that Tolerance of Uncertainty (r=.33) followed Consideration in displaying a strong, positive loading on the LBDQ side. The other listed variables were inversely related to the second canonical variate.

Canonical Correlational Analysis: FIRO-B and LBDQ Sets for Males

The results of the canonical correlational analysis for 106 male respondents when the two sets of variables were FIRO-B and LBDQ are listed in Table 24. It is to be noted that two statistically significant canonical variates emerged. The first root (R_c=.34, p=.0018) was statistically significant. This root was best defined by Expressed Affection (r=.75) and Expressed Inclusion (r=.65) on the

Table 24

Canonical Correlation—X^2 Tests of
Latent Roots Predictor Variables:
Six FIRO-B and 12 LBDQ Scales
106 Male Respondents
(only statistically significant roots are listed)

	1		2
Roots (6 were extracted)	0.34		0.26
Chi Square	39.92		29.17
D.F.	17.00		15.00
Probability	0.0018[a]		0.0163[b]
100% of Trace was extracted by 6 Roots			
LBDQ	1	LBDQ	2
Representation	0.39	Representation	-0.31
Reconciliation	-0.38	Persuasion	-0.50
Tolerance of Uncertainty	-0.36	Predictive Accuracy	-0.46
		Superior Orientation	-0.33
		Tol of Uncertainty	0.40
		Consideration	0.61
		Production Emphasis	-0.53
FIRO-B		FIRO-B	
Expressed Inclusion	0.65	Expressed Control	-0.84
Wanted Inclusion	0.35	Wanted Affection	0.50
Wanted Control	0.56		
Expressed Affection	0.75		

[a]Probability denotes exact level of significance; probability could have been stated as $p<.01$.

[b]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

FIRO-B side. On the LBDQ side, this root was best defined by Representation (r=.39) Reconciliation (r=-.38), and Tolerance of Uncertainty (r=-.36). The second root (R_c=.26, p=.0163) was statistically significant. This root was best defined by Expressed Control (r=-.84) and Wanted Affection (r=.50) on the FIRO-B side. On the LBDQ side, the second root was best defined by Consideration (r=.61), Production Emphasis (r=-.53), and Persuasion (r=-.50). The strength of the first canonical root was moderate (R_c=.34), while the strength of the second canonical root was low (R_c=.26). When the first root was squared, an R_c^2 of .12 emerged. The amount of variance accounted for in this instance (12%) indicated that the strength of the statistically significant relationship between the FIRO-B and LBDQ sets for males was stronger than the statistically significant relationship between the LC and LBDQ sets for the same subsample (the amount of variance accounted for in that instance was 6%). When the second root was squared, the R_c^2 of .07 or 7% common variance emerged. This value of R_c^2 indicated a lower association between the two sets of variables than the first canonical variate. The nature of the relationship for the first root was described by Expressed Affection and Expressed Inclusion on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Representation and Reconciliation. The LBDQ variable of Representation was positively related to the first root; Reconciliation was inversely related to the first root. The

nature of the relationship for the second statistically significant canonical root was described by Expressed Control on the FIRO-B side. It is to be noted that Wanted Affection also displayed a strong loading on the FIRO-B side. On the LBDQ side, the nature of the relationship for the second root was on Consideration, while Production Emphasis and Persuasion both with strong loadings displayed inverse relationships.

Canonical Correlational Analysis: FIRO-B and LBDQ Sets for Females

The results of the canonical correlational analysis for 48 female respondents when the two sets of variables were FIRO-B and LBDQ are listed in Table 25. It is to be noted that two statistically significant canonical variates emerged. The first root (R_c=.62, p=.0052) was statistically significant. This root was best defined by Expressed Inclusion (r=.75) on the FIRO-B side, and by Integration (r=.77), Initiating Structure (r=.77), and Superior Orientation (r=.73) on the LBDQ side. However, on the LBDQ side, the loadings of 10 out of the 12 variables were high, so that is was much easier to define the first root by the two LBDQ variables which did not load highly, namely, Representation (r=.17) and Tolerance of Freedom (r=.30). Note also that Initiating Structure (r=.77) and Consideration (r=.48) loaded highly on the first canonical root. The second root (R_c=.50, p=.0375) was statistically significant. This root was best defined by Expressed

Table 25

Canonical Correlation—X^2 Tests of Latent Roots Predictor Variables: Six FIRO-B and 12 LBDQ Scales 48 Female Respondents (only statistically significant roots are listed)

	1		2
Roots (6 were extracted)	0.62		0.50
Chi Square	36.10		26.19
D.F.	17.00		15.00
Probability	0.0052[a]		0.0375[b]
100% of Trace was extracted by 6 Roots			
LBDQ	1	LBDQ	2
Reconciliation	0.46	Superior Orientation	0.35
Persuasion	0.53	Production Emphasis	-0.42
Role Assumption	0.51		
Predictive Accuracy	0.40		
Integration	0.77		
Superior Orientation	0.73		
Tolerance of Uncertainty	0.43		
Initiating Structure	0.77		
Tolerance of Freedom	0.30		
Consideration	0.48		
Production Emphasis	0.59		
FIRO-B		FIRO-B	
Expressed Inclusion	0.75	Wanted Control	-0.32
Expressed Affection	0.39	Expressed Affection	0.69

Note. Representation had a loading of +0.17.

[a]Probability denotes exact level of significance; probability could have been stated as $p<.01$.

[b]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

Affection (r=.69) on the FIRO-B side, and by Production Emphasis (r=-.42) on the LBDQ side, while Superior Orientation (r=.35) displayed a strong loading.

Summarily, it can be reported that in reference to the subsample of 48 female respondents, there were two statistically significant relationships between the FIRO-B and LBDQ sets of variables. The strength of each relationship was high. The canonical correlation for the first root was .62. When the root was squared, an R_c^2 of .38 emerged or 38% of the common variance was accounted for in this instance. The canonical correlation for the second root was .50. When the root was squared, an R_c^2 of .25 or 25% common variance emerged. Both R_c^2s indicated a strong association between the FIRO-B and LBDQ sets of variables. The nature of the relationship for the first root was described by Expressed Inclusion on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Integration, Initiating Structure, and Superior Orientation. The nature of the relationship for the second canonical root was described by Expressed Affection on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Production Emphasis and Superior Orientation. For the subsample of 48 female respondents, the FIRO-B scales and LBDQ scales on at least two canonical roots did predict one another with respectable predictive power.

Canonical Correlational Analysis: FIRO-B and LBDQ Sets for Business Administration Respondents

The results of the canonical correlational analysis for 83 business administration respondents when the two sets of variables were FIRO-B and LBDQ are listed in Table 26. It is to be noted that two statistically significant canonical variates emerged. The first root (R_c=.46, p=.0005) was statistically significant. This root was best defined by Expressed Inclusion (r=.68) and Wanted Inclusion (r=.57) on the FIRO-B side, by Consideration (r=.59) and Tolerance of Uncertainty (r=0.42) on the LBDQ side. The second root (R_c=.30, p=.0422) was statistically significant. This root was best defined by Wanted Inclusion (r=.73) and Expressed Control (r=.71) and Production Emphasis (r=.59) on the LDBQ side.

Summarily, it can be reported that in reference to the subsample of 83 business administration respondents, there were two statistically significant relationships between the FIRO-B and LBDQ sets of variables. The strength of the first relationship was high, while that of the second relationship was low. The canonical correlation for the first root was .46. When the root was squared, an R_c^2 of .21 emerged. The canonical correlation for the second root was .30. When the root was squared, and R_c^2 of .09 emerged. While the amount of 21% common variance for the first root indicated a strong association between the FIRO-B and LBDQ sets of variables, the 9% common variance for the second

Table 26

Canonical Correlation—X^2 Tests of
Latent Roots Predictor Variables:
Six FIRO-B and 12 LBDQ Scales
83 Business Administration Respondents
(only statistically significant roots are listed)

	1		2
Roots (6 were extracted)	0.46		0.30
Chi Square	45.05		25.75
D.F.	17.00		15.00
Probability	0.0005[a]		0.0422[b]
100% of Trace was extracted by 6 Roots			
LBDQ	1	LBDQ	2
Reconciliation	0.34	Representation	0.51
Integration	0.39	Reconciliation	0.32
Tolerance of Uncertainty	0.42	Persuasion	0.52
Consideration	0.59	Predictive Accuracy	0.70
		Integration	0.38
		Superior Orientation	0.46
		Production Emphasis	0.59
FIRO-B		FIRO-B	
Expressed Inclusion	0.68	Expressed Inclusion	0.34
Wanted Inclusion	0.57	Wanted Inclusion	0.73
Expressed Control	-0.47	Expressed Control	0.71
Expressed Affection	0.34		

[a]Probability denotes exact level of significance: probability could have been stated as $p<.001$.

[b]Probability denotes exact level of significance: probability could have been stated as $p<.05$.

root indicated a lower association between the two sets of variables. The nature of the relationship for the first root was described by Expressed Inclusion and Wanted Inclusion on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Consideration and Tolerance of Uncertainty. The nature of the relationship for the second statistically significant root was described by Wanted Inclusion and Expressed Control on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Predictive Accuracy and Production Emphasis. Inclusion on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Consideration and Tolerance of Uncertainty. The nature of the relationship for the second statistically significant root was described by Wanted Inclusion and Expressed Control on the FIRO-B side; on the LBDQ side, the nature of the relationship was described by Predictive Accuracy and Production Emphasis.

