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A COMPARISON OF INTERACTION ANALYSIS RATINGS BETWEEN TWO SELECTED GROUPS OF STUDENT TEACHERS

By
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A COMPARISON OF INTERACTION ANALYSIS RATINGS BETWEEN TWO SELECTED GROUPS OF STUDENT TEACHERS

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D. J. M.

CHAPTER I

INTRODUCTION

Professional educators and the citizens of most communities have become increasingly interested in and concerned with the development of educational programs at the secondary level. Improvement of instruction has been a central goal for numerous projects at the local, state, and federal levels. However, it is only through strengthening the classroom leadership that continuing and lasting improvement will result. The classroom teacher has been identified as the most important single factor in improving the learning process. Redfern, describing appraisal of teacher performance, wrote:

> Much has been written and spoken, in recent years, about the need for quality education. Modern buildings, fine equipment, exciting instructional tools and materials, imaginative and bold program innovations do not guarantee its attainment. The key to quality lies in able teachers and effective instruction.[1]

It has long been the desire of educators to direct into the teaching field young people who possess certain traits which, hopefully, will insure successful classroom leadership. Griffith, Haggerson, and Webber emphasized this belief when they wrote:

> Competent teachers are necessary if schools are going to be able to cope with the rapid changes which are taking place in the organization and content of courses taught in secondary school. Too, as the demands for additional services to a burgeoning number of students increase, teachers who are more highly qualified will be needed in secondary schools. In order to obtain instructors with sufficient expertness to meet the challenges facing them in teaching today, more than ever before, capable individuals must be enticed into teacher education programs and must be thoroughly prepared for teaching.[2]

Certain individuals possess personalities which seem to appeal to young people. While phrased in various ways, the relationship between personality characteristics of the individual and his performance in the group has long been a central concern for psychologists and educators who have studied group dynamics.

> Personality measurement has been traditionally concerned with identification and measurement of independent dimensions of personality.

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[1] G. B. Redfern, *How to Appraise Teaching Performance,* School Management Institute, Inc., 1963, p. 6.

[2] L. H. Griffith, N. L. Haggerson, and D. Weber, *Secondary Education Today,* Daniel McKay Company, 1967, pp. 250-251.

> More recently there has been a convergence of interests from several areas of psychology on the specification of conditions under which personality traits, conceived of as drive states, may facilitate or impede task performance.[3]

The total personality make-up of an individual consists of numerous factors or traits. One personality trait which seems important to a person in a leadership role is self-acceptance. One cannot be accepting of others if he is not accepting of himself. Combs believed this when he wrote, "The individual's capacity for acceptance is intimately affected by the degree to which he has developed positive feelings about self."[4]

This personality trait, then, becomes extremely important to teachers who deal so closely with young people. Combs stated that, "A truly accepting teacher, counselor, or friend can make a crucial difference between an accepting youngster, open to his experience, or a rigidly defensive young person fighting back at his world."[5]

Bills developed an inventory——the *Index of Adjustment and Values*——to measure this critical personality trait. Bills reported that if one investigates self-acceptance and ignores a person's beliefs about how his peers accept themselves, interesting differences occur. People who are self-accepting when compared with people with less self-acceptance have higher group status, are more responsible, are more efficient intellectually, are more dominant, and have a higher degree of social participation. Most educators would see these patterns as being helpful to the classroom teacher.

The teacher's personality cannot be divorced from his classroom behavior. A teacher who looks upon himself in a critical manner will transfer this attitude of criticism to his students. Combs felt that teachers "who are highly self-critical tend to communicate this criticism to others."[6] Combs went on to say that "We need teachers able to identify with others, to have a feeling of oneness with others."[7]

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[3]D. Kepnis and C. Wagner, "The Interaction of Personality and Intelligence in Task Performance," *Educational and Psychological Measurement,* Autumn, 1965.

[4]A. W. Combs, *Perceiving, Behaving, Becoming: A New Focus for Education,* ASCD, 1962, p. 121.

[5]*Ibid.*, p. 123.

[6]*Ibid.*, p. 126.

[7]*Ibid.*, p. 126.

The teacher's interaction with children is an important part of the learning process. Verbal interaction is the one contact which exists most of the time. Flanders developed a systematic approach to measuring verbal behavior. He made the assumption that verbal behavior of an individual is an adequate sample of this total behavior.

Observable and measurable communication between teachers and students is largely verbal. Research studies have attempted to determine the amount of verbal exchange in the classroom.

In reference to the importance of teacher talk, Amidon wrote:

> It is axiomatic that the teacher is the most influential person in the classroom. Since talk is such a vital part of teaching, and since the teacher's verbal behavior directly influences pupils' verbal behavior, it follows that teacher talk is tremendously important in education.[8]

It is evident from research that verbal communication is dominated by the teacher. Flanders identified this as the "Rule of Two-Thirds: two-thirds of the time someone is talking; two-thirds of the time it is the teacher; and two-thirds of the time he's expressing his own opinions."[9]

For years most educators have wanted to increase the teacher's sensitivity to the use of student verbal communication. But before this was possible, it was necessary to develop a systematic method of classifying verbal behavior in the classroom. Flanders' Interaction Analysis System provides the teacher with an instrument of objectivity through which he can analyze this dialogue in the classroom.

This study was designed to provide information concerning how student teachers with varying levels of self-acceptance make use of classroom verbal interaction.

Purpose of the Study

The purpose of this study was to analyze the influence of student teacher self-acceptance on the use of classroom verbal interaction. A thorough analysis of the differences which occur between student teachers who possess positive self-acceptance and those who possess negative self-acceptance in the use and degree of verbal interaction will be offered. Particular attention will be given to:

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[8]E. Amidon and E. Hunter, *Improving Teaching,* New York: Holt, Rinehart, Winston, 1963, p. 6.

[9]N. A. Flanders, *Teacher Influence: Pupil Attitudes and Achievement,* University of Minnesota, 1960, p. 10.

1. Differences in Student-Teacher Ratios of the two samples of student teachers
2. Differences in Indirect-Direct Ratios of the two samples of student teachers
3. Differences in Revised Indirect-Direct Ratios of the two samples of student teachers
4. Differences in the use of the ten categories by the two samples of student teachers
5. Differences of seven cells of the matrix——2-2, 3-3, 6-7, 7-6, 4-8, 8-8, and 9-9.

Scope and Delimitations of the Study

The major limitations of this study are:

1. The study utilized a sample of student teachers at the University of Nebraska who were student teaching social studies at the secondary level the first semester of the 1969-1970 school year.
2. The *Index of Adjustment and Values* was given to sixty student teachers in September of 1969.
3. A sample of 15 student teachers who had self-acceptance scores of 186 and above were selected as the positive self-acceptance group. A sample of 15 student teachers who had self-acceptance scores of 163 and below were selected as the negative self-acceptance group.
4. All selected student teachers were measured by the Flanders Interaction Analysis System with the use of three tape recordings of three different class periods during December 1 through December 19, 1969.
5. No attempt was made to relate the characteristics dealt with in this study to success of student teaching.

Procedures

The procedure used in this study was divided into several sections. In the first part a review of literature was conducted by surveying written references pertinent to self-concept and self-acceptance, classroom teaching behavior, and the instruments used in this study——The *Index of Adjustment and Values* and Flanders' *Interaction Analysis.*

Sixty student teachers at the University of Nebraska were given the *Index of Adjustment and Values.* Thirty students were used in this study based upon their scores on the self-acceptance portion of this measurement. Fifteen of these students represented student teachers with negative self-acceptance and fifteen represented students with positive self-acceptance.

These student teachers were then measured by the use and degree of classroom verbal interaction. Three different tape recordings were made of each student teacher and scored by Flanders' *Interaction Analysis.*

The next step was a careful tabulation of the interaction data. The final step was an examination, organization, and presentation of the data as outlined in the above procedure.

Definition of Terms

Flanders' *Interaction Analysis* is a systematic technique developed by N. L. Flanders in the 1950's for identifying, classifying, and observing classroom verbal behavior.

The *Index of Adjustment and Values* is an instrument developed by R. E. Bills which was designed to measure variables of self-organization, including self-acceptance.

Student teachers refer to senior students at the University of Nebraska who are actively involved in the practice teaching experience.

Verbal Interaction refers to any expression, either student or teacher centered, orally spoken within the classroom.

Self-acceptance refers to how an individual feels about his own worth, dignity, and integrity.

Positive self-acceptance is a classification for individuals who have scores which are greater than the average of the population on which the *Index of Adjustment and Values* was standardized.

Negative self-acceptance is a classification for individuals who have scores which are less than the average of the population on which the *Index of Adjustment and Values* was standardized.

Direct teachers are those student teachers who have Indirect-Direct Ratios below .40 and Revised Indirect-Direct Ratios below 1.00[10] Flanders wrote: "Direct influence consists of stating the teacher's own opinion or ideas, directing the pupil's action, criticizing his behavior, or justifying the teacher's authority or use of that authority."[11]

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[10]J. R. Campbell and C. W. Barnes, *Interaction Analysis—A Breakthrough?* Phi Delta Kappan, June, 1969, p. 587.

[11]Ned A. Flanders, "Teacher Influence in the Classroom," *Interaction Analysis: Theory, Reserach, and Application,* Reading: Addison-Wesley, 1967, p. 108.

Indirect teachers are those student teachers who have Indirect-Direct Ratios over .70 and a Revised Indirect-Direct Ratio over 2.00.[12] As stated by Flanders, "Indirect influence consists of soliciting the opinions or ideas of the pupils, applying or enlarging on those opinions or ideas, praising or encouraging the participation of pupils, or clarifying and accepting their feelings."[13]

Indirect-Direct Ratios are determined by dividing the sum totals of categories 1 to 4 by the sum totals for categories 5 to 7.[14]

Revised Indirect-Direct Ratios are determined by dividing the sum totals of categories 1 to 3 by the sum totals of categories 6 and 7.[15]

Student-Teacher Ratios are determined by dividing the sum totals of categories 8 and 9 by the sum totals of categories 1 to 7.

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[12]Campbell and Barnes, *op. cit.*, p. 587.

[13]Flanders, *op. cit.*, p. 108.

[14]Campbell and Barnes, *op. cit.*, p. 587.

[15]*Ibid.*, p. 587.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature for this study was divided into four sections. The first section surveyed some of the theoretical principles related to self-concept and self-acceptance; the second was concerned with an instrument developed to measure self-acceptance——the *Index of Adjustment and Values;* the third considered the research related to teacher influence and classroom verbal interaction; and the fourth pertained to the development of Flanders' *Interaction Analysis* system of measuring classroom verbal interaction.

Theory of Self-Concept and Self-Acceptance

The personality of an individual consists of numerous and complex traits. Social scientists have identified self-concept as one important trait of the personality. Many psychologists support the belief that man's behavior is greatly influenced by his self-concept. An individual's self-concept is basically how one views himself in relation to his environment. Self-acceptance refers to how effectively one is able to accept his perceived self-concept.

Raimy first defined the self-concept in 1943 as "...the more or less organized perceptual object resulting from present status, abilities, and roles."[16] Supporting Raimy in his definition of self-concept, Perkins referred to it as '...those perceptions, beliefs, feelings, attitudes, and values which the individual views as part or characteristic of himself."[17]

Rogers provided the following definition of self-concept:

> The self-concept, or self-structure, may be thought of as an organized configuration of perceptions of the self which are admissable to awareness. It is composed of such elements as the perceptions of one's characteristics and abilities; the percepts and concepts of the self in relation to others and to the environment; the value qualities which are perceived as associated with

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[16]V. C. Raimy, "The Self-Concept as a Factor in Counseling and Personality Organization," (Unpublished Doctoral Dissertation, Ohio State University, 1943).

[17]H. V. Perkins, "Teachers' and Peers' Perceptions of Children's Self-Concepts," *Child Development,* Vol. 29, 1958, p. 204.

experiences and objects; and goals and ideals which are perceived as having positive or negative valence.[18]

Anderson[19] believed that every individual views himself as a unique person or self, different from every other person. He saw this concept as pertaining to one's self both as a physical person and as a psychological person. She would see man as having both a physical and a psychological self-image. Anderson wrote:

> The self-concept or image is composed of many parts, and each part is conceived of as having both structure and function or of having both anatomy and physiology. Every organ or member that is conceived of as doing a specific job is included in the individual's physical self-image. Organs are also given different values, depending on the conceived functional value of each one.
>
> It is likewise true that every character trait that carries with it the implication of a result to be obtained through its use is a part of the psychological self-image. Every portion of the psychological self-image thus also has both anatomy and physiology, structure and function. As in a physical area, so in the psychological, there is a hierarchy of traits, some having great value in the individual's conceptual thinking and others having less.[20]

Strang viewed the self in four main dimensions:

1. The Basic Self-Concept, or the individual's perception of his abilities and his status and roles in the outer world. This is his concept of the kind of person he thinks he is.

2. The Transitory Perception of Self, or the self-perception which the individual holds at the present time. This view may be lacking in perspective and may be influenced by the mood at the moment or by some recent experience.

3. The Social Self. This is the self as the person thinks others see it. This concept may not correspond with other people's perceptions of him.

4. The Ideal Self. This is the kind of person the individual hopes to be or would like to be.[21]

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[18]Carl Rogers, *Client-Centered Therapy: Its Current Practice, Implications and Theory,* (Boston: Houghton-Mifflin, 1951), pp. 136-137.

[19]Camilla Anderson, "The Self-Image: A Theory of the Dynamics of Behavior," *Mental Hygiene,* Vol. 36, 1952, pp. 227-244.

[20]*Ibid.*, p. 229.

[21]Ruth Strang, *The Adolescent Views Himself: A Psychology of Adolescence,* (New York: McGraw-Hill, 1957), pp. 68-69.

Combs distinguished between the self-concept and the self-report. He stated that man's concept of self may vary from the way that he would report or describe himself. He noted that:

> We mean by the self-concept the ways in which an individual characteristically sees himself. This is the way he 'feels' about himself. The self-report, on the other hand, refers to the way in which an individual describes himself when he is asked to do so. These are by no means identical.[22]

Individuals discover their self-concept from the kinds of experiences, perhaps unique to them, which they have with life. Kelley supported this view when he wrote:

> The self consists, in part at least, of the accumulated experiential background, or backlog, of the individual.
>
> It is what has been built, since his life began, through experience and unique biological structure. The self is therefore unique to the individual.[23]

The creation of the self-concept begins at an early age and is first influenced by the individual's family. Jersild[24] felt that an important development in the formation of the self-concept occurs when the child begins to be aware of differences between his own desires and those of others who oppose or extend these desires. Sullivan[25] maintained that the child's earliest self-appraisal is in terms of what other significant people think and feel about him. These significant people generally are the individual's family.

Although each person's self-concept is unique and individual, it is generally maintained that it develops through the interaction of growth processes and personal-social development---the interaction of the person with others within his total environment. The self-concept is influenced by the quality of those social relationships; first with the family and then with others, such as relatives, peers, and the general community. Individuals learn who and what they are through their experiences, particularly with people.

Hilgard questioned:

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[22]A. W. Combs, "A Perceptual View of the Adequate Personality," *Perceiving, Behaving, Becoming: A New Focus for Education,* (Washington: ASCD, 1962), p. 51.

[23]Earl Kelley, "The Fully Functioning Self," *Perceiving, Behaving, Becoming: A New Focus for Education*, p. 9.

[24]A. T. Jersild, *In Search of Self,* (New York: Columbia University, 1952), p. 8.

[25]H. S. Sullivan, *Concepts of Modern Psychiatry,* (Washington: W. A. White Foundation, 1947), p. 107.

> Does the self have meaning only as it is reflected in behavior involving other people, either actually or symbolically? Is it true that you can describe a self only according to the ways in which other selves react to it? I am inclined to believe that the self, as a social product, has full meaning only when expressed in social interaction.[26]

Mead was among those who emphasized interaction with society as the primary factor in the development of the self.

> The self...arises in the process of social experience and activity, that is, develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process...
>
> The process out of which the self arises is a social process which implies interaction of the individuals in the group, implies the pre-existence of the group.[27]

An individual's self-concept is built and defined almost entirely in relationships with other people. Kelley stated, "Since the self is achieved through social contact, it has to be understood in terms of others. 'Self and other' is not a duality, because as they go so together that separation is quite impossible."[28]

Self-concepts can be either positive or negative. This is to say that man may view himself as being acceptable and worthwhile, with much to offer life, or he views himself as unworthy and with distrust. Rogers would see the positive individual as one who allows "every stimulus, whether originating within the organism or in the environment, to be freely relayed through the nervous system without being distorted by a defensive mechanism."[29]

Anderson stated that "the pattern of life of every individual is a living out of his self-image."[30] No part of behavior is free of the self, according to Murphy.[31] Olson and

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[26]E. R. Hilgard, "Human Motives and Concept of the Self," *American Psychologist,* Vol. 4, 1949, p. 375.