Canonical Correlational Analysis: FIRO-B and LBDQ Sets for Educational Administrative Respondents

The results of the canonical correlational analysis for 71 educational administration respondents when the two sets of variables were FIRO-B and LBDQ are listed in Table 27. It is to be noted that only one statistically significant canonical variate emerged. The one root (R_c=.38, p=.0330) was statistically significant. This root was best defined by Expressed Inclusion (r=.80) and Expressed

Table 27

Canonical Correlation—X^2 Tests of
Latent Roots Predictor Variables:
Six FIRO-B and 12 LBDQ Scales
71 Educational Administration Respondents
(only statistically significant roots are listed)

	1		1
Roots (6 were extracted)	0.38	D.F.	17.00
Chi Square	29.35	Probability	0.0330[a]
100% of Trace was extracted by 6 Roots			
LBDQ		FIRO-B	
Role Assumption	0.40	Expressed Inclusion	0.80
Predictive Accuracy	0.30	Expressed Affection	0.58
Integration	0.74	Wanted Affection	0.42
Superior Orientation	0.47		
Initiating Structure	0.38		
Consideration	0.32		

[a]Probability denotes exact level of significance; probability could have been stated as $p<.05$.

Affection (r=.58) on the FIRO-B side, and by Integration (r=.74) and Superior Orientation (r=.47) on the LBDQ side.

Summarily, it can be reported that in reference to the subsample of 71 educational administration respondents, there was one statistically significant relationship between the FIRO-B and LBDQ sets of variables. The strength of the relationship for the one canonical root was moderate. The canonical correlation for the one root was .38. When the root was squared, an R_c^2 of .14 emerged. The amount of variance accounted for in this instance (14%) indicated a moderate association between the two sets of variables. The nature of the relationship for the one root was described by Expressed Inclusion on the FIRO-B side. It is to be noted that Expressed Affection and Wanted Affection displayed strong loadings on the canonical root. On the LBDQ side, the nature of the relationship was described by Integration and Superior Orientation.

Canonical Correlational Analysis: LC and FIRO-B Sets

The results of the canonical correlational analysis when the two sets of variables were LC and FIRO-B yielded no statistically significant canonical roots. Summarily, it can be reported that in reference to the total sample of 154 respondents and the four subsamples of males, females, business administration respondents, and educational administration respondents, there were no statistically significant relationships between the two sets of variables.

Canonical Correlational Analyses: Summary of Results

The data in the study were analyzed by the multivariate technique of canonical correlational analysis so as to maximize the correlations that existed between two sets of variables, specifically, the LC and LBDQ sets, FIRO-B and LBDQ sets, and LC and FIRO-B sets. The analyses were conducted for the total sample of 154 respondents and the four subsamples of (a) 106 male respondents; (b) 48 female respondents; (c) 83 business administration respondents; and (d) 71 educational administration repondents.

With the exceptions of the statistically significant canonical roots which emerged for the female respondents, the remaining statistically significant canonical roots indicated that the results of the canonical correlational analyses were minimal. Thus, the following findings can be reported: (a) Specialization of respondents, Business Administration or Educational Administration, did not significantly affect the relationships of the sets of variables; and (b) Sex of respondents significantly affected the relationships of the sets of variables only in the case of female respondents.

Factor Analysis

Since the 12 LBDQ scale scores were highly intercorrelated (see Appendix B), it was decided to use a procedure described by Cattell & Scheier (1961). Cattell is one of the leading innovators and protagonists of the technique of factor analysis; his personality theoretical

system was constructed by factor analysis, specifically "higher-order" analysis. Cattell & Scheier (1961, p. 45) have defined second-order factors as follows: "Second-order factors are broader dimensions which thus often correspond more closely to common. . .evaluation and permit more facile discussion in terms of fewer clinical categories. Such second-order factors represent more massive organization. . .than is revealed in first-order factors. Although being more general, they cannot account for as much of the variance of specific instances of behavior." Bennett & Bowers (1976) cited Cattell's (1963, 1967) studies on intelligence in which four first-order and two second-order factors were extracted as examples of the utilization of factor analysis. Although Cattell & Scheier (1961) were writing about personality factors, the analogy between personality factors and leadership factors seems self-evident. As previously indicated since there were many statistically significant intercorrelations between the LBDQ scales, it was considered appropriate to utilize a second-order factor analysis to obtain the "more massive organization" of leader behavior than was revealed in the first-order LBDQ scale scores. The results of the factor analysis are listed in Table 28.

In naming the three second-order factors, the following two steps were observed: (a) The loadings of each of the 12 LBDQ scales on each of the factors were utilized; and (b) Stogdill's (1963) leadership dimensions of System-

Table 28

Second-Order Factor Matrix
Varimax Loadings for 12 LBDQ Scales
154 Respondents
(only loadings greater than + or - 0.50 are listed)

	COLUMN/12 LBDQ SCALES											
	1	2	3	4	5	6	7	8	9	10	11	12
Factor 1		0.71		0.85	0.68	0.72		0.81		0.79		
Factor 2							0.57				0.81	0.84
Factor 3	0.79		-0.65						-0.54			

Note. 12 LBDQ Scale Names: 1, Representation; 2, Reconciliation; 3, Persuasion; 4, Role Assumption; 5, Predictive Accuracy; 6, Integration; 7, Superior Orientation; 8, Tolerance of Uncertainty; 9, Initiating Structure; 10, Tolerance of Freedom; 11, Consideration; 12, Production Emphasis.

3 Factor Names: 1, Person-Oriented Dimension; 2, Person-System Oriented Dimension; 3, System-Oriented Dimension.

Stogdill's (1963) Two Dimensions of LBDQ Scales:

System-Oriented Dimension: 1, Representation; 3, Persuasion; 4, Role Assumption; 7, Superior Orientation; 9, Initiating Structure; 12, Production Emphasis.

Person-Oriented Dimension: 2, Reconciliation; 5, Predictive Accuracy; 6, Integration; 8, Tolerance of Uncertainty; 10, Tolerance of Freedom; 11, Consideration.

Oriented and Person-Oriented were used to broadly define the original 12 LBDQ scales. Thus, Factor 1 can best be described by the loadings of six LBDQ scales: (a) Role Assumption, 0.85; (b) Tolerance of Uncertainty, 0.81; (c) Tolerance of Freedom, 0.79; (d) Integration, 0.72; (e) Reconciliation, 0.71; and (f) Predictive Accuracy, 0.68. Since five out of six LBDQ scales (Role Assumption excepted) which loaded on Factor 1 belonged to Stogdill's (1963) Person-Oriented leadership dimension, the first second-order factor (Factor 1) was named the Person-Oriented Dimension. Factor 2 can best be described by the loadings of three LBDQ scales: (a) Production Emphasis, 0.84; (b) Consideration. 0.81; and (c) Superior Orientation, 0.57. Since Production Emphasis, a System-Oriented scale, and Consideration, a Person-Oriented scale, had the highest loadings on Factor 2, this second-order factor was named the Person-System Oriented Dimension. Factor 3 can best be described by the loadings of three LBDQ scales: (a) Representation, 0.79; (b) Persuasion, -0.65; and (c) Initiating Structure, -0.54. Since the three LBDQ scales belonged to Stogdill's (1963) System-Oriented leadership dimension, the third second-order factor (Factor 3) was named the System-Oriented Dimension (see Table 28).

Multiple Linear Regression Analyses

According to Veldman (1967, p. 294), multiple correlation is "a special case of the more general canonical correlation model, with multiple predictors on one side and

a single criterion on the other." The analytic procedure determines a set of weights for the predictor variables (X_1) which will yield a composite variable (Y) that correlates maximally with the criterion variable (Y). Multiple linear regression analysis may be considered a general model for testing any hypothesis cast in the form of predicting a criterion from particular sources of information.

Stogdill (1963) has maintained that six of the 12 LBDQ scale scores can be subsumed under the Person-Oriented Dimension, while the remaining six LBDQ scale scores are logically part of the System-Oriented Dimension, (see Table 28). Stogdill's (1963) classification maintained that the leader behavior of Initiating Structure was the most representative of the System-Oriented Dimension, while the leader behavior of Consideraton was the most representative of the Person-Oriented Dimension.

Multiple linear regression analyses using the SPSS computer program were accomplished using Initiating Structure and Consideration as dependent or criterion variables, while LC Powerful Others, LC Internal, LC Chance, FIRO-B Expressed Inclusion, FIRO-B Wanted Inclusion, FIRO-B Expressed Control, FIRO-B Wanted Control, FIRO-B Expressed Affection, and FIRO-B Wanted Affection were independent or predictor variables. The results of these analyses which were conducted for the total sample of 154 respondents are listed in Tables 29 and 30. The items of greatest interest in these analyses were the low multiple Rs (0.34-Initiating

Table 29

Multiple Linear Regression Analysis
Criterion Variable: Initiating Structure
Predictor Variables: LC & FIRO-B Scales
154 Respondents

Predictor Variables	Multiple R	R Square	b[a] coefficient	Beta[b] coefficient
Expressed Inclusion	0.20	0.04	0.48	0.24
Chance	0.26	0.07	0.07	0.10
Wanted Control	0.31	0.09	-0.36	-0.17
Powerful Others	0.32	0.10	0.10	0.13
Wanted Affection	0.33*	0.11	-0.15	-0.08
Expressed Control	0.33*	0.11	-0.09	-0.06
Internal	0.34*	0.11	0.06	0.05
Expressed Affection	0.34*	0.11	0.09	0.05
Wanted Inclusion	0.34*	0.12	-0.04	-0.03
(Constant)[c] coefficient			34.76	

[a] b coefficient refers to the extent to which each variable is utilized in the overall regression equation, but it is scaled in terms of raw scores.

[b] Beta coefficient refers to the extent to which each variable is utilized in the overall regression equation.

[c] (Constant) coefficient is part of the multiple regression equation and ensures that the mean of the predicted values coincides with the mean of the obtained values.

* $p < .05$.