[27]G. H. Mead, *Mind, Self, and Society from the Standpoint of a Social Behaviorist,* (Chicago: Uni. of Chicago Press, 1934), p. 101.

[28]Kelley, *op. cit.*, p. 9.

[29]Carl Rogers, "Toward Becoming a Fully Functioning Person," *Perceiving, Behaving, Becoming: A New Focus for Education.* (Washington: ASCD, 1962), p. 31.

[30]Anderson, *op. cit.*, p. 240.

[31]G. Murphy, *Personality: A Biosocial Approach to Origins and Structures,* (New York: Harper, 1947), p. 10.

Wattenberg emphasized the importance of the self-concept in mental health when they said:

> ...mental health is dependent upon the strength of the ego, the wholesomeness of the self-concept. As psychoanalysts gained more experience with children as contrasted with adult neurotics, they have more and more stressed understanding of ego psychology. Meanwhile, the proponents of client-centered counselling, led by Carl Rogers, have found their work consisting largely of helping clients gain a self-concept which leads to inner harmony.[32]

One of the most revealing facts about self-concept according to Kelley was, "We do not see everything in our surroundings...we therefore choose that which the self feeds on. The direction of the growth of the self depends upon these choices."[33]

Combs and Snygg stressed the importance of the self-concept when they described individuals with adequate personalities. Individuals:

(1) perceive themselves in essentially positive ways
(2) are capable of acceptance of self and others, and
(3) perceive themselves as closely identified with others.[34]

This approach is similar to that of Kelley, who stated that "the fully functioning personality thinks well of himself and others, and also appreciates his 'state' in others."[35]

As the self-concept is developed an individual must evaluate this self-concept. The understanding and acceptance of this self-concept is referred to as one's self-acceptance. Self-acceptance can be either positive or negative. Shaffer and Shoben stated that:

> A simple but important generalization is that a well-adjusted person lives comfortably with himself. To a great extent, self-acceptance is a result of good mental health rather than its cause, but the principle can be applied positively. The first step toward accepting yourself is understanding yourself. First, you need to know how you operate, what your dominant wants are and how you go about satisfying them. Second, you have to recognize your strengths and successes without belittling yourself unduly if you do not immediately reach goals which were perhaps unrealistically high. Third, you should be able to face your limitations without too much need for self-deceit and rationalization. When you understand your own behavior and feelings, you can be honest with

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[32]W. C. Olson and W. W. Wattenberg, "The Role of the School in Mental Health," *Mental Health in Modern Education,* Vol. 54, 1955, p. 105.

[33]Kelley, *op. cit.*, p. 14.

[34]A. W. Combs and D. Snygg, *Individual Behavior: A Perceptual Approach to Behavior,* (New York: Harper, 1959), p. 248.

[35]Kelley, *op. cit.*, p. 18.

yourself and admit your own errors and shortcomings. You can then accept the bad with the good and not be plunged into anxiety at every failure.[36]

Rogers saw the positive individual as one who allows "every stimulus, whether originating within the organism or in the environment, to be freely relayed through the nervous system without being distorted by a defensive mechanism."[37] The individual with the positive self-acceptance could handle this stimulus with complete awareness, unafraid of the negative impact upon the self-image.

Snygg and Combs described the well-adjusted person in terms of the adequacy of his self-organization. According to their concept, "a phenomenal self is adequate in the degree to which it is capable of accepting into its organization any and all aspects of reality."[38] McQuitty offered: "Maximum psychological adjustment exists when all of an individual's subjective opinions of himself are entirely acceptable to him."[39]

The importance of positive self-acceptance is stressed by Maslow when he wrote, "No psychological health is possible unless this essential inner core of the person (the self) is fundamentally accepted, loved, and respected by others and by himself."[40]

Acceptance of self is in no way inconsistent with the person's striving to improve upon himself. Shaffer and Shoben stated, "The really self-accepting person accepts his own needs and strivings just as he accepts his assets and his liabilities. To accept yourself is in no way incompatible with constructive motivations which can spur you to improvement."[41]

Rogers defined the well-adjusted individual as one who is able to accept into his personality organization all perceptions, including those related to his self-concept. He describes this individual as follows:

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[36]L. F. Shaffer and Edward J. Shoben, *The Psychology of Adjustment,* (Boston: Houghton-Mifflin, 1956), pp. 586-587.

[37]Rogers, *op. cit.*, p. 32.

[38]Combs and Snygg, *op. cit.*, p. 136.

[39]L. L. McQuitty, "A Measure of Personality Integration in Relation to the Concept of Self," *Journal of Personality,* Vol. 18, p. 473, 1950.

[40]A. H. Maslow, "Some Basic Propositions of a Growth and Self-Actualization Psychology," *Perceiving, Behaving, Becoming: A New Focus for Education,* (Washington: ASCD, 1962), p. 36.

[41]Shaffer and Shoben, *op. cit.*, p. 587.

> It would appear then that when all of the ways in which the individual perceives himself--all perceptions of the qualities, abilities, impulses, and attitudes of the person, and all perceptions of himself in relation to others--are accepted into the organized conscious concept of the self, then this achievement is accompanied by feelings of comfort and freedom from tension which are experienced as psychological adjustment.[42]

The self-concept is shaped early in the development of the child. It is influenced by the relationships which the individual has with his environment and with other people. As the self-concept is formed, it must be either accepted in a positive manner or in a negative way. This self-acceptance of himself will be either enabling or disabling to the individual.

The Index of Adjustment and Values

Social scientists, recognizing the importance of the relationship between personality development and behavior, have searched for objective instruments which measure various traits of the personality. Because of a lack of objective instruments, researchers have had limited success in pursuing certain areas of personality study. It was in this context that Bills developed his *Index of Adjustment and Values.* Bills stated:

> Researchers have had difficulty in equating experimental and control groups on the basis of important variables, extensive work in the behavioral correlates of personality variables of concern to these workers has been limited, and it has been impossible to investigate the effects of diverse forms of experience on these personality variables.[43]

Bills, like other behavioral scientists, felt that an individual's behavior and his perceptions about himself and his environment were closely related. Bills, discussing the theory of his *Index of Adjustment and Values,* wrote:

> ...behavior is consistent with a behaver's perceptions about the world in which he lives. His perceptions are influenced by several variables including his needs and values, the presence or absence of threat, opportunities for experiences with stimuli, the perceiver's physiological state, and his beliefs about himself and other people. These latter beliefs include factors such as self-concept, concept of the ideal self, acceptance of self, and beliefs about other people's acceptance of themselves.[44]

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[42]Carl Rogers, "Some Observations on the Organization of Personality," *American Psychologist,* Vol. 2, 1947, P. 364.

[43]Robert E. Bills, *Manual: Index of Adjustment and Values,* (University of Alabama, 1957), p. 5.

[44]*Ibid.*, p. 5.

The *Index of Adjustment and Values* was designed to measure the variables of the personality. These variables included "self-concept, self-acceptance, concept of the ideal self, discrepancy between self-concept and the concept of the ideal self, and perceptions of how other people accept themselves."[45] Researchers could study all or any of these variables because of the simplicity of measuring large numbers of individuals with the Index.

Bills identified forty-nine trait words which could be used to measure an individual's perception of himself and other people. Three questions were asked about an individual's self-perception as related to each trait word. These questions were:

1. How often are you this sort of person?
2. How do you feel about being this way?
3. How much of the time would you like this trait to be characteristic of you?[46]

The same three questions were asked of the individual to measure his perception of other people. Bills wrote, "In order to do this you will first think about other people like you...*and then answer the questions as you think the average member of this group would answer it for himself.*"[47]

The individual would score these forty-nine trait words on a five-point basis for all six questions. The scoring system used by Bills was:

1. Seldom, this is like me (him).
2. Occasionally, this is like me (him).
3. About half the time, this is like me (him).
4. A good deal of the time, this is like me (him).
5. Most of the time, this is like me (him).[48]

The scores produced by the Index had meanings in two frames of reference---a description of the individual and his relationship to a group. The simplest level was the individual's self-description level as revealed by each of the items. The second frame of

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[45] *Ibid.*, p. 6.

[46] Robert E. Bills, *Index of Adjustment and Values: Adult Form,* (University of Alabama, 1957), p. 1.

[47] *Ibid.*, p. 1.

[48] *Ibid.*, p. 2.

reference was a normative one. The individual, thus, compared himself with norms established by large samples on the various personality variables measured by the Index. Bills, identifying the group used to establish the college norms, wrote:

> The 1728 subjects included in the college normative group were tested at the University of Florida, the University of Louisville, the University of Minnesota, and the University of Kentucky. The first three of these universities contributed to the 'Self' scores and the first and last to both the 'Self' and the 'Others' scores.
>
> The University of Minnesota group included all of the 329 freshmen who entered the University in February of 1952. The University of Louisville sample included all of the 240 students in eight undergraduate psychology classes. The University of Florida sample included 196 students from four undergraduate education classes. The remainder of the students were enrolled in undergraduate classes at the University of Kentucky. The distribution of scores for the four universities showed no statistically significant differences.[49]

Classification of individuals can also be made by the use of the self-acceptance scores and the scores of self-acceptance of others. Bills used these scores to divide individuals into four categories: + -, + +, - + and - -. Bills explained the categories when he wrote:

> The first of these signs refers to the Column II score of the 'Self' index. If this score is below the mean (171 or less) it is -. The second sign of each pair is obtained from the Column II score of the 'Others' index. If this score is equal to or greater than his self-acceptance score, it is a +, if less it is a -. Thus, a + + person has an above average self-acceptance score and an 'Others' Column II score equal to or greater than his self-acceptance score, and a - + has a below average self-acceptance score coupled with an 'Others' Column II score equal to or greater than his self-acceptance score.[50]

These categorical designations have been used as measures in studies such as "acceptability for leadership, language behavior, and superintendents' ratings of the success of their principals."[51]

A number of studies have been done to test the validity of the *Index of Adjustment and Values.* Roberts completed a study entitled "A Study of the Validity of the Index of Adjustment and Values" in which he concluded "that the self-ratings on the Index are valid

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[49]Bills, *Manual: Index of Adjustment and Values,* p. 14-15.

[50]*Ibid.*, p. 13.

[51]*Ibid.* p. 14.

indices of the emotionality of the traits for the subjects."[52]

Bills reported on further checks concerning the validity of the Index. The Index was given to three groups of individuals and each group was also tested with one of the following personality tests: the *Phillips Attitudes Toward Self and Others Questionnaire*; the *California Test of Personality*; and the *Washburne S-A Inventory.* Bills stated, "The product-moment correlation coefficients between the Index and the three personality tests are given in the accompanying table.

THE CORRELATIONS OF THE INDEX SCORES WITH THE PHILLIPS, CALIFORNIA, AND WASHBURNE TESTS

Index	Phillips N-108 Self	Phillips N-108 Others	California N-81	Washburne[1] N-80
Acceptance of Self	-.24[2]	.10	.23[3]	-.04
Discrepancy	.56	.10	-.08	.43[3]

[1]Does not include "wish" scores.

[2]Significantly different from zero at the .05 level.

[3]Significantly different from zero at the .01 level.

The correlations with the three personality tests *support* the conclusion that the Index is a valid measure of personality."[53]

Other attempts have been made to measure the validity of the Index. Omwake tested a number of students at Agnes Scott College and determined the relationships between the Index, the *Berger Scales* for measuring self-acceptance and acceptance of others, and the *Phillips Attitudes Toward Self and Others Scale.* Omwake summarized her study by writing,

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[52]G. E. Roberts, "A Study of the Validity of the Index of Adjustment and Values," *Journal of Consulting Psychology,* Vol. 16, 1952, p. 304.

[53]Robert E. Bills, *Progress of Research with the Index of Adjustment and Balues,* (Unpublished Manuscript, University of Kentucky, 1953.)

"The three measures of self-acceptance agree closely; those for attitudes toward others agree less well."[54]

Bills believed that the reason for the lower agreement on the measures of attitudes toward others "...is that the measures seek somewhat different ends. Whereas the Berger and Phillips scales ask a subject his opinion of other people, the IAV asks the subject to complete the 'Others' Index as he believes the average person in his peer group would complete it for himself."[55]

Bills reported on a study which questioned whether acceptance of self as measured by the Index is related to acceptance of self as measured by an interview. Bills stated:

> Verbatim transcriptions of recorded, 30 minute, openended interviews were collected from 13 people. Five of the subjects, all male, were graduate students in educational administration, and eight, six male and two female, were public school administrators. Two judges, working independently of each other, scored the interviews for acceptance of self and obtained satisfactory percentages of agreement. Subjects were ranked according to acceptance of self shown by the interview material and the Index of Adjustment and Values, and the ranks were correlated to give a rho of .84, which is significantly different from zero at less than the .01 level and which permits the conclusion that what a subject says about himself in an interview corresponds highly with the ratings he gives himself on the Index of Adjustment and Values.[56]

Reliability testing of the Index was centered around its use in test-retest situations. However, split-half reliability coefficients or coefficients of internal consistency have also been available for a limited number of individuals. Bills reported on a study of the reliability of the Index at the University of Kentucky. He stated:

> At the beginning of a semester a group of students was given the Index and 160 of these students were re-tested with the Index six weeks later. The total scores of Column I correlated .90 for the two periods and the total scores of Column II correlated .92 for the same group.[57]

Bills added:

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[54]Katherine T. Omwake, "The Relation Between Acceptance of Self and Acceptance of Others Shown by Three Personality Inventories," *Journal of Consulting Psychology,* 1954, p. 446.

[55]Bills, *Manual: Index of Adjustment and Values,* p. 64.

[56]Robert E. Bills, "Acceptance of Self as Measured by Interviews and the Index of Adjustment and Values," *Journal of Consulting Psychology,* Vol. 18, 1954, p. 22.

[57]Bills, *Progress of Research with the Index of Adjustment and Values,* p. 1.

Test-retest Indexes were collected for 141 subjects over an interval of sixteen weeks. In this sample Column I showed a test-retest reliability of .59 and Column III a test-retest reliability of .60. (These coefficients should be interpreted in light of the findings on the changes in emotionality...)[58]

From other testing of the reliability of the Index, Bills reported:

> The index was given to a group of students at the University of Kentucky at the beginning of a semester. Sixteen weeks later 93 of the subjects in the original group were re-tested with the Index. In this sample the test-retest reliability of the Acceptance of Self scores was .79 (product-moment) and the test-retest reliability of the Discrepancy scores was .69 (also product-moment). These coefficients compare favorably with the split-half reliabilities of .91 for Acceptance of Self scores and .88 for Discrepancy scores, and the six weeks test-retest reliabilities of .83 for Acceptance of Self scores and .87 for Discrepancy scores reported in the earlier article.
>
> The Acceptance of Self scores for the first test of the above 93 subjects were correlated with the Discrepancy scores and yielded a product-moment *r* of -.77 which is identical with the coefficient reported in the earlier article.[59]

Bills graphically reported on the test-retest reliability coefficients or stability coefficients in Table I. His findings support the reliability of the Index.

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59 [58] *Ibid.*

[59] *Ibid.*

TABLE I

SPLIT-HALF AND TEST-RETEST RELIABILITY COEFFICIENTS FOR COLLEGE STUDENTS FOR THE "SELF" AND "OTHERS" INDEXES

	N	Split-half*	N	Six weeks test-retest	N	Sixteen weeks test-retest
SELF						
Column I	100	.53**	160	.90	141	.59
					300	.86
Column II	237	.91	175	.83	93	.79
	100	.82			300	.68
Column III	100	.77	160	.92	141	.60
					300	.58
Discrepancy	237	.88	.75	.87	93	.69
	100	.87			300	.52
OTHERS						
Column I	100	.92			300	.84
Column II	100	.94			300	.65
Column III	100	.73			300	.69
Discrepancy	100	.92			300	.40

*Corrected for the full length of the IAV by the Spearman-Brown Formula.

**All coefficients in this table are significantly different from zero at less than the .01 level.[60]

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[60]Bills, *Manual: Adjustment and Values* p. 54.

The *Index of Adjustment and Values* has been used as a personality measurement in a number of studies. Fink reported in a study at the University of Oregon that:

> ...at statistically significant levels, people who are high in acceptance of self, as measured by the IAV, have higher group status, are more responsible, are more efficient intellectually, are more dominant, participate more in social events, have fewer psychosomatic complaints, have less anxiety, have fewer contacts with student-affairs counselors, have a higher general psychological adjustment, are better prepared for college work, make higher scores on achievement tests, and are more proficient in English mechanics than people who are low in acceptance of self as measured by the IAV.[61]

Bills attempted to relate scores on the Index to levels of aspiration of tasks by various individuals. He found that the attitude of an individual toward one's performance of a task was significantly related to one's acceptance of self as measured by the Index. Bills reported:

> Thirty volunteer, female subjects were tested with the Index of Adjustment and Values and five levels of aspiration tasks. Subjects set levels of aspiration for each of the five tasks, estimated their performance in the tasks, expressed comments regarding their performance, and after a filled interval attempted to recall their performances. It was concluded that IAV scores were, to a low degree, related to level of aspiration, as measured by the experimental tasks, that the variability of the level of aspiration set by groups selected by the IAV was significantly different, and that acceptance of self shown by the IAV was significantly related to attitude toward performance, estimate of performance, and recall of performance.[62]

Jackson and Carr have reported a study that showed that the Index "can be used to obtain meaningful scores from a schizophrenic population."[63] A modified form was given to 20 female student nurses and 20 female patients in a mental hospital who have been diagnosed as schizophrenics. The authors concluded that:

> Results support the impression that the discrepancy between one's prediction of the responses of another and one's self-description is not a measure of projection and might better be interpreted as a measure of feeling of warmth and closeness. The general findings are interpreted in the light of the variability of schizophrenics as a group and their general deficiency in the area

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[61] *Ibid.*, p. 64-65.

[62] Robert E. Bills, "A Comparison of Scores on the Index of Adjustment and Values with Behavior in Level-of-Aspiration Tasks," *Journal of Consulting Psychology,* Vol. 17, 1953, p. 211.

[63] Bills, *Manual: Index of Adjustment and Values,* p. 78.

of psychological closeness and identification with others.[64]

Renzaglia completed a study of "Some Correlates of the Self Structure as Measured by the Index of Adjustment and Values." His sample included freshmen at the University of Minnesota who were in Communications classes. From the results of this study, he concluded that high self-scorers on self-acceptance when compared with the low-scorers showed:

1. More optimism with respect to future success in college;
2. Greater satisfaction with immediate periods in their life;
3. Much less feeling of tension and anxiety;
4. A greater tendency to externalize their conflicts;
5. A more favorable appraisal of their self-characteristics;
6. That they value certain personal traits considerably more;
7. That they conceive others to possess more favorable personal attributes;
8. Less experience of a negative sort;
9. Less intense feeling toward these punishing experiences;
10. More favorable attitudes toward their parents;
11. That fewer people punished them;
12. And that they are more certain about what they are willing to say about themselves.[65]

Bills stated that the Index has had success in showing the importance of personality characteristics in the success of teachers and educational administrators. However, he cautioned against using the Index as a selection measure until further research could be completed. The difficulty, according to Bills, was that:

> The conditions of administration have been such as to encourage subjects to express their true 'self-reports.' Subjects were led to believe that filling out the Indexes would serve valuable purposes, such as: checking research hypotheses, collection of normative data, and securing personal information for their own purposes. It would be expected that performances would differ if the IAV were used for other purposes, for example, in the selection of job

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[64]W. Jackson and A. C. Carr, "Empathic Ability in Normals and Schizophrenics," *Journal of Abnormal and Social Psychology,* Vol. 51, 1955, p. 82.

[65]G. A. Renzaglia, *Some Correlates of the Self Structure as Measured by an Index of Adjustment and Values,* (Unpublished Ph.D. dissertation, University of Minnesota, 1952), p. 182.

applicants. Additional study must be attempted before the IAV is used for such purposes.[66]

Teacher Influence and Classroom Verbal Interaction

Teacher influence in the classroom has been studied from various approaches and directions. Verbal interaction, which is controlled by the teacher, also has received considerable attention in recent years. The educational practitioner has attempted to evaluate the teaching act and relate it to learning. Keislar identified the problem in analyzing teaching when he stated that, "Teaching is largely an art. It is an art to the extent that we cannot describe symbolically either what the teacher does or to what cues he is responding."[67]

Reporting on the effectiveness of the teaching act, Barr wrote:

> The constituents of effectiveness are not found in teachers, or in pupils, or in situations, but in relationships that exist among these at any given time and place. The learning-teaching situation is a dynamic situation and must be so viewed.[68]

According to the historical survey in the *Handbook of Research on Teaching,* attempts to record teacher behavior and influence systematically appeared as early as 1914.[69] However, most forms of analyzing and observing classroom behavior were unsatisfactory. Kliebard observed:

> Although one finds observation schedules and systems in the literature of the early part of this century, they frequently took the form of supervisors' check lists designed to rate teachers rather than to study teaching. It has been largely within the past decade that experimental studies involving the observation of classroom teaching and the development of instruments of analysis have become prominent.[70]

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[66]Bills, *Manual: Index of Adjustment and Values,* p. 7.

[67]Evan R. Keislar, "The Learning Process and the Teaching of Science," *The Science Teacher,* Vol. 29, December 1962, p. 18.

[68]A. S. Barr and Others, "Wisconsin Studies of the Measurement and Prediction of Teacher Effectiveness: A Summary of Investigations," *Journal of Experimental Education,* Vol. 30, September 1961, p. 140.

[69]E. Horn, "Distribution of Opportunity for Participation Among Various Pupils in Classroom Recitations," 1914, as found in *Handbook of Research on Teaching,* p. 254.

[70]Herbert M. Kleibard, "The Observation of Teaching: Some Recent Research," (Unpublished mimeographed paper of a speech presented at a Seminar on Teaching sponsored by the Association for Supervision and Curriculum Development, Chicago, Illinois, 1965), p. 2.

Rose felt that in order to analyze the art of teaching, the teaching act had to be divided into individual parts which affect the total situation. He stated:

> One key to the analysis of a complex performance such as teaching is to devise a structure of elements into which any part of the whole can be classified. Thus the continuous multidimensional flow of teaching acts is segmented into manageable parts which can then be understood individually in their relations to the flow.[71]

Anderson[72] attempted to analyze classroom behavior in 1937. This was an effort to determine the relationships between students and teachers in classrooms where different styles of teaching existed. He divided teacher behavior into two major dimensions: Dominative behavior and integrative behavior. These were convenient labels for two techniques of teacher behavior in the classroom as observed by Anderson.

Concerning dominative behavior, Anderson wrote:

> The use of force, commands, threats, shame, blame, attacks against the personal status of an individual are called dominative techniques of responding to others. Domination is characterized by a rigidity or inflexibility of purpose, by an unwillingness to admit the contribution of another's experience, desires, purposes, or judgment in the determining of goals which concern others.[73]

Integrative behavior was viewed by Anderson as behavior which makes the most of individual differences. It was behavior which was flexible, democratic, and adaptive to an atmosphere where individuals could express themselves fully. Anderson stated:

> Integrative behavior is thus consistent with concepts of growth and learning. It makes allowances in one's behavior for differences in others. It is behavior that makes the most of individual differences. Whereas domination stifles or frustrates individual differences, socially integrative behavior respects differences, advances the psychological processes of differentiation. Integrative behavior is flexible, adaptive, objective, scientific. It is an expression of the operation of democratic processes.[74]

Withall, agreeing with Anderson, reported that, "Integrative behavior was that which expanded the children's opportunities for self-directive behavior and cooperative behavior

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[71]Gale W. Rose, "Performance Evaluation and Growth in Teaching," *Phi Delta Kappan,* Vol. 45, October 1963, p. 45.

[72]Harold H. Anderson, "The Measurement of Domination and of Socially Integrative Behavior in Teachers' Contacts with Children," *Child Development,* Vol. 10, 1939, p. 73.

[73]*Ibid.*, p. 73.

[74]*Ibid.*, p. 74.

with the teacher and his peers."[75] Anderson believed that in many cases teachers made use of both styles of behavior at various times within the classroom. It was his belief, however, that one teaching pattern generally becomes dominant. Teachers are able to be flexible in their use of the two behaviors only for short periods of time. They will revert to the style which is most comfortable. Anderson demonstrated that children's behaviors were consistent with the kind of personality the teacher displayed in the classroom.

Lippitt described his concept of teacher behavioral patterns somewhat differently than did Anderson. Lippitt saw the teacher influences as either autocratic or democratic. Authoritarian teaching influence described a situation when all policy, techniques, and tasks were determined by the teacher. Lippitt reported in a study that "...autocratic leadership elicited either an agressive rebelliousness towards the leader or an apathetic submission to the leader."[76]

Lippitt viewed the democratic classroom as one in which all policies are a matter for group discussion and decision, encouraged and assisted by the teacher. Withall, reporting on Lippitt's work, stated:

> The significance of Lippitt's work lies in the fact that it is the earliest, major, successful attempt to observe and control objectively the climate variable in group life. Subsequent work in the area has been influenced and helped by his concepts and methodology.[77]

Withall was the first of the early researchers of classroom climate to attempt to measure classroom interaction by means of a category system. In the early 1940's, he developed a rather complex technique in determining the social-emotional climate of the classroom. Withall concluded that:

1. Climate can be assessed and described.

2. Several individuals can be trained to use the criteria of the climate index and achieve an adequate measure of agreement among one another in categorizing statements in typescripts.

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[75]John Withall, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," *Interaction Analysis: Theory, Research, and Application,* (Reading: Addison-Wesley, 1967), p. 49.

[76]Kurt Lewin, Ronald Lippitt, and Ralph K. White, "Patterns of Aggressive Behavior in Experimentally Created 'Social Climates'," *Journal of Social Psychology,* Vol. 10, 1939, p. 274.

[77]John Withall and W. W. Lewis, "Social Interaction in the Classroom," *Handbook of Research on Teaching,* p. 697.

3. A valid measure of social-emotional climate of groups is obtainable through a categorization of teacher statements.

4. Within the limits of behavioral and personality variations, the climate index gives us a consistent pattern of verbal behavior for a given teacher from day to day.

5. Different patterns of verbal behavior used by several teachers can be identified.

6. Statements categorized by the climate index as likely to produce "positive" feelings tend to be similarly categorized by impartial observers and tend to be reacted to with "positive" feelings by the individuals to whom they are addressed.

7. Statements categorized by the climate index as likely to produce negative feelings tend to be reacted to with negative feelings by the individuals to whom they are addressed.[78]

Withall was one of the first researchers to measure teacher influence and to consider the verbal statements of the teachers as a valid measure of the total climate of the classroom. Withall, Anderson, and Lippitt believed that the climate within the classroom was established by the behavior of the teacher. Withall and others agreed that the verbal statements of the teacher were an adequate measure of the total influence of the teacher. Hughes, studying the assessment of teaching, wrote:

> Verbal behavior is, of course, the most continuous and pervasive teacher behavior in the classroom. It has been designated by Mary Aschner as, 'the language of responsible actions designed to influence the behavior of those under instruction'.[79]

Bellack argued the importance of verbal behavior in the learning process:

> It is fashionable to say that teachers talk too much and that to learn through words rather than experience is sheer verbalism. This view is held in spite of the fact that it is difficult, if not impossible, to teach anyone anything without the use of language. And it is equally true that most of the knowledge which we teach in school is expressed in words or other symbolic forms and that apart from the language system there would be little or no knowledge to teach at all.[80]

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[78]Withal, *op. cit.*, p. 63.

[79]Marie M. Hughes, "Utah Study of the Assessment of Teaching," *Theory and Research in Teaching,* p. 26

[80]B. Othanel Smith, "Toward A Theory of Teaching," *Theory and Research in Teaching,* p. 3.

Amidon, referring to the importance of talk within the classroom, emphasized the value of teacher talk. He stated:

> It is axiomatic that the teacher is the most influential person in the classroom. Since talk is such a vital part of teaching, and since the teacher's verbal behavior directly influences pupils' verbal behavior, it follows that teacher talk is tremendously important in education.[81]

Flanders, in the early 1950's, recognized the importance of classroom interaction. He felt that the ultimate goal of the study of teacher influence in the classroom was to achieve an understanding of teacher-student interaction and to determine which conditions maximize learning.

He believed that the teacher controlled the climate and interaction of the classroom and that it was through the use of verbal language that this influence was maintained. In the classroom, the teacher-pupil relationships are essentially superior-subordinate in quality. The responsibility for classroom activities is the teacher's, and both the teacher and the pupils expect the teacher to take change, to initiate, and to control the learning activities. The freedom to direct or not to direct the activities of others is initially given only to the teacher; whatever freedom pupils have in this respect results from the actions of the teacher.[82] Flanders felt that the influence of the teacher was either direct or indirect. He wrote:

> Direct influence consists of stating the teacher's own opinion or ideas, directing the pupil's action, criticizing his behavior, or justifying the teacher's authority or use of that authority. Indirect influence consists of soliciting the opinions or ideas of the pupils, applying or enlarging on those opinions or ideas, praising or encouraging the participation of pupils, or clarifying and accepting their feelings.[83]

Flanders believed that there were times when direct influence was appropriate and other times when indirect influence was most appropriate. He observed:

> A general assumption underlying the discussion is that in the control of cla. om learning there are times when direct influence is most appropriate and other times when indirect influence is most appropriate. At first glance,

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[81]Edmund Amidon and Elizabeth Hunter, *Improving Teaching,* (New York: Holt, Rinehart, Winston, 1966), p. 11.

[82]Ned A. Flanders, "Teacher Influence in the Classroom," *Interaction Analysis: Theory, Research, and Application,* (Reading: Addison-Wesley, 1967), p. 108.

[83]*Ibid.* p. 109.

> this assumption may appear to conflict with the findings of research on classroom climate. However, a careful study of the data collected indicates that in all types of classroom situations, both direct and indirect influence occurred. A widespread misinterpretation of research on classroom climate has been that direct influence should be avoided in the classroom.[84]

Flanders, however, believed that teachers use their influence either directly or indirectly and these patterns become characteristic of that teacher. There are a number of characteristics that distinguish the most direct teachers from the most indirect. Flanders observed:

> ...indirect teachers were more alert to, concerned with, and made greater use of statements made by students. These teachers went beyond mere clarification and acknowledgment of student ideas over periods longer than three seconds. This occurred more frequently by a factor of 18 when the most indirect social studies teachers were compared with the most direct.
>
> Second, the most indirect teachers asked longer, more extended questions, and did this about four times more frequently than did the most direct teachers. Short questions usually elicited short student responses; long questions, long student responses. Ideas were dealt with in greater detail in the most indirect classrooms.
>
> Third, the most direct teachers had more discipline problems and found it necessary to interrupt giving directions in order to criticize students three times more often than did the most direct. The most direct teachers gave longer and more involved directions and often had to repeat directions.[85]

Flanders, in summing up the work on classroom climate and teacher-student interaction, wrote: "The concepts 'integrative-dominative,' 'democratic-authoritarian,' 'student centered-teacher centered' and 'indirect-direct,' all spring from a conviction that most teachers could become more effective if they would interact with pupils rather than direct them."[86]

Interaction Analysis

The primary reasons educators have attempted to study teacher behavior within the classroom were to achieve a greater understanding of the relationship between teachers and

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[84] *Ibid.*, p. 115.

[85] Ned A. Flanders, "Some Relationships Among Teacher Influence, Pupil Attitudes and Achievement," *Interaction Analysis: Theory, Research, and Application,* p. 227.

[86] Ned A. Flanders, *Interaction Analysis: Theory, Research, and Application,* p. viii.

students and to establish positive learning principles. Recently, the process of systematic observation of classroom verbal interaction was developed and showed great promise as an instrument for measuring the verbal behavior between students and teachers.

Flanders developed, in the 1950's, an interaction analysis system which has become the most widely used of several observational tools. Verbal interaction was considered by Flanders to be representative of the total social process within the classroom. He observed:

> The Flanders system is concerned with verbal behavior only, primarily because it can be observed with higher reliability than can nonverbal behavior. The assumption is made that the verbal behavior of an individual is an adequate sample of his total behavior.[87]

Flanders divided the verbal behavior of the classroom into ten categories. These categories were summarized in Table II.

These categories consisted of teacher talk, student talk, and silence or confusion. In Flanders' system of interaction analysis, all statements of the teacher were scored as either direct or indirect. Direct influence consisted of teacher-centered verbal action. This type of influence created a dependence of the student upon the teacher.

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[87]E. Amidon and N. Flanders, "Interaction Analysis as a Feedback System," *Interaction Analysis: Theory, Research, and Application,* (Reading: Addison-Wesley, 1967), p. 121.