Table 30

Multiple Linear Regression Analysis
Criterion Variable: Consideration
Predictor Variables: LC & FIRO-B Scales
154 Respondents

Predictor Variables	Multiple R	R Square	b coefficient	Beta coefficient
Wanted Inclusion	0.21	0.04	0.22	0.18
Expressed Control	0.31	0.10	-0.37	-0.25
Internal	0.35*	0.12	0.16	0.15
Expressed Inclusion	0.36*	0.13	0.16	0.09
Chance	0.37**	0.14	-0.04	-0.05
Expressed Affection	0.37**	0.14	0.10	0.06
Powerful Others	0.37**	0.14	-0.03	-0.04
Wanted Control	0.37**	0.14	0.03	0.01
Wanted Affection	0.37**	0.14	0.02	0.01
(Constant) coefficient			35.97	

*$p<.05$

*$P<.01$

Structure, 0.37-Consideration) and R squares (0.12-Initiating Structure, 0.14-Consideration). The multiple Rs indicated the strength of the three LC variables and six FIRO-B variables as they related to Initiating Structure scores and Consideration scores. The R squares indicated the percentage of contribution the three LC variables and six FIRO-B variables made to explaining variance in the 154 respondents. The variances in Initiating Structure scores and Consideration scores for the 154 respondents were only minimally accounted for by the three LC variables and six FIRO-B variables in the regression equation. The stepwise regression analysis of Initiating Structure scores showed that five variables (Wanted Affection, Expressed Control, Internal, Expressed Affection, and Wanted Inclusion) contributed significantly ($p<.05$) to the variance in Initiating Structure scores for 154 respondents. Although Expressed Inclusion was selected first by the computer as the best predictor of Initiating Structure, when all three LC variables and six FIRO-B variables had entered the regression equation, Expressed Inclusion was not statistically significant.

The stepwise regression analysis of Consideration scores showed that seven variables contributed significantly to the variance in Consideration scores for the 154 respondents: (a) The Internal and Expressed Inclusion variables were statistically significant at the .05 alpha level; and (b) The variables of Chance, Expressed Affection,

Powerful Others, Wanted Control, and Wanted Affection were statistically significant at the .01 alpha level. Although Wanted Inclusion and Expressed Control were selected first and second, respectively, by the computer as the best predictors of Consideration, when all three LC variables and six FIRO-B variables had entered the regression equation, neither variable was statistically significant.

Summarily, it can be reported that the findings concerning Initiating Structure and Consideration which emerged from multiple linear regression analyses were disappointing. Thus, it was decided to utilize the LBDQ second-order factor scores as criterion variables with the three LC scores and six FIRO-B scores as predictor variables.

The results of the multiple linear regression analyses in which Factors 1, 2, and 3 were criterion variables are listed in Tables 31, 32, and 33, respectively, and are explained as follows:

1. When Factor 1, identified as the Person-Oriented Dimension, was the criterion variable, a moderate multiple R (0.47) and a moderate R square (0.22) emerged. The stated multiple R indicated the strength of the three LC variables and six FIRO-B variables as they related to the Person-Oriented Dimension scores. The stated R square indicated the percentage of contribution the three LC variables and six FIRO-B variables made to explaining variance in the 154 respondents. The variance in Factor 1 scores for the 154

Table 31

Multiple Linear Regression Analysis
Criterion Variable: Factor 1, Person-Oriented Dimension
Predictor Variables: LC & FIRO-B Scales
154 Respondents

Predictor Variables	Multiple R	R Square	b coefficient	Beta coefficient
Internal	0.26	0.07	0.55	0.20
Expressed Inclusion	0.34*	0.12	1.30	0.27
Wanted Control	0.40**	0.16	-1.14	-0.22
Chance	0.44**	0.19	0.22	0.12
Wanted Affection	0.45**	0.20	-0.49	-0.12
Powerful Others	0.46**	0.21	0.21	0.11
Expressed Control	0.46**	0.22	0.23	0.06
Expressed Affection	0.47**	0.22	0.11	0.03
Wanted Inclusion	0.47**	0.22	-0.03	-0.01
(Constant) coefficient			22.46	

*$p<.05$

**$p<.01$

Table 32

Multiple Linear Regression Analysis
Criterion Variable: Factor 2, Person-System Oriented Dimension
Predictor Variables: LC & FIRO-B Scales
154 Respondents

Predictor Variables	Multiple R	R Square	b coefficient	Beta coefficient
Wanted Inclusion	0.22	0.05	0.64	0.21
Expressed Control	0.30	0.09	-0.78	-0.21
Internal	0.32	0.10	0.32	0.12
Expressed Affection	0.34*	0.11	0.39	0.09
Wanted Control	0.34*	0.12	0.30	0.06
Chance	0.34*	0.12	0.13	0.07
Powerful Others	0.35*	0.12	-0.09	-0.05
Wanted Affection	0.35*	0.12	0.61	0.01
(Constant) coefficient			37.52	

Note. The FIRO-B scale of Expressed Inclusion was not included in the regression equation of the Factor 2 scale.

*$p < .05$

Table 33

Multiple Linear Regression Analysis
Criterion Variable: Factor 3, System-Oriented Dimension
Predictor Variables: LC & FIRO-B Scales
154 Respondents

Predictor Variables	Multiple R	R Square	b coefficient	Beta coefficient
Chance	0.79***	0.62	1.38	0.73
Wanted Control	0.80***	0.64	0.71	0.14
Powerful Others	0.80***	0.65	0.17	0.09
Expressed Control	0.81***	0.65	0.32	0.09
Wanted Inclusion	0.81***	0.66	-0.19	-0.06
Internal	0.81***	0.66	-0.13	-0.04
Expressed Affection	0.81***	0.66	0.16	0.04
Wanted Affection	0.81***	0.66	-0.15	-0.03
Expressed Inclusion	0.81***	0.66	0.11	0.02
(Constant) coefficient			21.24	

*** $p < .001$

respondents were only moderately accounted for by the three LC variables and six FIRO-B variables in the regression equation. It is to be noted that the three LC variables and six FIRO-B variables accounted for 22% of the variance in Factor 1 scores, while only 12% and 14% of the variances in Initiating Structure scores and Consideration scores, respectively, were accounted for by the same variables. Thus, it can be reported that the three LC variables and six FIRO-B variables were slightly better predictors of Person-Oriented Dimension scores than they were of Initiating Structure scores and Consideration scores. The stepwise regression analysis of Factor 1 scores showed that eight variables contributed significantly to the variance in Factor 1 scores for the 154 respondents: (a) The Expressed Inclusion variable was statistically significant at the .05 alpha level; and (b) The variables of Wanted Control, Chance, Wanted Affection, Powerful Others, Expressed Control, Expressed Affection, and Wanted Inclusion were statistically significant at the .01 alpha level. Although the LC Internal variable was selected first by the computer as the best predictor of Factor 1 or the Person-Oriented Dimension scores, when all three LC variables and six FIRO-B variables had entered the regression equation, the LC Internal variable was not statistically significant.

2. When Factor 2, identified as the Person-System Dimension, was the criterion variable, a low multiple R (0.35) and a low R square (0.12) emerged. The stated

multiple R indicated the strength of the three LC variables and five FIRO-B variables (the FIRO-B variable of Expressed Inclusion did not contribute anything whatsoever to the prediction of Factor 2 scores, so it was not included in the regression equation) as they related to the Person-System Oriented Dimension scores. It is to be noted that the multiple R (0.35) which emerged for Factor 2 was comparable to the multiple R (0.34) and multiple R (0.37) which emerged for Initiating Structure and Consideration, respectively. The stated R square indicated the percentage of contribution the three LC variables and five FIRO-B variables made to explaining variance in the 154 respondents. The variance in Factor 2 scores for the 154 respondents were only minimally accounted for by the three LC variables and five FIRO-B variables in the regression equation. It is to be noted that the 12% variance in Factor 2 scores was comparable to the 12% and 14% variances in Initiating Structure scores and Consideration scores, respectively (see Tables 29 & 30). The stepwise regression analysis of Factor 2 scores showed that five variables (Expressed Affection, Wanted Control, Chance, Powerful Others, and Wanted Affection) contributed significantly ($p<.05$) to the variance in Factor 2 scores for 154 respondents. Although Wanted Inclusion was selected first by the computer as the best predictor of Factor 2 scores, when the three LC variables and five FIRO variables had entered the regression equation, Wanted Inclusion was not statistically significant.

3. When Factor 3, identified as the System-Oriented Dimension, was the criterion variable, a high multiple R (0.81) and a high R square (0.66) emerged. The stated multiple R indicated the remarkable predictive power of the three LC variables and six FIRO-B variables as they related to the System-Oriented Dimension scores. The stated R square indicated the percentage of contribution the three LC variables and six FIRO-B variables made to explaining variance in the 154 respondents. The variance in Factor 3 scores for the 154 respondents were highly accounted for by the three LC variables and six FIRO-B variables in the regression equation. It is to be noted that the three LC variables and six FIRO-B variables accounted for 66% of the variance in Factor 3 scores. It can be reported that the three LC variables and six FIRO-B variables in Factor 3 accounted for 44% more of the variance in Factor 3 than in Factor 1; the stated variables accounted for 54% more of the variance in Factor 3 than in Factor 2. Thus, the three LC variables and six FIRO-B variables were remarkably powerful predictors of Factor 3 or System-Oriented Dimension scores, but a similar statement cannot be made vis-a-vis the stated variables and Factor 1 nor the stated variables and Factor 2. The stepwise regression analysis of Factor 3 scores showed that nine variables (Chance, Wanted Control, Powerful Others, Expressed Control, Wanted Inclusion, Internal, Expressed Affection, Wanted Affection, and Expressed Inclusion) contributed significantly ($p<.001$) to the

variance in Factor 3 scores for 154 respondents. Beginning with Chance (which was selected first by the computer as the best predictor of Factor 3 scores), all the variables which entered the regression equation were highly statistically significant.