TABLE II

SUMMARY OF
CATEGORIES FOR INTERACTION ANALYSIS

TEACHER	INDIRECT INFLUENCE	1. *ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
		2. *PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head and saying "uh huh" or "go on" are included.
		3. *ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas or suggestions by a student. As teacher brings more of his own ideas into plan, shift to category 5.
		4. *ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
TALK	DIRECT INFLUENCE	5. *LECTURES: giving facts or opinions about content or procedure; expressing his own idea; asking rhetorical questions.
		6. *GIVES DIRECTIONS: direction, commands or orders with which a student is expected to comply.
		7. *CRITICIZES OR JUSTIFIES AUTHORITY: statements intended to change student behavior from non-acceptable to acceptable patterns; bawling someone out, stating why the teacher is doing what he is doing, extreme self-reference.
	STUDENT TALK	8. *STUDENT TALK RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.
	STUDENT TALK	9. *STUDENT TALK INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.

10. *SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by observer.[88]

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[88] *Ibid.*, p. 125.

Direct verbal statements were those which consisted of the teacher's own ideas, justifying his authority or behavior, and directing the pupils' classroom action.

Indirect influence consisted of student-centered verbal action. Indirect influence by the teacher solicited the opinions and the ideas of the student, enlarging those ideas and encouraging the participation of the students. Flanders summarized these styles of influence when he wrote:

> Conditions of dependence or independence are created by the teacher's choice of influence. One can conceive of *direct influence* and *indirect influence* which, under appropriate circumstances, determine the degree of dependence. These two kinds of influence can be defined, in terms of verbal behavior, as follows:
>
> *Direct influence* consists of stating the teacher's own opinion or ideas, directing the pupil's action, criticizing his behavior, or justifying the teacher's authority or use of that authority.
>
> *Indirect influence* consists of soliciting the opinions or ideas of the pupils, applying or enlarging on those opinions or ideas, praising or encouraging the participation of pupils or clarifying and accepting their feelings.[89]

The Flanders system also provided for the verbal behavior of the student. Student talk consisted of two categories——response to the teacher and talk initiated by the student.[90]

The third area of classroom verbal behavior was classified by Flanders as silence or confusion. This classification was to provide for all verbal behavior that could not be categorized as either teacher talk or student talk.[91]

In an effort to accurately categorize teacher behavior, Flanders established five basic ground rules. These were:

> Rule 1: When no certain in which of two or more categories a statement belongs, choose the category that is numerically farthest from category 5.
>
> Rule 2: If the primary tone of the teacher's behavior has been consistently direct or consistently indirect, do not shift into the opposite classification unless a clear indication of shift is given by the teacher.

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[89]N. A. Flanders, "Teacher Influence in the Classroom," *Interaction Analysis: Theory, Research, and Application,* (Reading: Addison-Wesley, 1967), p. 109.

[90]Amidon and Flanders, *op. cit., Interaction Analysis,* p. 124.

[91]*Ibid.,* p. 124.

Rule 3: The observer must not be overly concerned with his own biases or with the teacher's intent.

Rule 4: If more than one category occurs during the three-second interval, then all categories used in that interval are recorded; therefore, record each change in category. If no change occurs within three seconds, repeat that category number.

Rule 5: If a silence is longer than three seconds, it is recorded as a 10.[92]

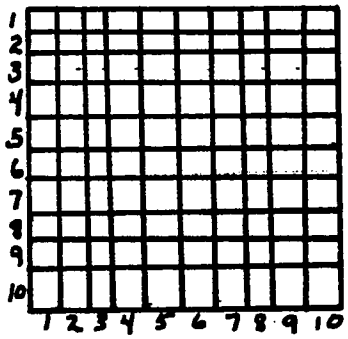
The procedure Flanders developed for teacher-pupil verbal interaction functioned as an effective research tool. When employed by a trained observer, reliable data was effectively obtained. The method of scoring the verbal interaction was to write down every three seconds the category number of the interaction observed. Flanders, describing the method used, stated:

> Every three seconds the observer writes down the category number of the interaction he has just observed. He records these numbers in sequence in a column. He will write approximately 20 numbers per minute; thus, at the end of a period of time, he will have several long columns of numbers. The observer preserves this sequence of numbers that he has recorded. It is important to keep the tempo as steady as possible, but it is even more crucial to be accurate.[93]

The classification of the verbal interaction in three-second intervals provided the observer with a long sequence of recorded numbers. A systematic means was necessary for analyzing the numbers. Flanders used a matrix consisting of 10-rows by 10-columns in an effort to provide a vehicle for determining the specific aspects of the classroom interaction. Table III identified the matrix used.

TABLE III

INTERACTION MATRIX



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[92] *Ibid.*, pp. 126-128.

[93] *Ibid.*, pp. 125-126.

Tabulations were made in the matrix using pairs of numbers---beginning with the first number of the sequence. The particular cell in which tabulation of the pair of numbers was made was determined by using the first number in the pair to indicate the row and the second number in the pair for the column. Each pair of numbers overlapped with the previous pair and, consequently, each number was used twice except for the first and the last number in each sequence.

After the observer tabulated a matrix, he then had to develop a description of the verbal interaction. Flanders identified several methods which provided this description. He wrote:

> The first step is computing the percentage of tallies in each of the columns. This is done by dividing each of the column totals, 1 through 10, by the total number of tallies in the matrix. This computation gives the proportion of the total interaction in the observed classroom situation found in each category.[94]

Flanders believed that the total percentage of teacher talk and the total percentage of student talk was important. He stated:

> The total percentage of teacher talk, of prime importance in interpreting the matrix, is found by dividing the total number of tallies in columns 1 through 7 by the total number of tallies in the matrix.[95]

To determine the student talk, the observer had to total columns 8 and 9 and divide this number by the total number of tallies in the matrix.

Another method of importance in analyzing the interaction was to classify the amount of teacher talk that was direct and teacher talk that was indirect. Flanders referred to this method as the Indirect-Direct Ratio (ID Ratio). Flanders observed:

> The total number of tallies in columns 1, 2, 3 and 4 is divided by the total number of tallies in columns 5, 6 and 7 to find the ID Ratio or the ratio of indirect to direct teacher statements. An ID Ratio of 1.0 means that for every indirect statement there was one direct statement; an ID Ratio of 2.0 means that for every two indirect statements there was only one direct statement, etc.[96]

A Revised ID Ratio was used by Flanders in order to "...find out the kind of emphasis given motivation and control in a particular classroom. The number of tallies in columns 1,

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[94] *Ibid.*, p. 131.

[95] *Ibid.*, p. 132.

[96] *Ibid.*, p. 132.

2 and 3 is divided by the number of tallies in columns 6 and 7 to find this revised ratio."[97] Columns 1, 2, 3, 6 and 7 were used to identify motivation and control in the classroom and not as concerned with presentation of subject matter. The Revised ID Ratio eliminated categories 4 and 5 (asking questions and lecturing) and "gives evidence about whether the teacher is direct or indirect in his approach to motivation and control."[98]

Flanders, in identifying the difference between direct teachers and indirect teachers, stated:

> Teachers referred to here as 'direct' are those who were identified in the research and in the laboratory as using considerably more than the average amount of direct influence. The indirect teachers are those who used much more than the average of 'indirect' influence. The average percentages given are based on matrices of junior high school teachers because this is the only level at which large numbers of teachers have been observed. Subsequent examination of matrices of elementary and high school teachers has revealed no major differences between those teachers and teachers at the junior high school levels. Average percentages reflect current practice, not the best or most desired practices.[99]

Several cells of the matrix were identified by Flanders[100] as being indicative of direct teaching patterns. Heavy use of cells 6 and 7 was common with teachers who used direct influence in the classroom. He also found that heavy use of cells 1, 2 and 3 was made by teachers who were indirect in their approach to classroom influence.

The use of several of the ten categories was found by Flanders to give direction to identifying teaching patterns. The use of category 2 was important. Flanders observed:

> Direct and indirect teachers seem to use practically the same number of statements fitting into category 2. The average amount of praise used is about 2% of the total time of the classroom interaction. It is somewhat surprising to many teachers to learn that the direct teacher uses as much praise as the indirect teacher. The 2-2 cell, showing extended praise, is particularly significant as it is used almost twice as much by the indirect as by the direct teacher.[101]

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[97] *Ibid.*, p. 132.

[98] *Ibid.*, p. 132.

[99] *Ibid.*, p. 137.

[100] E. Amidon and N. A. Flanders, *The Role of the Teacher in the Classroom,* (Minneapolis: Paul S. Amidon and Associates, Inc., 1963.)

[101] Amidon and Flanders, *op. cit.*, p. 138.

Category 3 was of primary importance in identifying the difference between direct and indirect teachers. Flanders found that:

> The greatest difference between teachers who are identified as direct and those who are indirect is in their use of category 3, acceptance or clarification of ideas. Only about 2% of the tallies of direct teachers fall in category 3, but about 9% of indirect teacher statements fall in this category.[102]

Flanders emphasized the use of category 3 when he wrote:

> Teachers who use the 3-3 cell are not only accepting and using student ideas but are also enlarging upon these ideas by using them to show children the relationships between their own ideas and the content in the classroom. The use of category 3, particularly the further extension of student ideas, which is shown in the 3-3 cell, often distinguishes between two types of teachers: the one who is alert to and utilizing the relationship between a student's idea (whether right or wrong) and classroom content, and the teacher who is apparently unaware of or does not care to utilize this relationship.[103]

The significance of categories 6 and 7 was also observed by Flanders:

> In their use of category 6, direct and indirect teachers are often found to differ significantly with the direct teacher using about 8% and the indirect teacher only 4% of the total interaction time in giving directions.
>
> A look at category 7, too, helps in discriminating between direct and indirect teachers because the two types differ in the amount of time they spend in criticism and self-justification. The direct teacher employs criticism about 5% of the time, and the indirect teacher less than 1% of the time. Nor do the two kinds of teachers use category 7 statements in the same way. Most of the criticism used by the direct teacher is extended criticism, which shows up in cell 7-7. The direct teacher also uses criticism after lecture, direction and student talk. This use of criticism shows up in the 5-7, 6-7, 8-7 and 9-7 cells.
>
> The indirect teacher, who rarely uses the 6-7 and 7-6 cells, tends to distribute his use of criticism more evenly among the other cells of the matrix than does the direct teacher.[104]

The use of student talk was significant also in determining the teaching patterns. Categories 8 and 9 represented significant differences between direct and indirect teachers.

> The significant difference between the direct and indirect teacher in relation to category 8 is not in the amount of student talk it represents but rather in the way in which the teachers induce pupil participation. In the matrix of the direct teacher, about 50% of category 8 tallies occur in the 4-8

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[102] *Ibid.* p. 138.

[103] *Ibid.*, p. 138.

[104] *Ibid.* p. 138.

> cell, which implies answers to teacher questions. In the matrix of the indirect teacher, the total in the 4-8 cell is closer to 30% of the total in category 8. A larger percentage of student talk in the 8-8 cell occurs in the matrix of the indirect teacher than in that of the direct teacher.
>
> The differences are also significant in category 9. Although there is very little difference in total percentages of category 9, statements appearing in matrices of direct and indirect teachers, sustained student talk, shown in the 9-9 cell, occurs infrequently in the matrix of the direct teacher. Students in the classroom of the indirect teacher, according to this information, express themselves more freely.[105]

An analysis of these various differences in the use of classroom verbal behavior allowed Flanders and his associates to study the effects teachers had upon students. Interaction analysis provided an objective measure of the verbal behavior of the classroom and, thus, became an effective research tool.

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[105] *Ibid.* p. 139.

CHAPTER III

METHODS AND PROCEDURES

Selection of Participants

Arrangements were made through the Department of Secondary Education of the University of Nebraska for the investigator to administer the *Index of Adjustment and Values* to all of the student teachers in social studies who were beginning their practice teaching experience during the first semester of the 1969-1970 school year. This measurement was given in a large group setting the first day that the student teachers reported for orientation in the Fall of 1969.

At that time, the social studies student teachers were provided with no information concerning the study other than the fact that the investigator was interested in accurately measuring the student teachers with the *Index of Adjustment and Values* for research purposes. No information was given to the student teachers concerning the objectives of the research. Emphasis was placed, however, on the fact that this study was related in no way to their evaluation or experience in student teaching.

Sixty student teachers were given the complete Index measurement. Scores were obtained for the entire Index. However, only the scores relating to the self-acceptance variable were used in this research study. Based upon this score, 30 student teachers were finally selected for this study. In identifying the participants for the project, the investigator ranked the 60 self-acceptance scores and selected, according to the I.A.V., the 15 highest self-acceptance scores on the scale as representative of the positive group and the 15 lowest acceptance scores on the scale as representative of the negative group. The remaining 30 social studies student teachers, whose scores ranged from 163 to 186 on the self-acceptance phase of the I.A.V. were not used in this study.

The positive group of student teachers had self-acceptance scores ranging from 186 to 224 and the negative group of student teachers had self-acceptance scores ranging from 121 to 163. Research completed on the *Index of Adjustment and Values* indicated that any score of 171 or above on the self-acceptance phase of the measurement was considered a positive self-acceptance trait and any score under 171 was to be considered as a negative self-acceptance trait.

Taping of Participants

Arrangements again were made through the Department of Secondary Education at the University of Nebraska to tape record the selected participants for use in analyzing their classroom behavior in terms of verbal interaction. The investigator met with the college supervisors for the 30 student teachers and informed them of the purpose and direction of the research study. Five college supervisors were responsible for the 30 student teachers involved.

Directions were given to these men who were to relate the instructions to the participants. The investigator felt that this procedure would prevent the student teachers from associating the measurement——the *Index of Adjustment and Values*——with the second phase of the research project——Interaction Analysis.

The instructions given by the supervisors to the student teachers included:

1. Each student teacher would receive a tape from his college supervisor. This tape was to be used for this project.
2. Each student teacher was to have three different taping sessions. Each session should be fifteen minutes in length. These sessions did not have to be held on consecutive days.
3. All taping sessions were to take place between December 1, 1969, and December 19, 1969.
4. These taping sessions were to be considered representative or typical of that particular student teacher's teaching style during a discussion period. Unusual class situations were not to be used for this project. This would eliminate such classroom situations as testing, film showings, and teacher lecture periods.
5. Technical advice was to be obtained from the media personnel in the building. These individuals had been informed of the project and the needs of the taping sessions.
6. Tapes were to be returned to the college supervisor following the completion of the project.

Use of the Tape Recording Equipment

The investigator contacted the media personnel in the buildings where the participants would be doing their taping. These individuals were instructed as to the purpose of the tape recordings and their technical assistance was requested in aiding the student teacher obtain

the best quality of sound possible.

Several alternatives were suggested by the investigator to the media personnel to assure sound quality for this project. The use of a mike-mixer was found to be the ideal method of obtaining quality sound. This would allow the use of several microphones which would pick up sound effectively in all areas of the classroom. If a mike-mixer was not available, quality microphones were to be used. All tape recordings were made at 3 3/4 inches per second.

Training in Interaction Analysis

The investigator was first introduced to Flanders Interaction Analysis in 1967 through the Department of Secondary Education at the University of Nebraska. Further instruction in this process was obtained at the University when the investigator was invited to participate during a Macrel Project training session in interaction analysis.

The investigator again was given instruction during a 1969 summer school class at the University of Nebraska——Supervision of Student Teachers. At this time and again prior to the scoring of the tapes for this research the investigator made use of a program-learning unit on Flanders Interaction Analysis. This program was entitled, "A Programmed Approach to Interaction Analysis," developed by Miles Olson, Allen Seagren, Ron Joekel, and Bert Alfrey at the University of Nebraska. This material included background information on interaction analysis, a program learning packet and accompanying tape recordings. Experience was gained by the investigator in the use of this procedure by practicing interaction analysis with student teachers and full-time teachers.

Scoring of Student Teacher Tapes

After receiving all of the classroom tape recordings from the student teachers' college supervisors, the investigator recorded the classroom verbal interaction according to Flanders' ten categories. The investigator discovered that the most effective method of coding the interaction was to record the data in vertical columns. The time interval was maintained at a minimum frequency of three seconds per code mark as instructed by Flanders. However, whenever a category change occurred, regardless of the time element, the change was coded. The use of a wrist watch aided in the timing of the three-second intervals.

Each teaching session of the student teachers was recorded separately by the investigator and then the results of the three taping episodes were combined to represent verbal interaction patterns of each student teacher participating in the project.

The coded data of the tape recordings was transferred from the vertical columns to a 10-row by 10-column matrix. This was accomplished by pairing the numbers in the vertical sequence and coding the first number of each pair in the corresponding category of the row of the matrix and the second number of each pair in the corresponding category of the column of the matrix. Each pair of numbers overlapped with the previous pair, and thus each number, except for the first and last numbers in the vertical sequence, was used twice. This procedure allowed the investigator not only to tabulate the results of each category effectively, but also allowed for a visual guide to the heavy use of particular cells within the matrix.

Converting Scores to Common Base

After combining the individual tape recording results into a single matrix which became representative of the verbal interaction pattern of each participant, the investigator found that not all participants had the same number of total tallies. This occurred because some of the participants changed behavior more often than other participants and this resulted in a greater number of total codes. Therefore, the investigator converted the total tallies for each participant to a common score of 1000. This was necessary in order to accurately compare the two samples.

Statistical Comparison of Two Samples

The investigator used the *t* Test of Variance to test the hypotheses of the study. This statistical procedure was used because of the size of the sample. The *t* test is an effective measure to use when dealing with a small sample.

CHAPTER IV

PRESENTATION OF DATA

The purpose of the study was to analyze the influence of student teachers' self-acceptance on the classroom verbal interaction as measured by Flanders' Interaction Analysis. The data was gathered to test the differences in student teachers with positive self-acceptance and those with negative self-acceptance as measured by:

1. Indirect-Direct Ratios
2. Revised Indirect-Direct Ratios
3. Student-Teacher Ratios
4. Each of the ten categories of the interaction matrix
5. Seven of the cells of the matrix——cells 2-2, 3-3, 6-7, 7-6, 4-8, 8-8 and 9-9

This chapter presented the data collected on the participants as grouped by their self-acceptance scores on the *Index of Adjustment and Values.* The positive and negative groups compared by the use of the *t* Test to determine the statistical significance of the difference as tested by the hypotheses of this research project.

Indirect-Direct Ratios

The *t* Test of Significance was used by the investigator to test the first hypothesis: There is no significant difference in the Indirect-Direct Ratios of the two samples of student teachers as measured by interaction analysis.

The Indirect-Direct Ratio was determined by dividing the indirect category tallies——tallies from categories 1 through 4——by the direct category tallies——tallies from categories 5 through 7. Indirect teacher talk categories solicited the opinions or ideas of the pupils, accepted those ideas and feelings and enlarged upon them, or encouraged the participation of the pupils. Direct teacher talk categories consisted of stating the teacher's own opinions, justifying the teacher's authority, criticizing the pupil's behavior, or directing the pupil's action.

Table IV represents the Indirect-Direct Ratios for each of the 30 participants who had been classified as either positive or negative self-accepting individuals as measured by the *Index of Adjustment and Values.*

TABLE IV

INDIRECT-DIRECT RATIOS
FOR THE POSITIVE AND NEGATIVE SAMPLES

POSITIVE STUDENT TEACHERS	ID RATIO	NEGATIVE STUDENT TEACHERS	ID RATIO
A-1	.948	B-1	.286
A-2	.342	B-2	.505
A-3	.294	B-3	1.551
A-4	.498	B-4	.946
A-5	.684	B-5	.601
A-6	.734	B-6	.279
A-7	.770	B-7	.486
A-8	2.627	B-8	1.254
A-9	2.421	B-9	1.300
A-10	2.458	B-10	1.372
A-11	.827	B-11	1.842
A-12	.857	B-12	4.040
A-13	.871	B-13	.943
A-14	.844	B-14	.912
A-15	.863	B-15	.889
Mean Score	1.069	Mean Score	1.147

The mean Indirect-Direct Ratio for the positive group of student teachers was 1.069. The mean Indirect-Direct Ratio of the negative group of student teachers was 1.147. The *t* Test score for the difference between the two means was .20. To be significant at the .05 level of confidence, a *t* score of 2.048 or greater was required. Consequently, no significance in the Indirect-Direct Ratio was found between the positive and negative samples of student teachers. Therefore, the null hypothesis was accepted.

Revised Indirect-Direct Ratios

The *t* Test of Significance was used to test the second hypothesis: There is no significant difference in the Revised Indirect-Direct Ratios of the two samples of student teachers as measured by Interaction Analysis.

A Revised Indirect-Direct Ratio was used to determine the amount of emphasis which was given to motivation and control in the classrooms of the student teachers. Categories 1, 2 and 3 represented teachers' attempts to motivate the students while categories 6 and 7 gave evidence concerning the use of teacher control. The Revised Indirect-Direct Ratio eliminated categories 4 and 5 as well as student talk categories 8 and 9. To obtain the

Revised Indirect-Direct Ratio, the investigator divided the motivation categories by the control categories.

Table V represents the Revised Indirect-Direct Ratios for each of the participants of the study who had been classified as either positive or negative self-accepting individuals.

TABLE V

REVISED INDIRECT-DIRECT RATIOS
FOR THE POSITIVE AND NEGATIVE SAMPLES

POSITIVE STUDENT TEACHERS	REVISED ID RATIOS	NEGATIVE STUDENT TEACHERS	REVISED ID RATIOS
A-1	5.053	B-1	1.996
A-2	.806	B-2	2.095
A-3	1.243	B-3	3.150
A-4	6.250	B-4	3.115
A-5	1.900	B-5	9.990
A-6	3.300	B-6	1.088
A-7	.595	B-7	.207
A-8	5.145	B-8	9.648
A-9	7.636	B-9	7.697
A-10	7.862	B-10	17.250
A-11	1.312	B-11	8.273
A-12	2.530	B-12	15.842
B-13	2.309	B-13	3.099
A-14	3.022	B-14	6.527
A-15	2.207	B-15	2.941
Mean Score	3.411	Mean Score	6.121

The mean score for the positive group of student teachers on the Revised Indirect-Direct Ratio was 3.411 and the mean score for the negative self-accepting group of student teachers was 6.121. The *t* Test score for the difference between the two sample means was 2.311. To be significant at the .05 level of confidence, a score of 2.048 or greater was required. Consequently, a significant difference was found between the two samples at the .05 level of confidence. The negative student teachers made greater use of categories 1, 2 and 3 (motivation) as compared to categories 6 and 7 (control) than did the positive group of student teachers. Therefore, the null hypothesis was rejected.

Student-Teacher Ratios

The *t* Test of Significance was used by the investigator to test the third hypothesis:

There is no significant difference in the Student-Teacher Ratios of the two samples of student teachers.

The investigator used the Student-Teacher Ratio to measure the amount of time that students were talking as compared to the amount of time that the student teachers were talking within the classroom. This Ratio indicated the desire and effort of the student teacher to encourage students to participate in the verbal interaction of the classroom. To obtain the Student-Teacher Ratio, the investigator divided the student talk categories 8 and 9 by the teacher talk categories 1 through 7.

Table VI represents the Student-Teacher Ratios for each of the participants of the study who had been classified according to his self-acceptance score on the *Index of Adjustment and Values.*

TABLE VI

STUDENT-TEACHER RATIOS
FOR THE TWO SAMPLES

POSITIVE STUDENT TEACHERS	S/T RATIO	NEGATIVE STUDENT TEACHERS	S/T RATIO
A-1	.912	B-1	.276
A-2	.193	B-2	.269
A-3	2.010	B-3	.651
A-4	.207	B-4	.730
A-5	.271	B-5	.592
A-6	.042	B-6	.226
A-7	.973	B-7	.516
A-8	.872	B-8	.305
A-9	.750	B-9	.387
A-10	.499	B-10	.351
A-11	.494	B-11	.508
A-12	.509	B-12	.821
A-13	.511	B-13	.751
A-14	.508	B-14	.555
A-15	.519	B-15	.550
Mean Score	.498	Mean Score	.499

In computing the Student-Teacher Ratios for the two samples, it was determined that the mean score for the positive group of student teachers was .498 as compared to the mean score of .499 for the negative sample of student teachers. The *t* Test score for this Student-Teacher Ratio was .01. No significant difference was found by this investigator

between the positive and the negative groups of student teachers and the amount of time that students are encouraged by the teachers to participate in the verbal interaction of the classroom discussions. Consequently, the null hypothesis was accepted.

Categories of the Matrix

The fourth hypothesis of this study dealt with the ten categories of the interaction matrix. It was stated that there is no significant difference between the two samples in the use of the ten categories. This investigator used the *t* Test of Significance to measure the differences between the samples for each category.

1. **Category 1 - Accepts Feeling**

   Hypothesis - *There is no significant difference between the two samples for Category 1 of the matrix.*

   Category 1 was used to identify the statements of the teacher when he accepted the feelings of the students in a non-threatening manner. The investigator was unable to determine with any validity what difference, if any, existed between the two samples for Category 1. No student teachers in the positive group used this category. In the negative group of student teachers, only three tallies were recorded in Category 1. One negative student teacher used the acceptance of student feelings once and one negative student teacher used this category twice. Because there was such limited use of this category by the student teachers, no attempt was made to determine the significance between the two samples for Category 1 of the matrix.

2. **Category 2 - Praises or Encourages**

   Hypothesis - *There is no significant difference between the two samples for Category 2.*

   The *t* Test of Significance was used to test the differences between the two groups in the use of Category 2. This category included the teacher's praising or encouraging the student or his behavior.

   Table VII represents the findings of this investigator in the use of Category 2 by the two groups of student teachers.

TABLE VII

CATEGORY 2 RESULTS
FOR POSITIVE AND NEGATIVE STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 2	NEGATIVE STUDENT TEACHERS	CATEGORY 2
A-1	56.0	B-1	12.3
A-2	46.6	B-2	24.1
A-3	39.8	B-3	72.2
A-4	39.1	B-4	32.8
A-5	28.4	B-5	32.3
A-6	49.3	B-6	15.9
A-7	9.6	B-7	15.3
A-8	62.0	B-8	55.1
A-9	88.8	B-9	65.8
A-10	91.4	B-10	80.9
A-11	22.0	B-11	67.9
A-12	48.0	B-12	96.5
A-13	50.0	B-13	32.5
A-14	58.0	B-14	51.1
A-15	38.6	B-15	40.0
Mean Score	45.9	Mean Score	46.7

The mean score for the positive group of student teachers for Category 2 was 45.9. This compared to the mean score of 46.7 for the negative sample of student teachers. The *t* Test of Significance for Category 2 was .08. To be significant at the .05 level of confidence, a *t* score of 2.048 or greater was required. The investigator determined from this sample that no significant difference existed between the two samples of student teachers in their use of praise or encouragement. Therefore, the null hypothesis was accepted.

3. **Category 3 - Accepts or Uses Ideas of Students**

   Hypothesis - *There is no significant difference between the two samples for Category 3.*

   The *t* Test of Significance was used to test the differences between the positive and negative groups of student teachers in the use of Category 3. This category identified the verbal behavior of the student teacher when he accepted the ideas presented by a student and clarified or built upon these ideas or suggestions.

   Table VIII represents the use of Category 3 by the two samples of student teachers.

TABLE VIII

USE OF CATEGORY 3
BY POSITIVE AND NEGATIVE STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 3	NEGATIVE STUDENT TEACHERS	CATEGORY 3
A-1	38.5	B-1	45.0
A-2	32.8	B-2	68.3
A-3	28.8	B-3	54.3
A-4	75.9	B-4	111.9
A-5	97.8	B-5	62.6
A-6	70.2	B-6	36.4
A-7	60.8	B-7	6.2
A-8	79.5	B-8	101.2
A-9	112.8	B-9	102.0
A-10	153.9	B-10	91.6
A-11	86.3	B-11	89.3
A-12	76.0	B-12	84.1
A-13	77.0	B-13	110.4
A-14	81.0	B-14	57.9
A-15	71.3	B-15	66.0
Mean Score	76.17	Mean Score	72.48

The mean score for the positive sample of student teachers in the use of Category 3 was 76.17. The mean score of the negative group of student teachers was 72.48. This investigator computed the *t* Test for Category 3 and found that the *t* Test score was .31. A score of 2.048 or greater was required for significance at the .05 level of confidence. Consequently, no significant difference was found between the positive and negative self-accepting student teachers in the acceptance and use of students' ideas. Therefore, the null hypothesis was accepted.

4. **Category 4 - Asks Questions**

   Hypothesis - *There is no significant difference between the two samples of student teachers for Category 4.*

   The *t* Test of Significance was used to test the differences between the positive and negative samples of student teachers in the use of Category 4. Category 4 of the interaction matrix was used to identify a question asked by the student teacher. Both groups of student teachers made heavy use of the technique of asking questions which were intended to involve the students in the interaction of the classroom.

Table IX represents the use of asking questions by the two samples of student teachers as identified in Category 4.

TABLE IX

USE OF CATEGORY 4
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 4	NEGATIVE STUDENT TEACHERS	CATEGORY 4
A-1	148.2	B-1	87.6
A-2	108.5	B-2	134.1
A-3	90.9	B-3	228.7
A-4	117.3	B-4	117.1
A-5	167.3	B-5	128.2
A-6	134.2	B-6	104.7
A-7	143.9	B-7	137.5
A-8	225.3	B-8	254.3
A-9	186.6	B-9	210.1
A-10	195.0	B-10	196.8
A-11	162.9	B-11	227.6
A-12	155.0	B-12	230.7
A-13	157.0	B-13	115.1
A-14	144.0	B-14	162.9
A-15	168.1	B-15	168.0
Mean Score	153.61	Mean Score	166.96

The positive group of student teachers had a mean score for Category 4 of 153.61. This was compared to a mean score of 166.96 for the negative student teachers. The *t* Test score for the two samples was .81. A score of 2.048 was required for significance at the .05 level of confidence. Consequently, no significant difference was found by this investigator between the two samples of student teachers in their use of asking questions of the students. Therefore, the null hypothesis was accepted.

5. **Category 5 - Lecture**

Hypothesis - *There is no significant difference between the two samples of student teachers for Category 5.*

The *t* Test of Significance was used to test the difference between the positive self-accepting student teachers and the negative self-accepting student teachers in the use of Category 5. This category was used to identify the talk when a teacher

was stating his own opinions or stating facts about the content or procedures. Teacher lecturing would be coded as Category 5. Table X summarizes the use of Category 5 (lecturing) by the positive and negative student teachers studied in this research project.

TABLE X

USE OF CATEGORY 5
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 5	NEGATIVE STUDENT TEACHERS	CATEGORY 5
A-1	237.2	B-1	477.7
A-2	450.6	B-2	404.4
A-3	487.6	B-3	188.8
A-4	448.3	B-4	231.0
A-5	362.9	B-5	361.6
A-6	309.5	B-6	519.9
A-7	159.8	B-7	223.2
A-8	112.1	B-8	311.2
A-9	133.9	B-9	268.7
A-10	147.9	B-10	259.1
A-11	245.4	B-11	189.8
A-12	281.0	B-12	90.4
A-13	271.0	B-13	228.2
A-14	289.0	B-14	281.6
A-15	271.8	B-15	272.0
Mean Score	280.53	Mean Score	285.64

The positive group of student teachers had a mean score of 280.53 tallies recorded in Category 5. The negative sample of student teachers had a mean score of 285.64 for this category. The use of lecture by both groups was nearly the same. The *t* Test of Significance for Category 5 was represented by a score of 1.15. To be significant at the .05 level of confidence, a *t* score of 2.048 or greater was required. There was no significant difference found by this investigator between the two samples of student teachers for Category 5. Therefore, the null hypothesis was accepted.

6. **Category 6 - Directions**

   Hypothesis - *There is no significant difference between the two samples of student teachers for Category 6.*

The *t* Test of Significance was used to test the difference between the positive and negative self-accepting student teachers in the use of Category 6. This category represented statements made by a student teacher which would be classified as giving directions, commands, or orders with which a student or class would be expected to comply.

Table XI summarizes the use of Category 6 by the positive and negative student teachers.

TABLE XI

USE OF CATEGORY 6
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 6	NEGATIVE STUDENT TEACHERS	CATEGORY 6
A-1	12.1	B-1	4.1
A-2	49.3	B-2	33.1
A-3	8.8	B-3	32.6
A-4	16.1	B-4	28.7
A-5	31.6	B-5	5.7
A-6	24.2	B-6	25.1
A-7	9.6	B-7	64.2
A-8	23.1	B-8	16.2
A-9	12.1	B-9	4.1
A-10	26.4	B-10	5.0
A-11	39.4	B-11	14.6
A-12	20.0	B-12	8.3
A-13	25.0	B-13	28.5
A-14	16.0	B-14	4.9
A-15	22.3	B-15	22.0
Mean Score	22.40	Mean Score	19.81

The mean score for the positive group of student teachers for Category 6 (Directions) was 22.40. This compared to a mean score of 19.81 for the negative group of student teachers. The *t* Test of Significance was computed for Category 6 and the *t* score was .50. This investigator found no significant difference between the student teachers possessing a positive self-acceptance and the student teachers possessing a negative self-acceptance for Category 6. Therefore, the null hypothesis was accepted.