Summary of Data Analyses

The data generated by the study were analyzed in three stages. The first stage consisted of analyzing the demographic characteristics of two samples (business administration graduate students and educational administration graduate students) totaling 154 respondents. The second stage of data analyses was the univariate statistical analyses which consisted of the following: (a) Pearson product moment correlational analyses; (b) Single classification analysis of variance; and (c) Analysis of variance, median split. The third stage of data analyses were the multivariate statistical analyses which consisted of the the following: (a) Canonical correlational analysis; (b) Factor analysis; and (c) Multiple linear regression analysis. It is to be noted that various statistical analyses were used in the study because of the considerable data which were amassed. There were data on three LC scale scores, 12 LDBQ scales scores, and six FIRO-B scale scores for 154 respondents for two populations of graduate students.

The study focused on 10 scales or variables, namely, three LC scales, five LBDQ-XII scales, and two FIRO-B scales. The statistically significant findings involving correlational analyses showed the following: (a) The LC Internal scale was the best predictor of leader behavior for the 154 respondents and the 83 business administration respondents; (b) The Powerful Others and Chance scales were only minimally related to the 12 LBDQ scales for the 154 respondents; (c) The LBDQ-XII scale of Tolerance of Uncertainty showed the strongest, inverse relationship to two of the three LC scales, namely, Powerful Others and Chance; (d) The LBDQ-XII scale of Consideration showed the strongest, positive relationship to the LC Internal scale for the 154 respondents and the 71 educational administration respondents; (e) There were statistically significant (inverse) correlations between Tolerance of Uncertainty, Initiating Structure, and Wanted Control for the 71 educational administration respondents; (f) The FIRO-B scale of Wanted Control was the best predictor of leader behavior insofar as the 71 educational administration respondents were concerned; and (g) There were statistically significant (positive) correlations between LC Powerful Others, LC Chance, and FIRO-B Wanted Control for the 83 business administration respondents.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary of the Study

The study was conducted because the investigator observed that in the literature of leadership research (House & Baetz, 1979), as well as in the literature of locus of control research (Lefcourt, 1976), few references exist on relationships between leader behaviors and loci of control. Thus, the study was concerned primarily with analyzing the relationships between the theoretical constructs of leader behavior and locus of control. Additionally, the relationships between (a) leader behavior and interpersonal behavior and (b) locus of control and interpersonal behavior were analyzed.

The three theoretical constructs in the study were operationalized as follows: (a) Leader behavior was measured by the Leader Behavior Description Questionnaire-Form XII (Stogdill, 1963), which produced data on 12 dimensions of leader behavior; (b) Locus of control was measured by the Multidimensional Locus of Control Scale (Levenson, 1973), which produced data on three perceptions of personal control; (c) Interpersonal behavior was measured

by the Fundamental Interpersonal Relations Orientation-Behavior (Schutz, 1977), which produced data on six categories of interpersonal behavior. Data were obtained for a total of 21 variables. Since the null hypotheses that were rejected or not rejected have been detailed in Chapter 4, they will not be reiterated in this summary.

The respondents in the study were 154 graduate students enrolled at the University of Oklahoma during the spring semester of 1980. When the sample was identified by area of specialization and sex of respondents, the subsamples were as follows: (a) 83 business administration graduate students; (b) 71 educational administration graduate students; (c) 48 female graduate students; and (d) 106 male graduate students. A variety of statistical techiques were utilized in analyzing the data, but these have been described in Chapter 4 and are not specified in this summary.

A number of major psychometric questions arose during the data analyses. The term "psychometric" refers not to statistical analyses but rather to the issue of the reliability and validity of the major instruments used in the study. No comment is warranted about Schutz's (1977) FIRO-B Scales, since this instrument is used widely for different types of research and has been refined. Important findings, however, regarding Levenson's (1973) Multidimensional Locus of Control Scale as well as

Stogdill's (1963) LBDQ-XII measures of leadership should be emphasized.

The LBDQ with its 12 scales can hardly be described as factorially pure. The intercorrelations among the scales were such that they obfuscated certain of the findings. Although Stogdill's 12 leader behavior scales were the result of factor-analytic techniques (Stogdill, Goode, & Day, 1962, 1963a, 1963b, 1964), the data in the study did not replicate the claim that there are two major categories of leadership behaviors or styles, namely, Initiating Structure and Consideration. Stogdill's (1963) Initiating Structure and Consideration did not emerge on close analysis. These findings will not be amplified in this summary, since they have already been discussed in Chapter 4. Suffice it to say that regarding Stogdill's (1963) LBDQ-XII, it was found necessary to do a second-order factor analysis, so as to provide meaning to the quantities of Pearson r's and F ratios yielded by 12 leader behavior scales.

With regard to locus of control, it is believed important to emphasize that Levenson's (1973) modification of Rotter's (1966) I-E Scales has certain advantages, i.e., it uses the Likert scale. The statistical analyses in the study, however, indicated that probably Rotter was correct when he stated that there were two major dimensions of locus of control, namely, Internal and External control. This statement is based on the fact that a high correlation was

found between Powerful Others and Chance. Thus, the data in the study does indicate that Internal control appears to be orthogonal to Powerful Others and Chance.

Conclusions of the Study

The initial, central research question investigated in the study may be phrased as follows: Are five of Stogdill's (1963) LBDQ-XII scale scores related significantly to Levenson's (1973) three LC scale scores? The five leader behavior scale scores highlighted in the study were Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis.

Stogdill has maintained on the basis of his data and his experience in the teaching of leadership that Tolerance of Uncertainty represents an important leader behavior dimension. The data in the study, however, indicated that Stogdill's hypothesis in this connection was not confirmed. The data in the study showed inverse relationships between Powerful Others and Tolerance of Uncertainty for business administration respondents and educational administration respondents; there was an inverse relationship between Chance and Tolerance of Uncertainty for educational administration respondents only. In the literature of leadership, Tolerance of Uncertainty is not, as far as the investigator can ascertain, a salient characteristic of leadership. In the whole realm of personality theory,

Tolerance of Uncertainty (which is highly if only semantically related to tolerance of ambiguity) is considered to be a characteristic of stable, mature individuals as opposed to individuals who demand environmental structure with specific directions for their work in life. Pertinent to this conclusion also and related to personality theory is the issue of deferment of gratification. Certainly in the personality theory research, deferment of gratification and tolerance of uncertainty are positively related.

The data in the study did not confirm support for another one of Stogdill's hypotheses, namely the essential importance of Initiating Structure as a major leader behavior dimension. It is to be noted that careful perusal of Chapter 4 will show that there were no statistically significant relationships between Initiating Structure and locus of control variables for either business administration respondents or educational administration respondents. Neither was Initiating Structure related to the FIRO-B scale scores; the two exceptions were the positive relationship between Initiating Structure and Expressed Inclusion for business administration respondents and the inverse relationship between Initiating Structure and Wanted Control for educational administration respondents. Thus, it was found that Initiating Structure was not related to the LC variables; and its relationship with the FIRO-B scale scores was virtually none. It is

necessary to address the discrepancies between these findings and those previously reported. Halpin (1957) and Stogdill (1963, 1974) believed that Initiating Structure was a fundamental leader behavior dimension. The fact that the data in the study did not support either Halpin's or Stogdill's contention may be explained in a number of ways. First, Halpin did not use the identical application of Initiating Structure as did Stogdill. Second, it is a truism in psychology that when experts or theory makes a prediction and the prediction is not supported, then there are two explanations: (a) The application of the concept was not adequate; and (b) The microtheory of both Halpin and Stogdill's perception of Initiating Structure as one of the two basic dimensions of leader behavior was not supported. Note that the investigator has avoided the use of words such as incorrect or untrue, since it is acknowledged that a theory is neither true nor false, good nor bad, but heuristic or nonheuristic.

Relative to Initiating Structure, it must be acknowledged that the investigator's original prediction (see Chapter 1, p. 5) that leaders who demonstrate the characteristics of Initiating Structure logically seek their loci of control within themselves (Internal Control) was not supported by the data in the study. It must be emphasized in this connection that the data in the study did not indicate whether the lack of support was attributable to the

application of Initiating Structure or the fact that the theory is not heuristic.

Special attention should be given to the finding that educational administration respondents perceived the characteristics of Consideration (a leader regards the comfort, well-being, status, and contributions of followers) to be compatible or consistent with the characteristics of Internal control (a leader perceives events as consequences of one's own behavior). The positive relationship involving Consideration and Internal control supports the general description of educational administrators, namely, that they are engaged in a fundamentally people and/or service-oriented profession whose first priority is to provide for human needs. The strength of the positive relationship between Consideration and Internal control for educational administrators was so strong that the relationship manifested itself when the two subsamples were combined into the total sample. With caution, the conclusion can be made that the 154 respondents as a whole perceived the characteristics of Consideration to be compatible or consistent with the characteristics of Internal control.

The study supports Halpin and Stogdill's hypothesis that Consideration is a major leader behavior dimension. In the opinion of the investigator, however, it cannot be stated that Consideration is one of the two basic dimensions of leader behavior. This conclusion is based on the fact that when Stogdill's (1963) 12 LBDQ scale scores were

factor-analyzed, there emerged three factors: (a) Factor 1 appeared to be Consideration; (b) Factor 2 appeared to be a conglomerate or mixture of Initiating Structure and Consideration; and (c) Factor 3 appeared to be Initiating Structure. It seems that to acknowledge that there could be a combination or conglomerate is of considerable theoretical importance, since, to take an analogy from psychology, the situational aspects of any problem are always considered in the concept of overdetermination of human behavior. Thus, it can be stated that, perhaps, there are not two basic dimensions of leader behavior, but possibly three and even more dimensions. This latter conclusion, however, cannot be supported by the data in the study.