7. **Category 7 - Criticism or Justifying Authority**

Hypothesis - *There is no significant difference between the two samples of student teachers for Category 7.*

Category 7 was used to identify statements by the student teachers intended to change the behavior of the students, to criticize a student, or to indicate extreme self-reference.

Table XII summarizes the findings of this investigator for the participant's use of Category 7.

TABLE XII

USE OF CATEGORY 7
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 7	NEGATIVE STUDENT TEACHERS	CATEGORY 7
A-1	6.6	B-1	24.6
A-2	49.2	B-2	11.0
A-3	46.4	B-3	7.6
A-4	2.3	B-4	18.1
A-5	34.9	B-5	3.8
A-6	12.0	B-6	25.1
A-7	108.8	B-7	39.8
A-8	4.4	B-8	0.0
A-9	14.3	B-9	17.7
A-10	4.8	B-10	5.0
A-11	43.1	B-11	4.4
A-12	29.0	B-12	3.1
A-13	29.0	B-13	17.9
A-14	30.0	B-14	11.8
A-15	27.5	B-15	14.0
Mean Score	29.49	Mean Score	13.59

This investigator computed the mean scores for Category 7 and found that the positive group of student teachers had a mean score of 29.49 as compared to a mean score of 13.59 for the negative group of student teachers. The *t* Test of Significance was used to test the differences between the positive and negative self-accepting student teachers in the use of criticism. To be significant at the .05 level of confidence, a *t* score of 2.048 or greater was required. The *t* score for this category was 2.120 which was significant at the .05 level of confidence. A

significant difference did occur between the two groups of student teachers in the use of criticism. Positive student teachers did make a greater use of criticism than did the negative group of student teachers. Therefore, the null hypothesis must be rejected.

8. **Category 8 - Student Talk Response**

Hypothesis - *There is no significant difference between the two samples of student teachers for Category 8.*

Category 8 was used to identify statements made by students in response to questions or directions of the teacher. The student teacher was responsible for initiating the contact and solicited the response on the part of the student.

Table XIII summarizes the tallies located in Category 8 for each of the participants of the study. These student teachers were grouped according to their self-acceptance scores on the *Index of Adjustment and Values.*

TABLE XIII

USE OF CATEGORY 8
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 8	NEGATIVE STUDENT TEACHERS	CATEGORY 8
A-1	209.7	B-1	98.0
A-2	103.9	B-2	115.4
A-3	135.2	B-3	189.7
A-4	121.9	B-4	160.4
A-5	129.5	B-5	179.4
A-6	178.6	B-6	93.3
A-7	309.9	B-7	125.4
A-8	298.0	B-8	182.7
A-9	309.3	B-9	176.1
A-10	211.8	B-10	177.4
A-11	191.2	B-11	192.3
A-12	202.0	B-12	311.4
A-13	202.0	B-13	168.0
A-14	193.0	B-14	164.9
A-15	210.7	B-15	166.0
Mean Score	200.45	Mean Score	166.69

The mean score for the positive group of student teachers for Category 8 was 200.45. The mean score for the negative group of student teachers for Category 8

was 166.69. When the investigator applied the *t* Test of Significance to this category, a *t* score of 1.58 resulted. This score was not at the level required for significance at the .05 level of confidence. Therefore, the null hypothesis for Category 8 was accepted. No significant difference existed between the two samples in the use of soliciting student talk in response to the student teacher's direction or initiation.

9. **Category 9 - Student Initiated Talk**

Hypothesis - *There is no significant difference between the two samples of student teachers for Category 9.*

Category 9 represented talk by students which they themselves initiated. The student teacher was not responsible for initiating the contact or in soliciting the response on the part of the student.

Table XIV summarizes the tallies located in Category 9 for each of the participants of the study. These student teachers were grouped according to their self-acceptance scores on the *Index of Adjustment and Values.*

TABLE XIV

USE OF CATEGORY 9
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 9	NEGATIVE STUDENT TEACHERS	CATEGORY 9
A-1	250.4	B-1	81.8
A-2	38.3	B-2	66.4
A-3	62.0	B-3	190.7
A-4	23.0	B-4	234.2
A-5	66.3	B-5	172.5
A-6	134.3	B-6	71.7
A-7	169.4	B-7	125.5
A-8	143.8	B-8	42.5
A-9	102.1	B-9	82.4
A-10	97.5	B-10	46.4
A-11	104.9	B-11	109.1
A-12	108.0	B-12	110.0
A-13	110.0	B-13	232.5
A-14	121.0	B-14	151.2
A-15	100.9	B-15	160.0
Mean Score	108.79	Mean Score	125.13

The *t* Test of Significance was used by the investigator to determine the differences between the two samples of student teachers in the use of Category 9. The positive group of student teachers had a mean score of 108.79 for Category 9. The negative sample of student teachers had a mean score of 125.13 in the use of student initiated talk. The *t* score for Category 9 was .88 which was not significant at the .05 level of confidence. Therefore, this investigator accepted the null hypothesis. No significant difference was found in this study between the positive and negative self-accepting student teachers and student initiated talk within their classrooms.

10. **Category 10 - Silence or Confusion**

Hypothesis - *There is no significant difference between the two samples of student teachers for Category 10.*

The *t* Test of Significance was used by the investigator to determine the differences between positive and negative student teachers in the use of Category 10. Category 10 was used to identify periods of time in which silence or confusion existed in the classroom. Silence or confusion had to exist for more than three seconds before the investigator recorded a tally as Category 10.

Table XV represents the use of Category 10 by both groups of student teachers studied by the investigator in this research project.

TABLE XV

USE OF CATEGORY 10
BY TWO SAMPLES OF STUDENT TEACHERS

POSITIVE STUDENT TEACHERS	CATEGORY 10	NEGATIVE STUDENT TEACHERS	CATEGORY 10
A-1	41.7	B-1	169.8
A-2	120.5	B-2	143.1
A-3	97.4	B-3	35.3
A-4	156.4	B-4	65.4
A-5	66.3	B-5	52.9
A-6	87.4	B-6	105.8
A-7	28.8	B-7	262.9
A-8	52.3	B-8	40.7
A-9	40.6	B-9	73.1
A-10	72.1	B-10	137.9
A-11	104.9	B-11	109.1
A-12	79.0	B-12	66.3
A-13	80.0	B-13	64.2
A-14	69.0	B-14	113.9
A-15	87.6	B-15	95.0
Mean Score	78.93	Mean Score	102.36

The mean score for the positive group of student teachers for Category 10 was 78.93. The mean score for the negative group of student teachers was 102.36. This investigator computed the *t* Test for Category 10 and found that the *t* score was 1.34. To be significant at the .05 level of confidence, a score of 2.048 or greater was required. No significant difference was found for Category 10 between the positive and negative self-accepting student teachers. Therefore, the null hypothesis was supported and accepted.

Seven Cells of the Matrix

The fifth hypothesis of this study dealt with seven selected cells of the interaction matrix. It was stated that no significant difference between the positive and negative student teachers existed in the use of these seven cells. Table XVI summarizes the results of the positive self-accepting student teachers in the use of the selected seven cells of the matrix. Table XVII summarizes the results of the negative self-accepting student teachers in the use of the selected seven cells of the matrix.

TABLE XVI

USE OF SEVEN CELLS
OF THE MATRIX BY POSITIVE STUDENT TEACHERS

STUDENT TEACHERS	CELL 2-2	CELL 3-3	CELL 6-7	CELL 7-6	CELL 4-8	CELL 8-8	CELL 9-9
A-1	0	9.9	0	0	56.0	144.9	191.0
A-2	2.7	21.9	0	0	16.4	76.6	21.9
A-3	4.4	8.9	0	0	31.0	88.7	13.3
A-4	2.3	36.8	0	0	32.2	73.6	16.1
A-5	0	18.9	6.3	9.5	66.2	44.2	31.5
A-6	5.2	10.4	1.7	0	82.4	72.0	62.4
A-7	0	22.4	0	0	60.7	226.8	111.8
A-8	5.4	9.8	0	2.2	141.2	121.9	77.3
A-9	2.2	38.2	0	0	84.4	201.8	68.0
A-10	1.2	18.1	0	1.2	75.8	90.3	54.2
A-11	1.2	9.9	1.2	0	81.4	85.1	67.8
A-12	2.0	22.0	2.0	4.0	63.0	110.0	50.0
A-13	3.0	14.0	0	0	70.0	116.0	74.0
A-14	2.0	28.0	2.0	2.0	53.0	115.0	56.0
A-15	2.0	9.2	0	1.0	80.4	111.0	70.3
Mean Scores	1.70	18.56	.88	1.28	66.27	111.86	64.11

TABLE XVII

USE OF SEVEN CELLS
OF THE MATRIX BY NEGATIVE STUDENT TEACHERS

STUDENT TEACHERS	CELL 2-2	CELL 3-3	CELL 6-7	CELL 7-6	CELL 4-8	CELL 8-8	CELL 9-9
B-1	0	4.1	0	0	20.4	53.1	32.7
B-2	0	22.2	0	2.8	30.5	63.7	43.4
B-3	4.8	1.9	1.9	0	103.0	73.4	94.4
B-4	1.1	19.0	1.1	0	72.8	77.0	150.8
B-5	0	22.5	0	0	44.1	126.5	120.6
B-6	0	6.8	0	0	36.4	30.7	23.9
B-7	0	0	0	0	55.0	45.9	39.8
B-8	1.8	23.5	0	0	54.2	103.2	24.4
B-9	4.1	6.2	0	0	114.3	38.1	24.7
B-10	3.0	17.7	0	0	75.9	67.0	10.8
B-11	4.3	9.4	0	0	101.3	60.9	38.6
B-12	12.5	3.1	0	0	143.3	135.0	63.3
B-13	.9	18.6	.9	0	71.6	86.6	149.4
B-14	3.9	8.8	0	0	67.7	75.6	98.1
B-15	1.0	12.0	0	0	73.0	69.0	101.0
Mean Scores	2.50	11.72	.26	.19	70.90	73.71	67.73

The following represents the findings of this investigator on the selected seven cells of the matrix:

1. **Cell 2-2 - Extended Praise or Encouragement**

   Hypothesis - *There is no significant difference between the two samples for Cell 2-2 of the matrix.*

   Cell 202 represented extended praise or encouragement given a student by the student teacher. The use of this cell meant that the student teacher praised or encouraged the student for over three seconds. This differed from the use of Category 2. Category 2 indicated praise or encouragement that was less than three seconds——often only a short response by the teacher, such as "that's correct." However, Cell 2-2 represented praise which was prolonged.

   The positive group of student teachers had a mean score of 1.70 for the 2-2 cell. The negative self-accepting sample of student teachers had a mean score of 2.50 for this cell of the matrix. The *t* Test of Significance was used to determine what differences existed between the two samples of student teachers. When this investigator applied the *t* Test to this cell, a *t* score of .78 resulted. A *t* score of

2.048 or greater was required for significance at the .05 level of confidence. Consequently, no significant difference was found between the positive self-accepting student teachers and the negative self-accepting student teachers in the use of extended praise or encouragement. Therefore, the null hypothesis was accepted.

2. **Cell 3-3 - Extended Acceptance or Use of Student Ideas**

   Hypothesis - *There is no significant difference between the two samples of student teachers for Cell 3-3 of the matrix.*

   Cell 3-3 of the interaction matrix represented extended acceptance or use of student's ideas by the student teacher. This extended acceptance or use was prolonged over a three second time period. The use of this cell indicated that a student teacher accepted an idea presented by a student and enlarged upon that idea. This differed from the use of Category 3 in that the use of Category 3 merely meant that the idea was accepted by the student teacher. It did not indicate that the idea was developed by the student teacher.

   In the acceptance or use of student ideas (Cell 3-3) the mean score for the positive group of student teachers was 18.56. The negative sample of student teachers had a mean score of 11.72 for Cell 3-3. When the *t* Test of Significance was applied to these mean scores, a *t* score of 2.079 resulted. To be significant at the .05 level of confidence, a *t* score of 2.048 or greater was required. Therefore, the null hypothesis was rejected. A significant difference did occur between the two samples in the use of Cell 3-3 of the matrix. Positive student teachers made a greater use of extended acceptance or use of student ideas than did the negative group of student teachers.

3. **Cell 6-7 - Directions Followed by Criticizing**

   Hypothesis - *There is no significant difference between the two samples of student teachers for Cell 6-7 of the matrix.*

   Cell 6-7 of the interaction matrix represented a student teacher giving directions and then following the directions with criticism or justification of his authority. Cell 6-7 was used by five positive student teachers and three negative student teachers. The mean score for the positive self-accepting group of student teachers was .88, while the negative sample of student teachers had a mean score of .26. The investigator computed the *t* Test of Significance for Cell 6-7 and found a *t*

score of 1.32. To be significant at the .05 level of confidence a *t* score of 2.048 or greater was required. No significant difference was represented by this *t* score in the use of Cell 6-7 of the matrix. Therefore, the null hypothesis was accepted. This investigator found that positive and negative self-accepting student teachers did not differ in their use of Cell 6-7.

4. **Cell 7-6 - Criticizing Followed by Directions**

   Hypothesis - *There is no significant difference between the two samples of student teachers for Cell 7-6 of the matrix.*

   Cell 7-6 of the matrix represented the use of criticism by the student teacher followed by giving directions to the students. Six student teachers, possessing a positive self-acceptance, used Cell 7-6 of the matrix. Only one student possessing a negative self-acceptance used Cell 7-6. The mean score for the positive group of student teachers was 1.28 tallies. The mean score for the negative group of student teachers was .19 tallies. The investigator computed the *t* Test for Cell 7-6 of the matrix and found a *t* score of 1.60. No significant difference was represented by this *t* score. Therefore, the null hypothesis was accepted for Cell 7-6 of the matrix.

5. **Cell 4-8 - Question followed by Student Response**

   Hypothesis - *There is no significant difference between the two samples of student teachers for Cell 4-8 of the matrix.*

   Cell 4-8 of the matrix was used when a student teacher asked a direct question of a student or the class and received a student response. The response by the student was initiated by the teacher. This pattern was heavily used by student teachers in order to provide for classroom interaction.

   The mean score for the student teachers possessing a positive self-acceptance was 66.27 tallies for Cell 4-8. The negative self-accepting student teachers had a mean score of 70.90 for this cell of the matrix. The *t* Test of Significance for Cell 4-8 for the two samples was 1.27. No significant difference was represented by this *t* score, and, consequently, the null hypothesis was accepted.

   There appeared to be no difference in the two samples of student teachers in their use of the question-answer pattern of interaction in the classroom.

6. **Cell 8-8 - Extended Student Response**

   Hypothesis - *There is no significant difference between the two samples of*

student teachers for Cell 8-8 of the matrix.

Cell 8-8 represented student responses to teachers' questions, extended over a three second period. This cell differed from Category 8 which represented merely a response to a question. The length of the answer was indicated by the use of the 8-8 cell.

The mean score for the positive group of student teachers for Cell 8-8 was 111.86 as compared to a mean score for the negative group of student teachers of 73.71. This investigator computed a *t* Test to determine the significance of the differences between the two samples and found a *t* score of 2.349. To be significant at the .05 level of confidence a *t* Test score of 2.048 or greater was required. Therefore, a significant difference did occur between the two groups of student teachers at the .05 level for Cell 8-8. The null hypothesis must be rejected.

The positive self-accepting student teachers allowed for greater use of extended student responses than did the negative self-accepting student teachers. Responses lasting over a prolonged period of time occurred more often with the positive group than the negative sample.

7. **Cell 9-9 - Extended Student Initiated Talk**

Hypothesis - *There is no significant difference between the two samples of student teachers for Cell 9-9 of the matrix.*

Cell 9-9 represented extended student talk which was self-initiated. This extended talk lasted over a three second time period. This cell differed from Cell 8-8 in that Cell 8-8 was talk initiated by the teacher. The student initiated this talk found in Cell 9-9 and this lasted over a significant period of time.

The mean score for the positive group of student teachers for Cell 9-9 was 64.11 tallies. The negative sample of student teachers had a mean score for this cell of 67.73 tallies. The *t* Test of Significance was applied to these means and a *t* score .25 resulted. This *t* score is not significant at the .05 level of confidence. Therefore, the null hypothesis for Cell 9-9 was accepted by this investigator. It was concluded that no difference existed between positive and negative student teachers in the occurrence of extended student-initiated talk.

SUMMARY OF DATA

Chapter IV dealt with the presentation of the data collected by the investigator. To statistically compare the two groups of student teachers, a number of measures or tests were applied and reported.

The null hypotheses were accepted for all but four measures of interaction analysis tested in this study. A significant difference occurred in the two samples of student teachers for the Revised Indirect-Direct Ratio; Category 7; and Cells 3-3 and 8-8 of the matrix. Therefore, the null hypotheses were rejected for these four measures.

Student teachers possessing a negative self-acceptance had a higher Revised Indirect-Direct Ratio than did the positive sample of student teachers. The student teachers who were classified as positive self-accepting individuals, as measured by the *Index of Adjustment and Values,* made greater use of Category 7 and Cells 3-3 and 8-8 of the matrix. These differences were significant at the .05 level of confidence as measured by the statistical use of the *t* Test.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study was designed to analyze the differences in the use of classroom verbal interaction which occur between student teachers who possess positive self-acceptance and those who possess negative self-acceptance.

The investigator employed the use of the *Index of Adjustment and Values* as the measure for identifying self-acceptance levels of the student teachers. The Index was administered to sixty student teachers at the beginning of their student teaching experience. Thirty of the group were selected as participants in this study. A score of 171 or above on the Index was necessary for classification as a positive self-accepting individual. Any score below this level would classify the person as a negative self-accepting person as measured by the Index.

The 15 student teachers with the highest scores on the self-acceptance section of the Index were used by the investigator as the positive sample. The range of scores for the selected positive sample was 186 to 224. The 15 lowest scoring student teachers represented the negative group. A range of scores for the negative group was 121 to 163.

All student teachers with scores between 164 and 185 were excluded from this study. The investigator felt that it was necessary to limit the number of participants to a manageable number and to exclude those student teachers who had marginal scores on the Index.

Each participant had three different classes tape recorded, and these tapes were then analyzed by the investigator using Flanders' observational technique. The codes of each student teachers' tapes were placed in a 10 x 10 cell matrix. These codes were then converted to a common sum of 1000 tallies for each student teacher's matrix. This was necessary in order to make an accurate statistical comparison between the two groups in the study.

The investigator proceeded to determine the differences which existed between the positive self-accepting student teachers and the negative self-accepting group of student teachers in the use of the 10 basic categories of the matrix; the scores on the Indirect-Direct Ratio, the Revised Indirect-Direct Ratio and the Student-Teacher Ratio; and seven cells of the interaction matrix (cells 2-2, 3-3, 6-7, 7-6, 4-8, 8-8 and 9-9).

Conclusions

Based upon the data collected in this study, it would appear that differences in the level of student teachers' self-acceptance did affect the use of several key variables in the classroom verbal interaction. However, although the investigator compared the two samples on 20 different variables, only four statistical differences existed at the .05 level of confidence between positive self-accepting student teachers and negative self-accepting student teachers.

The following conclusions were arrived at by the investigator:

1. The Indirect-Direct Ratio was determined by dividing the tallies of Categories 1-4 by the direct tallies of Categories 5-7. Indirect teacher categories solicited the opinions or ideas of the students, accepted those ideas or feelings, and generally encouraged the participation of the students. Direct teacher categories consisted of statements of criticism, direction and lecture. These statements are teacher-oriented as opposed to the student-centered statements of the four indirect categories.

   Although the negative sample of self-accepting student teachers had a slightly higher mean score on the Indirect-Direct Ratio, this difference was not statistically significant. The mean score for this ratio was 1.069 for the positive sample and 1.147 for the negative group of student teachers. Both samples of student teachers appeared to use about the same amount of indirect influence as measured by this ratio. It would seem that this ratio is not affected by the level of self-acceptance felt by the student teacher.

2. The negative group of student teachers had a higher Revised Indirect-Direct Ratio than did the positive sample of student teachers. This ratio gives evidence about the student teachers' approach to the use of motivation (Categories 1, 2 and 3) and control (Categories 6 and 7). This difference was significant at the .05 level of confidence.

   Although little difference existed between the two samples in the use of categories 1, 2 and 3, the positive student teachers' heavy use of the control categories, and particularly of Category 7, was the primary factor in the difference between the Revised Indirect-Direct Ratios for the two groups.

It would appear that positive self-accepting student teachers were more confident of the positions which they assumed, and, therefore, they were more likely to find fault in the views stated by students or were more likely to criticize the students. However, the negative self-accepting student teachers appeared less willing to challenge students.

It would appear that the level of self-acceptance maintained by student teachers does affect the use of verbal interaction as measured by the Revised Indirect-Direct Ratio.

3. The Student-Teacher Ratio was the third ratio used to compare the two samples. The results of this ratio indicated that no difference existed between the two groups. The mean ratio for the positive sample was .499 which meant that for every student talk tally, either in response to a teacher's question or self-initiated talk on the part of the student, there were two teacher talk tallies. The results for the negative sample were nearly identical. The mean ratio for this sample was .498, which also indicated that the teacher talked twice as often as did the student. Therefore, it would appear that the self-acceptance level of the student teachers had no influence upon the amount of student talk or teacher talk evident in the classroom.
4. The ten categories of the interaction matrix were used by the investigator to compare the two samples of student teachers. There was no significant difference between the two samples in the use of the ten categories except for Categories 1 and 7. It would appear that the self-acceptance level of the student teachers had no influence upon the use of categories 2, 3, 4, 5, 6, 8, 9 and 10.

The following descriptions are offered for the eight categories which had differences that were *not* significant at the .05 level of confidence.

Category 2 - Praises or Encourages

Category 3 - Accepts or Uses Ideas of Students

Category 4 - Asks Students Questions

Category 5 - Lectures

Category 6 - Gives Directions

Category 8 - Student Talk in Response

Category 9 - Student Initiated Talk

Category 10 - Silence or Confusion

5. Category 1 - Teacher Acceptance of Student Feelings - was not used extensively by either the positive or negative self-accepting samples. Only four tallies appeared in this category and it was determined by the investigator that insufficient data was available for comparison purposes between the two groups. There were no positive student teachers who used the "acceptance of feeling" category and only three negative student teachers had tallies in this category. It would seem that, regardless of self-acceptance level, student teachers do not accept the feelings of their students during classroom verbal interchange.

   When the number of tallies are compared in Category 1 and Category 3 - Acceptance of Student Ideas - for both groups, it becomes obvious that student teachers are far more willing to accept ideas of students than they are to accept the feelings of students. A student teacher can accept and cultivate student ideas. However, to accept the feelings of others in the classroom, the student teacher must become more openly involved with the students and this is difficult to do and maintain the student teacher's role as the authority figure.

6. Use of criticism or justifying teacher's authority - Category 7 - was significantly higher at the .05 level of confidence in the positive sample of student teachers than in the negative group. Positive student teachers used Category 7 over twice as often as did the negative sample. Negative student teachers, who are less confident of their own personal worth, were less apt to criticize others. The positive student teachers were more confident of the positions which they assumed, and, consequently, they were more willing to differ with the viewpoints held in the classroom.

7. No significant difference existed between the positive and the negative samples of student teachers in the use of Cells 2-2, 4-8, 6-7, 7-6 and 9-9 of the interaction matrix. These cells were described as follows:

   Cell 2-2 - Extended Praise or Encouragement

   Cell 4-8 - Teacher Question Followed by Student Response

   Cell 6-7 - Teacher Direction Followed by Criticism

   Cell 7-6 - Teacher Criticism Followed by Directions

   Cell 9-9 - Extended Student Initiated Talk

It would appear that the self-acceptance level of the student teacher does not affect the interaction patterns of the classroom as represented by these five cells.

8. A significant difference between the positive and negative self-accepting student teachers did occur in the use of the 3-3 cell of the matrix. Cell 3-3 represented the teacher's acceptance of the student's ideas over an *extended* period of time. This was notable in that no significant difference existed in the use of Category 3 - Acceptance of Ideas - between the two samples. Although both samples appeared to accept the ideas of the students, a difference occurred in the way the student teachers made use of these ideas. It would appear that not only did the positive teachers accept the ideas of the students, they also expanded these ideas over more than a three-second interval.

   Based upon the results of Cell 3-3, it would appear that the negative group of student teachers were more anxious to return to a more structured class presentation than were the positive student teachers. The negative self-accepting student teachers seemed willing to accept the ideas of the students, but did not expand upon the ideas to the same degree as did the positive sample. Student teachers with positive self-acceptance were willing to talk about the ideas of the students, whereas the negative self-accepting student teachers were unable, or unwilling, to puruse ideas presented by the students in the classroom discussion. From the data collected in this research study, it would appear that the self-acceptance level of the student teacher did affect the use of Cell 3-3 of the interaction matrix.

9. A significant difference between the positive and the negative sample of student teachers did occur in the use of the 8-8 cell of the matrix. Cell 8-8 represented extended student responses to teacher's questions or directions. This difference was notable in that no significant difference appeared in Category 8 - Student Response - between the positive and negative teachers. The mean score for the positive student teachers was 111.86, as compared to a mean score for the negative sample of 73.71.

   Positive self-accepting student teachers appeared to ask questions which required extended answers by the students, lasting more than three seconds. The negative student teachers elicited short responses——responses which could be given in

three seconds or less. Therefore, from the research collected by this investigator, it would appear that the level of self-acceptance maintained by a student teacher does affect the use of the 8-8 cell of the interaction matrix.

The investigator was interested in determining what differences existed between student teachers with varying levels of self-acceptance in the use of verbal behavior within the classroom, as measured by 20 variables of interaction analysis. Based upon the findings of this research, four significant differences were found and each had an effect upon another.

Positive student teachers did use criticism - Category 7 - to a greater extent than did the negative student teachers. The heavy use of this category had an effect upon the Revised Indirect-Direct Ratio, which includes criticism as a part of the directness level of the ratio. This resulted in a higher Revised Indirect-Direct Ratio for the negative self-accepting student teachers.

A significantly higher use of the 8-8 cell of the interaction matrix was found for the positive student teachers when compared to the negative sample. Positive student teachers allowed for extended student responses. This appeared to be a result of the type of questions asked by the positive teachers. Positive student teachers asked questions which forced students to reply in answers lasting over three seconds. The questions asked by the negative sample apparently were of the nature which required short responses.

Extended student responses seemed to result in extended use of Cell 3-3 of the matrix. The positive group of student teachers used Cell 3-3 significantly more than did the negative self-accepting student teachers. When a positive student teacher accepted an idea of a student, he expanded upon that idea for a period of time. However, the negative student teachers asked questions which elicited short responses and, therefore, little opportunity was available to expand upon the ideas, which were of short duration, presented by the students.

It would appear that no relationship existed between the remaining 16 variables tested in the study and the level of self-acceptance maintained by the student teachers. No significant differences between the two samples of student teachers were found by this investigator in the use of these interaction variables.

Recommendations

This study was designed to investigate the influence of one personality trait—-self-acceptance—-as measured by the *Index of Adjustment and Values* upon the classroom verbal interaction of student teachers. The limited sample may be a contributing factor in the findings of this research project. A larger sample would be indicated for any further study of this design.

The use of tape recordings of student teachers' classroom interaction was necessary because of the limitations of one recorder in scoring and analyzing the data of the 30 participants. It would be advisable to have several observers who could gather the interaction data personally. Their reliability could be checked to insure consistency in their scoring. This would have eliminated the problems inherent in the use of tape recording equipment by the participants.

In analyzing the data collected, it would be advisable to use data processing equipment. The sizable amount of data could be easily computed and use of the equipment would shorten the great amount of time required when manually tabulating the information gathered.

In this study no attempt was made to relate the characteristics dealt with to the success of student teaching, as measured by some evaluation tool.

It would have been interesting to compare the results of the interaction used by the two samples with a subjective evaluation of their performance by their college supervisors.

Many specific questions were raised during this project which appear to need further study. The following questions were asked by this investigator:

1. Are the teaching patterns described for student teachers in this study representative of established teachers?
2. How many taping sessions are required for each student teacher to obtain a teaching pattern which is representative of that teacher?
3. Is there a significant difference between the positive self-accepting student teacher and the negative self-accepting student teacher in the use of other cells of the matrix?
4. What category or categories do negative student teachers use after they have accepted the idea presented by students?
5. What effect does the ability of the classroom population have on the verbal

interaction patterns displayed by student teachers?

6. What is the effect of other personality traits upon the use of classroom verbal interaction?
7. To what extent does a student teacher's verbal behavior within the classroom change once he enters the teaching profession?
8. Why do student teachers fail to accept the feelings of students?
9. Is there a relationship between the self-acceptance level of a student teacher and his being accepted and liked by his students?
10. Do student teachers establish their own teaching patterns or do they duplicate the style of their cooperating teachers?

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APPENDIX A

t Tests of Significance

t TEST FOR I. D. RATIOS

	GROUP A (Positive)			GROUP B (Negative)	
	Student Score	Scores^2		Student Score	Scores^2
1.	.948	.899	1.	.286	.082
2.	.342	.117	2.	.505	.255
3.	.294	.086	3.	1.551	2.406
4.	.498	.248	4.	.946	.895
5.	684	.468	5.	.601	.361
6.	.734	.539	6.	.279	.078
7.	.770	.593	7.	.486	.236
8.	2.627	6.901	8.	1.254	1.573
9.	2.421	5.861	9.	1.300	1.690
10.	2.458	6.042	10.	1.372	1.882
11.	.827	.684	11.	1.842	3.393
12.	.857	.734	12.	4.040	16.322
13.	.871	.759	13.	.943	.889
14.	.844	.712	14.	.912	.832
15.	.863	.745	15.	.889	.790
	16.038 Total of Scores	25.388 Total of Scores^2		17.206 Total of Scores	31.684 Total of Scores^2

Total of Scores Squared - 257.217

Number of Scores Squared - 296.046

Mean - 1.069

Mean - 1.147

t Test - .20

t TEST FOR INDIRECT-DIRECT RATIOS

	GROUP A (Positive)		GROUP B (Negative)	
	Student Score	Scores^2	Student Score	Scores^2
1.	5.053	25.533	1.996	3.984
2.	.806	.650	2.095	4.389
3.	1.243	1.545	3.150	9.923
4.	6.250	39.063	3.115	9.703
5.	1.900	3.610	9.99	99.800
6.	3.300	10.890	1.088	1.184
7.	.595	.354	.207	.043
8.	5.145	26.471	9.648	93.084
9.	7.636	58.308	7.697	59.244
10.	7.862	61.811	17.250	297.563
11.	1.312	1.721	8.273	68.443
12.	2.530	6.401	15.842	250.969
13.	2.309	5.331	3.099	9.604
14.	3.022	9.132	6.527	42.602
15.	2.207	4.871	2.941	8.649
	51.170 Total of Scores	255.691 Total of Scores^2	91.918 Total of Scores	959.184 Total of Scores^2

Total of Scores Squared - 2618.37

Mean - 3.411

t Test - 2.311

Total of Scores Squared - 8449.286

Mean - 6.121

t TEST FOR STUDENT-TEACHER RATIOS

	GROUP A (Positive)		GROUP B (Negative)	
	Student Score	Scores^2	Student Score	Scores^2
1.	.923	.852	.276	.076
2.	.193	.037	.269	.072
3.	.201	.040	.651	.424
4.	.207	.043	.730	.533
5.	.271	.073	.592	.350
6.	.042	.002	.226	.051
7.	.973	.947	.516	.266
8.	.872	.760	.305	.093
9.	.750	.563	.387	.150
10.	.499	.249	.351	.123
11.	.494	.244	.508	.258
12.	.509	.259	.821	.674
13.	.511	.261	.751	.564
14.	.508	.258	.555	.308
15.	.519	.269	.550	.303
	7.472 Total of Scores	4.857 Total of Scores^2	7.488 Total of Scores	4.245 Total of Scores^2

Total of Scores Squared - 55.831

Mean - .498

t Test - .01

Total of Scores Squared - 56.070

Mean - .499

t TEST FOR CATEGORY 2

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	9.6	92.16	1.	12.3	151.29
2.	22.0	484.00	2.	15.3	234.09
3.	28.4	806.56	3.	15.9	252.81
4.	38.6	1,489.96	4.	24.1	580.81
5.	39.1	1,528.81	5.	32.3	1,043.29
6.	39.8	1,584.04	6.	32.5	1,056.25
7.	46.6	2,171.56	7.	38.8	1,505.44
8.	48.0	2,304.00	8.	40.0	1,600.00
9.	49.3	2,430.49	9.	51.1	2,611.21
10.	50.0	2,500.00	10.	55.1	3,036.01
11.	56.0	3,136.00	11.	65.8	4,329.64
12.	58.0	3,364.00	12.	67.9	4,610.41
13.	62.0	3,844.00	13.	72.2	5,212.84
14.	8.8	7,885.44	14.	80.9	6,544.81
15.	91.4	8,353.96	15.	96.5	9,312.25
	687.8 Total of Scores	41,974.98 Total of Scores^2		700.7 Total of Scores	42,081.15 Total of Scores^2