Relative to Consideration, it must be acknowledged that the investigator's original prediction (see Chapter 1, p. 5) that leaders who demonstrate the characteristics of Consideration logically seek their loci of control through others (External or Powerful Others control) was not supported by the data in the study. On the contrary, the study indicated that Consideration and Internal control rather than Powerful Others were related. The investigator will not repeat some of the findings from Chapter 4, particularly the differentiae between leader behaviors in business administration respondents and educational administration respondents. A reasonable, although speculative, interpretation of the differences between the two groups of respondents may be that the findings support

the general description of the business administration profession, namely, that they are engaged in a profit-motivated profession.

There are a number of findings which are not congruent with previous research. It would be pointless to specify these particulars, but the investigator should like to refer to Halpin's (1957) research with B-29 aircraft commanders. Halpin's results indicated that aircraft commanders perceived emphasis on production to be a requisite for military strength. This particular finding was not supported by the data in the study. It must be emphasized, however, that aircraft commanders cannot easily be likened to business administrators.

Based on other findings in the study (which have been described in Chapter 4), a number of additional conclusions are appropriate for the relationship between certain LBDQ-XII scale scores and the three LC scale scores. It must be acknowledged that many of the respondents had not had any leadership experience, but were in preparation for leadership positions in the future. The data in the study support the notion, for example, that business administration respondents either had not yet entered the profession or marketplace or if they were already leaders they had not yet achieved the status of "spokespersons" for their organizations or the profession. The educational administration respondents, on the other hand, perceived themselves as "the spokespersons" of their organizations.

This conclusion is based on the positive relationship between Representation and Internal control for this particular subsample.

It was expected that business administration respondents and educational administration respondents would differ on a number of leader behavior dimensions. The investigator will not provide a basis for this conclusion in this section, but interested readers are referred to Chapter 4. There is one important difference, however, between the two groups of respondents which does need an explanation. The difference relates to the association between Reconciliation and Internal control. Summarily, business administration respondents perceived themselves as having the capacity to carry out the tasks related to problem solving and/or resolving conflicts in an organization to a significantly greater extent than did educational administration respondents.

It seems that the leadership styles espoused by business administration respondents and educational administration respondents in the study differed. In some instances, the differences were remarkable. Whereas business administration respondents were found to be more internally-oriented, especially with regard to the leadership function of Reconciliation, educational administration respondents perceived the characteristics of Reconciliation to be incompatible or inconsistent with their own leadership styles.

It is imperative that the preceding paragraph be amplified to some extent since, in the opinion of the investigator, this is one of the major conclusions of the study. At the risk of phrasing the differences between the two leadership styles in value laden terms, educational administration respondents were more susceptible to a professional lifestyle orientation in which Powerful Others and Chance are crucial dynamics. To use clichés, it may be concluded that educational administration respondents have adopted a modus vivendi in which Powerful Others and Chance are incorporated in their affective and cognitive systems.

In simple language, the preceding paragraph offers the hypothesis that educational administration leaders can, by virtue of their professional life space, i.e., the demands made on them by their phenomenal worlds, involve Powerful Others. Explicitly, educational administrators are answerable to communities via school boards. In a real sense, educational administrators are answerable to a faculty, who as a group constitute Powerful Others; they are also answerable to students. It seems to the investigator that to expect an educational administrator to espouse the leader behavior of Initiating Structure would de facto involve an educational administrator's removal from the leadership position, since schools are not simply controlled by one board of "powerful others," but by a variety of groups including faculty, staff, students, and alumni. Finally, although this may in a sense be reiterative, a

major conclusion emerging from the data in the study is that Stogdill's (1963) LBDQ-XII Scales require additional factor analytic techniques. (It is possible that this point belongs in "Recommendations for Future Research," but it is difficult to separate substantive issues from methodological issues).

Based on other findings in the study (which have been described in Chapter 4), a number of conclusions are appropriate for the relationship between certain LBDQ-XII scale scores and the six FIRO-B scale scores. The data in the study supported Schutz's (1966, 1977) hypothesis that FIRO theory with its behavior variables can be utilized in studies of leader behavior dimensions. Two particular findings were of interest to the investigator. First, business administration respondents perceived the characteristics of Inclusion (a leader initiates interaction with others and wants to be included by others) to be compatible or consistent with their own leadership styles to a significantly greater extent than did educational administration respondents. Since Schutz (1966) has defined Inclusion as the first interpersonal need of a person when becoming involved in a group or when entering an organization, this finding supports the notion (stated earlier in this section) that business administration respondents in the study had not had extensive leadership experience in the profession or marketplace. Second, educational administration respondents perceived the

characteristics of Wanted Control (a leader wants to be led by others) to be incompatible or inconsistent with their own leadership styles to a significantly greater extent than did business administration respondents. In this connection, the Wanted Control scale scores were inversely related to nine of the 12 LBDQ scale scores. It is to be noted that the investigator was not able to locate any previous findings which would corroborate these findings. An explanation for these findings could be that educational administrators (as stated previously in this section) are engaged in a profession which is answerable or responsible to various publics.

Finally, an interesting finding was the fact that, although both the LC scales and FIRO-B scales were, in many instances, significantly related to the LBDQ-XII scales, they were not related to each other. This particular finding supports statements in most statistics books (cf. Guilford & Fruchter, 1973) that A can be related to C and B can be related to C, but A and B cannot be related.

Recommendations for Further Research

The following recommendations for further research have emerged from the data analyses in the study (Chapter 4) as well as the section on conclusions (Chapter 5).

1. Refinement of Psychometric Properties of LBDQ-XII. For the relationships specified in the study, it was

apparent that the area in which further research is needed is in the refinement of the psychometric properties of Stogdill's (1963) Leader Behavior Description Questionnaire-Form XII. It appears that the instrument has reliability as well as validity deficiencies which need correction (see Chapter 3, Figure 14, p. 87). In the study, Initiating Structure and Consideration showed low internal consistencies with Cronbach Alpha coefficients of 0.7083 and 0.6355, respectively (see Chapter 4, Table 7, p. 122). Although the late Professor Stogdill consented to factor and cluster analyses of the LBDQ-XII, the instrument requires additional factor analyses using various populations of leaders. To reiterate, the relationships which emerged between the 12 LBDQ scale scores and three LC scale scores were hardly overwhelming. What was of interest, however, were the results which emerged from the multiple linear regression analyses. It was not until the 12 LBDQ scale scores were submitted to a second-order factor analysis that the prediction equation became meaningful, i.e., accounted for much of the variance between the LBDQ variables and LC variables.

2. Use of Initial Factor Analysis. One analysis that was not done in the study, but would certainly warrant doing in any follow-up is an initial factor analysis. This procedure would ignore the scale names given by Stogdill (1963) to the 12 LBDQ scales and would ascertain empirically what scales emerge. It is obvious that the LBDQ-XII as it

is presently constructed produced relatively meager relationships of any meaning.

3. Refinement of Psychometric Properties of Multidimensional Locus of Control Scale. Since the findings in the study showed that the Powerful Others and Chance scales of Levenson's (1973) Multidimensional Locus of Control Scale were not statistically orthogonal, it is recommended that further research be conducted for the purpose of ascertaining whether the instrument should be revised, so that only two scores are yielded, namely, Internality and Externality. This type of research would be most appropriate for graduate students in psychometric theory.

4. Use of Other Populations. The investigator recommends that further research be conducted on the relationship between loci of control and leader behaviors. Two appropriate populations would be community business leaders (bank executives) and community school leaders (school board members). Using these two populations, for example, would provide data on the behaviors, perceptions, and values of persons who are actually participating in roles of leadership.

5. Use of a Different Leadership Theory. It is recommended that research be conducted on the relationship between loci of control and leader behaviors utilizing leadership theories like Fiedler's (1967) Contingency

Theory, House's (1971, 1974) Path-Goal Theory, and Hersey and Blanchard's (1972) Situational Theory in addition to Stogdill's (1963, 1974) Leader Role Differentiation Theory.

6. Study of Specific Variables. The data in the study demonstrated that educational administration respondents perceived the characteristics of Reconciliation, Tolerance of Uncertainty, and Wanted Control to be incompatible or inconsistent with their leadership styles. It is recommended that further research be done on each of these variables for educational administrators.

7. Relationship between LC and FIRO-B Scales. It was acknowledged early in the dissertation that the use of the FIRO-B Scales was essentially tangential to the main purpose of the study. However, an interesting finding did arise, namely, that the FIRO-B scale scores were related to the LBDQ-XII scale scores, but not to the LC scale scores. The investigator recommends that further research be conducted to ascertain whether or not the LC scales are predictors of interpersonal behavior as measured by the FIRO-B scales. (It is further recommended that investigators who are interested in the theoretical construct of internal-external locus of control review the various psychological instruments available at present for measuring the construct, prior to launching their investigations.)

Practical Implications of the Study

It is believed that by far the most overriding result of the study was the fact that it was the Internal scale of Levenson's (1973) Multidimensional Locus of Control Scale which related to the positive aspects of the two poles of Stogdill's (1963) LBDQ-XII, namely, Initiating Structure on the one hand and Consideration on the other. Perhaps, this result does not have the implications for present and prospective educational administrators as it does for business administrators. It goes without saying that educational administrators must relate to a wider spectrum of persons and groups--students, parents, teachers, other educational administrators, boards of education, special interest groups, and the power structure of a community. This observation is not meant in any pejorative sense regarding leadership by educational administrators. It is intended primarily to indicate that present and prospective business administrators, removed of the constraints of educational administrators, need not take into consideration as many variables as do educational administrators.

The investigator is aware that Professor Stogdill is dead (Hakel, 1980). His accomplishments with the Ohio State Leadership Studies as an organizer, theorist, and writer remain a tribute to him. Although the investigator has made some critical comments about the LBDQ-XII as it now stands, Stogdill's emphasis and clear thinking as shown in his

instrument have paved the way for an improved identification of the theoretical construct of leadership.

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APPENDIX A

THE INSTITUTIONAL REVIEW BOARD

-NORMAN CAMPUS

The University of Oklahoma at Norman

Office of Research Administration

April 3, 1980

Mr. Ernest Edward Ramirez
Dissertation Student
911 North Norman Avenue
Moore, Oklahoma 73160

Dear Mr. Ramirez:

At its April 2 meeting, the Institutional Review Board-Norman Campus reviewed your proposal for "The Relationship of Leader Behaviors and Loci of Control." The Board found that this research will not constitute a risk to participants beyond those of normal, everyday life except in the area of privacy which is adequately protected by the confidentiality procedures. Therefore, the Board has approved the use of human subjects in this project.

Under this finding, you will not be required to obtain formal Informed Consent from the participants. If you have questions, please contact me.

Sincerely yours,

Mark Elder
Administrative Officer
Institutional Review Board-Norman Campus

ME:dkj

cc: Dr. J.H. Lancaster, IRB-NC
Professor John J. Seaberg, Jr., College of Education
IRB-NC Files

March 4, 1980

TO: Dr. John H. Lancaster, Chairperson
Institutional Review Board-Norman Campus

FROM: Ernest Ed. Ramirez
Dissertation Student
911 North Norman Avenue
Moore, Oklahoma 73160

SUBJECT: Description of Doctoral Study

In accordance to guidelines on human subject involvement in research set forth in your communication dated October 1, 1979, I am submitting a description of the doctoral research that I propose to conduct during the months of March and April, 1980, at the University of Oklahoma.

The principal problem of the study is as follows: Are leader behaviors of educational administration graduate students and of business administration graduate students related to their loci of control?

The subsidiary problems of the study are as follows: (1) Are leader behaviors of educational administration graduate students and of business administration graduate students related to their interpersonal behaviors? and (2) Are variables of loci of control related to variables of interpersonal behavior for educational administration graduate students and for business administration graduate students?

Under separate cover, I am submitting a copy of my prospectus. Feel free to use it in any manner that the committee might want. I would, however, like to have my prospectus copy back.

It is my expectation that the materials that I am submitting for your evaluation are adequate and that your judgment will permit me to continue with the doctoral study as planned.

1. Cover Page

   a. Project title.

      The Relationship of Leader Behaviors and Loci of Control

   b. Principal Investigator's name, department, and telephone number.

      Ernest Edward Ramirez
      Area of Educational Administration
      The University of Oklahoma College of Education
      Norman, Oklahoma; Home telephone (405) 794-5428

   c. Sponsor to whom proposal is being submitted.

      Proposal is not sponsored by any agency or department.
      This project will provide data for a doctoral study which
      will result in a dissertation.
      Dissertation will be submitted to a committee chaired by

      Professor John J. Seaberg, Jr.
      Area of Educational Administration
      The University of Oklahoma College of Education
      Norman, Oklahoma; Office telephone (405) 325-5975

   d. Proposed starting date for project.

      The proposed starting date for project is Monday, March 17,
      1980.

2. Executive Summary

a. Short description of project's purpose and objectives.

The project will enable the investigator to identify 60 educational administration graduate students enrolled in the OU College of Education and 60 business administration graduate students enrolled in the OU College of Business Administration during the 1980 spring semester.

An educational administration graduate student is a person who is following an advanced degree program (Master's or Doctor's) in the OU College of Education and is enrolled in a graduate course (5000 or 6000 level) taught in the Area of Educational Administration.

A business administration graduate student is a person who is following an advanced degree program (Master's or Doctor's) in the OU College of Business Administration and is enrolled in a graduate course (5000 or 6000) taught in Areas such as Accounting, Business Administration, Economics, Finance, Management, and Marketing.

The data gathered from each participant (subject) will be analyzed to determine the following relationships: (1) between leader behavior and locus of control; (2) between leader behavior and interpersonal behavior; and (3) between locus of control and interpersonal behavior.

Analyses of data will constitute Chapter 4 of investigator's dissertation, The Relationship of Leader Behaviors and Loci of Control.

b. Short description of procedures to be used in testing or gathering information from or about human subjects.

Participants (Subjects) in the project shall be graduate students who are willing to fill out the prescribed data-gathering instruments.

The following procedures will be employed by the investigator:

(1) Selected professors in the Areas of Educational Administration and in the Areas of Accounting, Business Administration, Economics, Finance, Management, and Marketing will be requested to release their graduate students from regular class time, so that they can be participants in the study. Graduate students will be asked to volunteer for the study. Instruments will be administered to participants in groups.

(2) Graduate students will be asked to volunteer for the study on an individual basis.

2. Executive Summary (continued)

Procedures (1) and (2) call for the presence of the investigator or a designated representative. The investigator and/or representative shall be prepared to assist the participant(s) in any way.

A participant (subject) will be requested to fill out the following instruments: (1) Demographic Information Sheet (17 items): as per the stricture of incidental sampling (Guilford & Fruchter, 1973), a participant must be defined in every significant respect. The Demographic Information Sheet has been designed to (a) meet the requirements of incidental sampling and (2) allow each participant to describe himself/herself. (2) The FIRO-B questionnaire (54 items): a participant is asked to evaluate his/her behaviors with other persons. (3) The Locus of Control questionnaire (24 items): a participant is asked to evaluate how he/she actually thinks or feels about an idea, feeling, or reaction. (4) The Leader Behavior Description Questionnaire-Form XII (100 items): a participant is asked to evaluate how he/she should behave as a leader of a group. Each item states a specific behavior of a leader.

A participant will be provided with a package that contains a set of instructions and the four instruments. A number 2 pencil will be provided also.

A pilot study carried out with five graduate students in a group indicated that the average time for the completion of the four instruments was 40 minutes.

c. Description of procedures to be used to assure confidentiality of subject data.

So as to assure the confidentiality of subject data, the investigator shall adhere to the following procedures:

(1) An individual participant (subject) will be identified by participant's last 4 digits of current OU identification number and by sex and by College.

(2) Other information that is requested in the Demographic Information Sheet (e.g., age, birth order, race, career expectation, etc.) will become group data and will be analyzed as group data only.

(3) No proper names will be requested of participants or used by the investigator.

(4) The investigator will answer any questions which participants may have prior to consenting to the study.

(5) The investigator will answer any questions which participants may have during the time he/she is filling out the instruments.

(6) A participant may withdraw consent and discontinue participation any time prior to his/her completion of the instruments.

2. Executive Summary (continued)

c. Description of procedures to be used to assure confidentiality of subject data.

(7) The investigator will share results of a participant's package or portfolio with him/her upon participant's request. Each participant will be provided with investigator's home telephone number and a specific date when results should be completed and interpreted.

d. Description of the risks (see Appendix A in IRB-NC's letter dated October 1, 1979) to the subjects.

A participant's interpersonal behavior will be measured by the FIRO-B questionnaire. The reliability and validity of the instrument has been established and explained since investigators began using it in 1967. The instrument has been employed by investigators in various settings where human subjects have been observed. The literature has not indicated any physical risks, psychological risks, and/or social risks (such as those defined in Appendix A) to participants who have responded to the stated instrument.

A participant's locus of control will be measured by Levenson's Multidimensional Scale. The reliability and validity of the instrument has been established and explained since investigators began using it in 1973. The instrument has been employed by investigators in various settings where human subjects have been observed. The literature has not indicated any physical risks, psychological risks, and/or social risks (such as those defined in Appendix A) to participants who have responded to the stated instrument.

A participant's leader behavior will be measured by Stogdill's Leader Behavior Description Questionnaire-Form XII. The reliability and validity of the instrument has been established and explained since investigators began using it in 1963. The instrument has been employed by investigators in various settings where human subjects have been observed. The literature has not indicated any physical risks, psychological risks, and/or social risks (such as those defined in Appendix A) to participants who have responded to the stated instrument.

e. Description of benefits to be derived by the subjects.

The investigator is confident that the following benefits will result from the filling out of the stated instruments by participants:

(1) The theoretical construct of leadership (including leader behavior and leadership style) is a topic of interest in the disciplines from which participants (subjects) will be drawn. In many instances, participants will have knowledge about leadership and its components.

2. Executive Summary (continued)

e. Description of benefits to be derived by the subjects.

Thus, participants who have an awareness of leadership will have some understanding of the purpose and objectives of the investigator's study. The investigator has used the above benefit in illustrating the study to professors who teach graduate classes from which participants may be drawn. The following professors have endorsed the study in principle and have agreed to support it: (a) Dr. John J. Seaberg, Jr., Area of Educational Administration; (b) Dr. Larry Michaelson, Area of Management; (c) Dr. Thomas W. Wiggins, Area of Educational Administration; (d) Dr. Ray Alonso, Area of Management; and (e) Dr. William Weitzel, Area of Management.

(2) The literature has illustrated to this investigator that few, if any, empirical studies have been carried out in which leader behavior has been related with either locus of control and interpersonal behavior. The investigator is confident that participants in the Areas of Educational Administration and Business Administration will be involved in a study that heretofore has not been conducted.

(3) Each of the instruments to be employed in the study is a self-inventory or self-assessment. The participant is requested to evaluate himself/herself. The investigator is confident that the participant is able to look at himself/herself based on the instructions that are given.

(4) It is possible that the results of the study might have theoretical and practical implications in the disciplines of Business Administration and Educational Administration.

Informed Consent to Participate in Research

The purpose of the research is to investigate the relationships between (1) leader behavior and locus of control; (2) leader behavior and interpersonal behavior; and (3) locus of control and interpersonal behavior. The goal of the research is a better identification of the theoretical construct of leadership.

The dimension of leader behavior in the study will be measured by Stogdill's Leader Behavior Description Questionnaire-Form XII. The dimension of locus of control in the study will be measured by Levenson's Multidimensional Scale. The dimension of interpersonal behavior will be measured by Schutz's Fundamental Interpersonal Relations Orientation-Behavior Scale. The reliability and validity for each of the instruments have been established and explained by previous researchers.

There are no known physical risks, psychological risks, and social risks for participants who may be involved in the study.

There are no known physical benefits, psychological benefits, and social benefits for participants who may be involved in the study.

To make safe the anonymity of participants in the study, an individual participant shall be identified only by the last 4 digits of individual's current OU identification number, by sex, and by individual's College. Information on the Demographic Information Sheet will be used for group data only and shall not be identified in any manner that might be traced back to any individual participant. The list of participants in the study shall remain in the possession of the principal investigator. The list of participants shall be kept in a safe place and shall be destroyed upon completion of the study and approval of the principal investigator's dissertation.

Data collected from participants in the study will be used for doctoral research at the University of Oklahoma. The results of the research will be disseminated in the following ways: (1) a dissertation; (2) a paper presented at a professional meeting; and (3) at least 2 articles in professional journals.

The principal investigator will answer any questions participants may have prior to consenting to the study. The principal investigator will answer any questions participants may have during the study.

The participant may withdraw consent and discontinue participation any time prior to termination of the study without prejudice.

The participant does not waive any of his/her legal rights by agreeing to be involved in the study.

I have read the above informed consent to participate in the study.

_____ _____

Name Date

APPENDIX B

THE INTERCORRELATIONS

OF THE 12

LBDQ SCALE SCORES

LBDQ-XII Intercorrelations

for 154 Respondents

LBDQ	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00	0.38	0.69	0.58	0.63	0.55	0.64	0.30	0.65	0.35	0.41	0.49
2	0.38	1.00	0.59	0.65	0.57	0.60	0.57	0.57	0.48	0.36	0.61	0.40
3	0.69	0.59	1.00	0.69	0.73	0.62	0.79	0.35	0.74	0.40	0.45	0.62
4	0.58	0.65	0.69	1.00	0.59	0.60	0.62	0.41	0.66	0.30	0.40	0.47
5	0.63	0.57	0.73	0.59	1.00	0.60	0.70	0.34	0.66	0.40	0.47	0.58
6	0.55	0.60	0.62	0.60	0.60	1.00	0.71	0.50	0.68	0.56	0.67	0.49
7	0.64	0.57	0.79	0.62	0.70	0.71	1.00	0.38	0.76	0.43	0.54	0.68
8	0.30	0.57	0.35	0.41	0.34	0.50	0.38	1.00	0.41	0.49	0.59	0.16
9	0.65	0.48	0.74	0.66	0.66	0.68	0.76	0.41	1.00	0.39	0.47	0.66
10	0.35	0.36	0.40	0.30	0.40	0.56	0.43	0.50	0.39	1.00	0.68	0.28
11	0.41	0.61	0.45	0.40	0.47	0.67	0.54	0.59	0.47	0.68	1.00	0.32
12	0.49	0.40	0.62	0.47	0.58	0.49	0.68	0.16	0.66	0.28	0.32	1.00

APPENDIX C

LBDQ-XII-INSTRUCTIONS FOR RESPONDENTS

Purpose of the Questionnaire

This questionnaire is designed to test what you expect of yourself as a leader.

On the following pages is a list of 100 items that may be used to describe your behavior as you think you should act if you were a leader of a group. The term, "group," as used in the items, refers to a department, division, or other unit of organization that is supervised by yourself.

The term "members" refers to all the people in the unit of organization that is supervised by yourself.

Each item describes a specific kind of behavior. It does not ask you to judge whether the behavior is desirable or undesirable. Although some items may appear similar, they express differences that are important in the description of leadership. Each item should be considered as a separate description.

This is not a test of ability or consistency in making answers. Its only purpose is to make it possible for you to describe, as accurately as you can, your behavior as a leader.

DIRECTIONS:

a. READ each item carefully.

b. THINK about how frequently you as a leader of a group should engage in the behavior described by the item.

c. DECIDE whether you as a leader should act (A) always, (B) often, (C) occasionally, (D) seldom, or (E) never as described by the item.

d. DRAW A CIRCLE around one of the five letters (A B C D E) following the item to show the answer you have selected.

A---Always B---Often C---Occasionally D---Seldom E---Never

If computer answer sheets are provided, darken the appropriate circle.



Please work rapidly and use your first impression as a basis for your answer.

Do not omit any item.

The last 4 digits of my OU ID number are_____

2-1980

My sex is _____male _____female

APPENDIX D

LBDQ-XII-RECORD SHEET

LBDQ Form XII-RECORD SHEET

Scale											Totals
1. Representation	1__	11__	21__	31__	41__						( )
2. Reconciliation						51__	*61__	*71__	81__	*91__	( )
3. Persuasion	3__	13__	23__	33__	43__	*53__	63__	73__	83__	93__	( )
4. Role Assumption	*6__	*16__	*26__	*36__	*46__	*56__	*66__	76__	86__	96__	( )
5. Predictive Acc	9__		29__		49__	59__			89__		( )
6. Integration		19__		39__			69__	79__	99__		( )
7. Superior Orient	10__	20__	30__	40__	50__	60__	70__	80__	90__	100__	( )
8. Tol. Uncertainty	2__	*12__	22__	32__	*42__	52__	*62__	72__	82__	*92__	( )
9. Init. Structure	4__	14__	24__	34__	44__	54__	64__	74__	84__	94__	( )
10. Tol. Freedom	5__	15__	25__	35__	45__	55__	*65__	75__	85__	95__	( )
11. Consideration	7__	17__	27__	37__	47__	*57__	67__	77__	*87__	*97__	( )
12. Production Emp	8__	18__	28__	38__	48__	58__	*68__	78__	88__	98__	( )

Note. The items without an asterisk were reversed and were scored by 5-4-3-2-1; the items with an asterisk were not reversed and were scored by 1-2-3-4-5.

APPENDIX E

LOCUS OF CONTROL-INSTRUCTIONS FOR RESPONDENTS

SELF-REPORT INVENTORY

DIRECTIONS: On the following two pages there are 24 statements which express various ideas, feelings, and reactions. You are asked to rate each statement in accordance with how well it expresses your thoughts or feelings. There are no right or wrong answers. The usefulness of the instrument depends entirely on the extent to which you indicate how you actually think or feel rather than how you would like to feel or how you think you should feel. This inventory is being administered for research purposes, and your individual answers will be held in confidence.

Record your rating of each item by placing an X over one of the letters following each statement.

If computer answer sheets are provided, darken the appropriate circle.

A B C D E

There are five alternative answers indicating the extent to which the statement expresses what you actually think or feel.

The statement expresses:

A. Exactly what I think or feel or what I think or feel almost all the time.

B. Primarily what I think or feel or what I think or feel most of the time.

C. Something about which I do not particularly think or feel one way or the other or something I think or feel about half the time.

D. Something which is almost the opposite of what I think or feel or something which I think or feel very seldom.

E. Exactly what I do not think or feel or what I think or feel almost never.

Please work rapidly and use your first impression as a basis for your answer.

The last 4 digits of my OU ID number are _____

My sex is _____male _____female

APPENDIX F

LOCUS OF CONTROL-RECORD SHEET

LOCUS OF CONTROL-RECORD SHEET

Scale									Totals
Powerful Others	3___	8___	11___	13___	15___	17___	20___	22___	( )
Internal	1___	4___	5___	9___	18___	19___	21___	23___	( )
Chance	2___	6___	7___	10___	12___	14___	16___	24___	( )

Note. The 24 items were reversed and were scored by 5-4-3-2-1.

APPENDIX G

FIRO-B-INSTRUCTIONS FOR RESPONDENTS

FIRO-B

1977 Edition

Will Schutz, PhD

DIRECTIONS: This questionnaire explores the typical ways you interact with people. There are no right or wrong answers.

Sometimes people are tempted to answer questions like these in terms of what they think a person should do. This is not what is wanted here. We would like to know how you actually behave.

Some items may seem similar to others. However, each item is different so please answer each one without regard to the others. There is no time limit, but do not debate long over any item.

ID_____

GROUP_____

DATE_____ AGE_____

MALE_____ FEMALE_____

APPENDIX H

FIRO-B-RECORD SHEET

FIRO-B RECORD SHEET

Scale						Total
FWI	28. 6-5	31. 6-5	34. 6-5	37. 6	39. 6	
	42. 6-5	45. 6-5	48. 6-5	51. 6-5		0-9
FEI	1. 6-5-4	3. 6-5-4-3	5. 6-5-4-3	7. 6-5-4	9. 6-5	
	11. 6-5	13. 6-5	15. 6	16. 6		0-9
FWC	2. 6-5-4-3	6. 6-5-4-3	10. 6-5-4	14. 6-5-4	18. 6-5-4	
	20. 6-5-4	22. 6-5-4-3	24. 6-5-4	26. 6-5-4		0-9
FEC	30. 6-5-4	33. 6-5-4	36. 6-5	41. 6-5-4-3	44. 6-5-4	
	47. 6-5-4	50. 6-5	53. 6-5	54. 6-5		0-9
FWA	29. 6-5	32. 6-5	35. 2-1	38. 6-5	40. 2-1	
	43. 6	46. 2-1	49. 6-5	52. 2-1		0-9
FEA	4. 6-5	8. 6-5	12. 6	17. 6-5	19. 3-2-1	
	21. 6-5	23. 6-5	25. 3-2-1	27. 6-5		0-9

Note. One point was counted whenever a number on the record sheet matched one on the respondent's answer sheet.

APPENDIX I

LETTERS

January 21, 1980

Dr. Larry Michaelsen
Department of Management
College of Business Administration
The University of Oklahoma
Norman, Oklahoma 73019

Dear Dr. Michaelsen:

The design of my dissertation study calls for the drawing of samples from business administration graduate students and educational administration graduate students enrolled in graduate courses in these areas of study for the spring semester of 1980.

I would like to administer a demographic questionnaire and three instruments to graduate students enrolled in the following Management course that you teach: 5083, Organizational Behavior.

May I use one hour of your regular class time to administer the package of instruments? The data generated by each subject will be used for research purposes only. Should the data be published in my dissertation, it would be done so by identification numbers. Each subject may contact me for the results of his/her package.

My major professor is Dr. John J. Seaberg, Jr., Associate Professor of General Administration, in the OU College of Education.

Thank you for your cooperation.

Approved by:
John J. Seaberg, Jr.
John J. Seaberg, Jr.

Sincerely yours,
Ernest Ed. Ramírez
Ernest Ed. Ramírez
Dissertation Student
Area of Educational
Administration
OU College of Education

Monday, April 21, 1980

Dr. Bert McCammon, Jr.
Division of Marketing
College of Business Administration
The University of Oklahoma
Norman, Oklahoma 73019

Dear Dr. McCammon:

I wish to thank you for allowing me to use the graduate students in your Managerial Marketing class (Mkt 5063) as participants in my doctoral study.

Please share with your class that I shall be available to interpret with whomever his/her leadership profile. I expect to have all profiles prepared by the 1st of June 1980. My home telephone is Area Code 405, 794-5428.

I am glad that I was able to make your acquaintance.

Sincerely yours,

Ernest Ed. Ramírez

Ernest Ed. Ramírez
Doctoral Candidate
Area of Educational
Administration
OU College of Education

Wednesday, April 23, 1980

Dr. Jack F. Parker
Professor of Education
Area of Educational Administration
OU College of Education
Norman, Oklahoma 73019

Dear Dr. Parker:

I wish to thank you for allowing me to use the graduate students in your EdAd 6252 (Financing Education) as participants in my doctoral study.

Please share with your class that I shall be available to interpret with whomever his/her leadership profile. I expect to have all profiles prepared by the 1st of June 1980. My home telephone number is Area Code 405, 794-5428.

I am grateful for your personal support as I have participated in the graduate program in the Area of Educational Administration.

Sincerely yours,

Ernest Ed. Ramírez

Ernest Ed. Ramírez
Doctoral Candidate
Area of Educational
Administration
OU College of Education

January-February 1980

Dear Fellow Graduate Student:

I am conducting a study on the leader behaviors of graduate students who are enrolled in business administration graduate courses in the OU College of Business Administration and in educational administration graduate courses in the OU College of Education for the spring semester of 1980.

Since you are a member of one of the two groups delineated above, I would appreciate and be grateful for your individual participation in the study. I am requesting that you respond to the demographic information sheet and three self-inventory instruments in this package. The whole process should take about 60 minutes.

The data generated by you will be used for research purposes only. The information and results on your individual leader behaviors will be reported in my dissertation. Should you be interested in looking at the results of your participation, I would be pleased to discuss them with you.

The results should be completed and interpreted by April 1, 1980. I may be reached at my home telephone number, Area Code 405, 794-5428.

Thank you for your investment of time and energy in the study.

Sincerely yours,

Ernest Ed. Ramírez

Ernest Ed. Ramírez
Dissertation Student
Area of Educational
Administration
OU College of Education

April-May 1980

Dear Fellow Graduate Student:

I am conducting a dissertation study on leader behaviors of graduate students who are enrolled in business administration graduate courses in the OU College of Business Administration and in education administration graduate courses in the OU College of Education for the spring semester of 1980.

Since you are a member of one of the two groups delineated above, I would appreciate and be grateful for your individual participation in the study. I am requesting that you respond to the demographic information sheet and three self-inventory instruments in this package. The whole process should take about 60 minutes.

The data generated by you will be used for research purposes only. The information and results of your individual leader behaviors will be reported in my dissertation using a participant's last four digits of current OU identification number, sex, and/or College (Business Administration or Education).

Should you be interested in looking at the results of your participation, I would be pleased to discuss them with you. The results should be completed and interpreted by June 1, 1980. I may be reached at my home telephone number, Area Code 405, 794-5428. My home address is 911 North Norman Avenue, Moore, Oklahoma, 73160.

Thank you for your investment of time and energy in the study.

Sincerely yours,

Ernest Ed. Ramírez

Ernest Ed. Ramírez
Dissertation Student
Area of Educational
Administration
OU College of Education

APPENDIX J

ABSTRACT

THE RELATIONSHIP OF LEADER BEHAVIORS AND LOCI OF CONTROL

BY: ERNEST EDWARD RAMIREZ

MAJOR PROFESSOR: JOHN J. SEABERG, JR., Ed.D.

The study was conducted because the investigator observed that in the literature of leadership research, as well as in the literature of locus of control research, few references exist on relationships between leader behaviors and loci of control. Thus, the study was concerned primarily with analyzing the relationships between the theoretical constructs of leader behavior and locus of control. Additionally, the following relationships were analyzed: (a) Leader behavior and interpersonal behavior; and (b) Locus of control and interpersonal behavior.

The three theoretical constructs in the study were operationalized as follows: (a) Leader behavior was measured by the Leader Behavior Description Questionnaire-Form XII, an instrument based on the theory of leader role differentiation and written by the Ohio State Leadership Studies, a research organization guided by psychologist Ralph Melvin Stogdill; (b) Locus of control was measured by the Multidimensional Locus of Control Scale, an instrument derived from Julian B. Rotter's social learning theory and written by psychologist Helena Levenson from Texas A&M University; and (c) Interpersonal behavior derived from FIRO theory was measured by the Fundamental Interpersonal Relations Orientation-Behavior Scales written by psychologist Will Schutz.

Data were obtained for a total of 21 scales or variables. The study focused on 10 of the 21 scales, namely the LBDQ scales of Tolerance of Uncertainty, Initiating Structure, Tolerance of Freedom, Consideration, and Production Emphasis; the locus of control scales were Powerful Others, Internality, and Chance; and the FIRO-B scales were Expressed Control and Wanted Control. The results of the data analyses showed that for the respondents in the study, the scales of Tolerance of Uncertainty, Consideration, Internality, and Wanted Control were statistically significant. The locus of control scale of Internality, for example, was the best predictor of leader behavior for the respondents in the study.

The respondents in the study were 154 graduate students enrolled at the University of Oklahoma during the spring semester of 1980. When the sample was identified by area of specialization and sex of respondents, the subsamples were as follows: (a) 83 business administration graduate students; (b) 71 educational administration graduate students; (c) 48 female graduate students; and (d) 106 male graduate students. The respondents in the study were selected by the use of "incidental sampling" as defined by J.P. Guilford and Benjamin Fruchter.

The statistical design for the study consisted of univariate statistical analyses and multivariate statistical analyses. Since the study was basically correlational in nature, the Pearson product moment correlation coefficient was utilized in the preliminary analyses. Other univariate statistical analyses used in the study were the following: (a) Single classification analysis of variance; and (b) Median

split analysis. Since the data generated on 154 respondents lent themselves to certain multivariate techniques which often detect relationships not seen in univariate statistical analyses, the following multivariate techniques were utilized: (a) Canonical correlation; (b) Factor analysis; and (c) Multiple linear regression analysis.

The factor analysis of the 12 LBDQ scales using 154 respondents yielded three factor scores, findings which were not detected when the data were analyzed by univariate techniques. The first factor score appeared to be Consideration and was identified by the investigator as the Person-Oriented Dimension; the second factor score appeared to be a conglomerate of Initiating Structure and Consideration and was identified by the investigator as the Person-System Oriented Dimension; and the third factor score appeared to be Initiating Structure and was identified by the investigator as the System-Oriented Dimension. Summarily, the three factor scores indicated that insofar as the 154 respondents in the study were concerned there were three dimensions of leader behavior. Thus, these specific findings did not support the contention by researchers associated with the Ohio State Leadership Studies that there were two basic dimensions of leader behavior.

The most productive multivariate statistical analysis was the multiple linear regression analysis for the third factor scores. When Factor 3, the System-Oriented Dimension, was identified as the criterion variable and the three locus of control variables and six FIRO-B variables were identified as predictor variables, the findings showed that the predictor variables were remarkably powerful predictors of

Factor 3 scores. The predictor variables yielded a multiple R of .81 and an R square of .66. These predictor variables were statistically significant at the .001 alpha level.

The statistically significant findings in the study make the following conclusions about business administration respondents and educational administration respondents possible:

1. Both subsamples perceived themselves to be internally-controlled, although the educational administration respondents showed a greater inclination to seek their loci of control in Powerful Others and in Chance orientations.

2. Educational administration respondents but not business administration respondents perceived the characteristics of the leader behavior of Consideration to be compatible with the characteristics of Internality.

3. The characteristics of Initiating Structure, a basic leader behavior dimension according to researchers associated with the Ohio State Leadership Studies, were not statistically significant with either group of respondents.

4. Educational administration respondents perceived the characteristics of the interpersonal behavior of Wanted Control to be incompatible with their leader behaviors.

5. The findings showed that more variables were involved in the composition of leader behaviors for educational administration respondents than business administration respondents.

6. The findings showed that a relationship did exist between

leader behaviors and loci of control for the 154 respondents in the study, but the relationship was a moderate one.