Total of Scores Squared - 473,068.84

Mean - 45.9

t Test - .08

Total of Scores Squared - 490,980.49

Mean - 46.7

t TEST FOR CATEGORY 3

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	38.5	1,482.25	1.	45.0	2,025.00
2.	32.8	1,075.84	2.	68.3	4,664.89
3.	28.8	829.44	3.	54.3	2,948.49
4.	75.9	5,760.81	4.	111.9	12,521.61
5.	97.8	9,564.84	5.	62.6	3,918.76
6.	70.2	4,928.04	6.	36.4	1,324.96
7.	60.8	3,696.64	7	6.2	38.44
8.	79.5	6,320.25	8	101.2	10,241.44
9.	112.8	12,723.84	9.	102.0	10,404.00
10.	153.9	23,685.21	10.	91.6	8,390.56
11.	86.3	7,447.69	11.	89.3	7,974.49
12.	76.0	5,776.00	12.	84.1	7,072.81
13.	77.0	5,929.00	13.	110.4	12,118.16
14.	81.0	6,561.00	14.	57.9	3,352.41
15.	71.3	5,083.69	15.	66.0	4,356.00
	1,142.6 Total of Scores	100,864.54 Total of Scores^2		1,087.2 Total of Scores	91,422.02 Total of Scores^2

Total of Scores Squared - 1,305,534.76

Mean - 76.17

t Test - .31

Total of Scores Squared - 1,182,003.84

Mean - 72.48

t TEST FOR CATEGORY 4

	GROUP A (Positive)		GROUP B (Negative)	
	Student Score	Scores^2	Student Score	Scores^2
1.	148.2	21,963.24	87.6	7,673.76
2.	108.5	11,772.25	134.1	17,982.81
3.	90.9	8,262.81	228.7	52,303.69
4.	117.3	13,759.29	117.1	13,712.41
5.	167.3	27,989.29	128.2	16,435.24
6.	134.2	18,009.64	104.7	10,962.09
7.	143.9	20,707.21	137.5	18,906.25
8.	225.3	50,760.09	254.3	64,668.49
9.	186.6	34,819.56	210.1	44,142.01
10.	195.0	38,025.00	196.8	38,730.24
11.	162.9	26,536.41	227.6	51,801.76
12.	155.0	24,025.00	230.7	53,222.49
13.	157.0	24,649.00	225.1	13,248.01
14.	144.0	20,736.00	162.9	26,536.41
15.	168.1	28,257.61	168.0	28,224.00
	2,304.2 Total of Scores	370,272.40 Total of Scores^2	2,504.4 Total of Scores	458,549.66 Total of Scores^2

Total of Scores Squared - 5,309,337.64

Mean - 153.61

t Test - .81

Total of Scores Squared - 6,272,019.36

Mean - 166.96

t TEST FOR CATEGORY 5

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	237.2	56,263.84	1.	477.7	228,197.29
2.	450.6	203,040.36	2.	404.4	163,539.36
3.	487.6	237,753.76	3.	188.8	35,645.44
4.	448.3	200,972.89	4.	236.0	55,696.00
5.	362.9	131,696.41	5.	361.6	130,754.56
6.	309.5	95,790.25	6.	591.9	350,345.61
7.	159.8	25,536.04	7.	223.2	49,818.24
8.	112.1	12,566.41	8.	311.2	96,845.44
9.	133.9	17,929.21	9.	268.7	72,199.69
10.	147.9	21,874.41	10.	259.1	67,132.81
11.	245.4	60,221.16	11.	189.8	36,024.04
12.	281.0	78,961.00	12.	90.4	8,172.16
13.	271.0	73,441.00	13.	228.2	52,075.24
14.	289.0	83,521.00	14.	281.6	79,298.56
15.	271.8	73,875.24	15.	272.0	73,984.00
	4,208.0 Total of Scores	1,373,442.98 Total of Scores^2		4,384.6 Total of Scores	1,499,728.44 Total of Scores^2

Total of Scores Squared - 17,707,264.00

Mean - 280.53

t Test - 1.15

Total of Scores Squared - 19,224,717.16

Mean - 285.64

t TEST FOR CATEGORY 6

	GROUP A (Positive)			GROUP B (Negative)	
	Student Score	Scores^2		Student Score	Score^2
1.	12.1	146.41	1.	4.1	16.81
2.	49.3	2,430.49	2.	33.1	1,095.61
3.	8.8	77.40	3.	32.6	1,062.76
4.	16.1	159.21	4.	28.7	823.69
5.	31.6	998.56	5.	5.7	32.49
6.	24.2	585.64	6.	25.1	630.01
7.	9.6	92.16	7.	64.2	4,121.64
8.	23.1	533.61	8.	16.2	262.44
9.	12.1	146.41	9.	4.1	16.81
10.	26.4	696.96	10.	5.0	25.00
11.	39.4	1,552.36	11.	14.6	213.16
12.	20.0	400.00	12.	8.3	68.89
13.	25.0	625.00	13.	28.5	812.25
14.	16.0	256.00	14.	4.9	24.01
15.	22.3	497.29	15.	22.0	484.00
	336.0 Total of Scores	9,297.51 Total of Scores^2		297.1 Total of Scores	9,689.57 Total of Scores^2

Total of Scores Squared - 112,896.00

Mean - 22.40

t Test - .50

Total of Scores Squared - 88,268.81

Mean - 19.81

t TEST FOR CATEGORY 7

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	6.6	43.56	1.	24.6	605.16
2.	49.2	2,420.64	2.	11.0	121.00
3.	46.4	2,152.96	3.	7.6	57.76
4.	2.3	5.29	4.	18.1	327.61
5.	34.9	1,218.01	5.	3.8	14.44
6.	12.0	144.00	6.	25.1	630.01
7.	108.8	11,837.44	7.	39.8	1,584.04
8.	4.4	19.36	8.	0.0	00.00
9.	14.3	204.49	9.	17.7	313.29
10.	4.8	23.04	10.	5.0	25.00
11.	43.1	1,857.61	11.	4.4	19.36
12.	29.0	841.00	12.	3.1	9.61
13.	29.0	841.00	13.	17.9	320.41
14.	30.0	900.00	14.	11.8	139.24
15.	27.5	756.25	15.	14.0	196.00
	442.3 Total of Scores	23,264.65 Total of Scores^2		203.9 Total of Scores	4,362.93 Total of Scores^2

Total of Scores Squared - 195,629.29

Mean - 29.49

t Test - 2.120

Total of Scores Squared - 41,575.21

Mean - 13.59

t TEST FOR CATEGORY 8

	GROUP A (Positive)		GROUP B (Negative)	
	Student Score	Scores^2	Student Score	Scores^2
1.	209.7	43,974.09	98.0	9,604.00
2.	103.9	10,795.21	115.4	13,317.16
3.	135.2	18,279.04	189.7	35,986.09
4.	121.9	14,859.61	160.4	25,728.16
5.	129.5	16,770.25	179.4	32,184.36
6.	178.6	31,897.96	93.3	8,704.89
7.	309.9	96,038.01	125.4	15,725.16
8.	298.0	88,804.00	182.7	33,379.29
9.	309.3	95,666.49	176.0	31,011.21
10.	211.8	44,859.24	177.4	31,470.76
11.	191.2	36,557.44	192.3	36,979.29
12.	202.0	40,804.00	311.4	96,969.96
13.	202.0	40,804.00	168.0	28,224.00
14.	193.0	37,249.00	164.9	27,192.01
15.	210.7	44,394.49	166.0	27,556.00
	3,006.7 Total of Scores	661,752.83 Total of Scores^2	2,500.4 Total of Scores	454,032.34 Total of Scores^2

Total of Scores Squared - 9,040,224.89

Mean - 200.45

t Test - 1.58

Total of Scores Squared - 6,252,000.16

Mean - 166.69

t TEST FOR CATEGORY 9

	GROUP A (Positive)		GROUP B (Negative)	
	Student Score	Scores^2	Student Score	Scores^2
1.	250.4	62,700.16	81.8	6,691.24
2.	38.3	1,466.89	66.4	4,408.96
3.	62.0	3,844.00	190.7	36,366.49
4.	23.0	529.00	234.2	54,849.64
5.	66.3	4,395.69	172.5	29,756.25
6.	134.3	18,036.49	71.7	5,140.89
7.	169.4	28,696.36	125.5	15,750.25
8.	143.8	20,678.44	42.5	1,806.25
9.	102.1	10,424.41	82.4	6,789.76
10.	97.5	9,506.25	46.4	2,152.96
11.	104.9	11,004.01	109.1	11,902.81
12.	108.0	11,664.00	110.0	12,110.00
13.	110.0	12,100.00	232.5	54,056.25
14.	121.0	14,641.00	151.2	22,861.44
15.	100.9	10,180.81	160.0	25,600.00
	1,631.9 Total of Scores	219,867.51 Total of Scores^2	1,876.9 Total of Scores	264,633.19 Total of Scores^2

Total of Scores Squared - 2,663,097.61

Mean - 108.79

t Test - .88

Total of Scores Squared - 3,522,753.61

Mean - 125.13

t TEST FOR CATEGORY 10

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	41.7	1,738.89	1.	169.8	28,832.04
2.	120.5	14,520.25	2.	143.1	20,477.61
3.	97.4	9,486.76	3.	35.3	1,246.09
4.	156.4	24,460.96	4.	65.4	4,277.16
5.	66.3	4,395.69	5.	52.9	2,798.41
6.	87.4	7,638.76	6.	105.8	11,193.64
7.	28.8	829.44	7.	262.9	69,116.41
8.	52.3	2,735.29	8.	40.7	4,656.49
9.	40.6	4,648.36	9.	73.1	5,343.61
10.	72.1	5,198.41	10.	137.9	19,016.41
11.	104.9	11,004.01	11.	109.1	11,902.81
12.	79.0	6,241.00	12.	66.3	4,395.69
13.	80.0	6,400.00	13.	64.2	4,121.64
14.	69.0	4,761.00	14.	113.9	12,973.21
15.	87.6	7,673.76	15.	95.0	9,025.00
	1,184.0 Total of Scores	108,732.58 Total of Scores^2		1,535.4 Total of Scores	206,376.22 Total of Scores^2

Total of Scores Squared - 1,401,856.00

Mean - 78.93

t Test - 1.34

Total of Scores Squared - 2,357,453.16

Mean - 102.36

t TEST FOR CELL 2-2

	GROUP A (Positive)			GROUP B (Negative)	
	Student Score	Scores^2		Student Score	Scores^2
1.	0.0	0.00	1.	0.0	0.00
2.	2.7	7.29	2.	0.0	0.00
3.	4.4	19.36	3.	4.8	23.04
4.	2.3	5.29	4.	1.1	1.21
5.	0.0	0.00	5.	0.0	0.00
6.	5.2	27.04	6.	0.0	0.00
7.	0.0	0.00	7.	0.0	0.00
8.	5.4	29.16	8.	1.8	3.24
9.	2.2	4.84	9.	4.1	16.81
10.	1.2	1.48	10.	3.0	9.00
11.	1.2	1.48	11.	4.3	18.49
12.	2.0	4.00	12.	12.5	156.25
13.	3.0	9.00	13.	1.0	1.00
14.	2.0	4.00	14.	3.9	15.21
15.	2.0	4.00	15.	1.0	1.00
	25.5 Total of Scores	116.94 Total of Scores^2		37.5 Total of Scores	245.25 Total of Scores^2

Total of Scores Squared - 650.25

Mean - 1.70

t Test - .78

Total of Scores Squared - 1406.25

Mean - 2.50

t TEST FOR CELL 3-3

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	9.9	98.01	1.	4.1	16.81
2.	21.9	479.61	2.	22.2	492.84
3.	8.9	79.21	3.	1.9	3.61
4.	36.8	1,354.24	4.	19.0	361.00
5.	18.9	357.21	5.	22.5	506.25
6.	10.4	108.16	6.	6.8	46.24
7.	22.4	501.76	7.	0.0	0.00
8.	9.8	96.04	8.	23.5	552.25
9.	38.2	1,459.24	9.	6.2	38.44
10.	18.1	327.61	10.	17.7	313.29
11.	9.9	98.01	11.	9.4	88.36
12.	22.0	484.00	12.	3.1	9.61
13.	14.0	196.00	13.	18.6	345.96
14.	28.0	784.00	14.	8.8	77.44
15.	9.2	84.64	15.	12.0	144.00
	278.4 Total of Scores	6,507.74 Total of Scores^2		175.8 Total of Scores	2,996.10 Total of Scores^2

Total of Scores Squared - 77,506.56

Mean - 18.56

t Test - 2.079

Total of Scores Squared - 30,905.64

Mean - 11.72

t TEST FOR CELL 6-7

	GROUP A (Positive)			GROUP B (Negative)	
	Student Score	Scores^2		Student Score	Scores^2
1.	0.0	0.00	1.	0.0	0.0
2.	0.0	0.00	2.	0.0	0.0
3.	0.0	0.00	3.	1.9	3.61
4.	0.0	0.00	4.	1.1	1.21
5.	6.3	39.69	5.	0.0	0.0
6.	1.7	2.89	6.	0.0	0.0
7.	0.0	0.00	7.	0.0	0.0
8.	0.0	0.00	8.	0.0	0.0
9.	0.0	0.00	9.	0.0	0.0
10.	0.0	0.00	10.	0.0	0.0
11.	1.2	1.44	11.	0.0	0.0
12.	2.0	4.00	12.	0.0	0.0
13.	0.0	0.00	13.	.9	.81
14.	2.0	4.00	14.	0.0	0.0
15.	0.0	0.00	15.	0.0	0.0
	13.2 Total of Scores	52.02 Total of Scores^2		3.9 Total of Scores	5.63 Total of Scores^2

Total of Scores Squared - 174.24

Mean - .88

t Test - 1.32

Total of Scores Squared - 15.21

Mean - .26

t TEST FOR CELL 7-6

	GROUP A (Positive)		GROUP B (Negative)	
	Student Score	Scores^2	Student Score	Scores^2
1.	0.0	0.00	0.0	0.00
2.	0.0	0.00	2.8	7.84
3.	0.0	0.00	0.0	0.00
4.	0.0	0.00	0.0	0.00
5.	9.5	90.25	0.0	0.00
6.	0.0	0.00	0.0	0.00
7.	0.0	0.00	0.0	0.00
8.	2.2	4.84	0.0	0.00
9.	0.0	0.00	0.0	0.00
10.	1.2	1.44	0.0	0.00
11.	0.0	0.00	0.0	0.00
12.	4.0	16.00	0.0	0.00
13.	0.0	0.00	0.0	0.00
14.	2.0	4.00	0.0	0.00
15.	1.0	1.00	0.0	0.00
	19.7 Total of Scores	117.53 Total of Scores^2	2.8 Total of Scores	7.84 Total of Scores^2

Total of Scores Squared - 388.09

Mean - 1.28

t Test - 1.60

Total of Scores Squared - 7.84

Mean - .19

t TEST FOR CELL 4-8

	GROUP A (Positive)			GROUP B (Negative)	
	Student Score	Scores^2		Student Score	Scores^2
1.	56.0	3,136.00	1.	20.4	416.16
2.	16.4	268.96	2.	30.5	930.25
3.	31.0	961.00	3.	103.0	10,609.00
4.	32.2	1,036.84	4.	72.8	5,299.84
5.	66.2	4,382.44	5.	44.1	1,944.81
6.	82.4	6,789.76	6.	36.4	1,324.96
7.	60.7	3,684.49	7.	55.0	3,025.00
8.	141.2	19,937.44	8.	54.2	2,937.64
9.	84.4	7,123.36	9.	114.3	13,064.49
10.	75.8	5,745.64	10.	75.9	5,760.81
11.	81.4	6,625.96	11.	101.3	10,261.69
12.	63.0	3,969.00	12.	143.3	20,534.89
13.	70.0	4,900.00	13.	71.6	5,126.56
14.	53.0	2,809.00	14.	67.7	4,583.29
15.	80.4	6,464.16	15.	73.0	5,329.00
	994.1 Total of Scores	77,834.05 Total of Scores^2		1,063.5 Total of Scores	91,148.39 Total of Scores^2

Total of Scores Squared - 988,234.81

Mean - 66.27

t Test - 1.27

Total of Scores Squared - 1,131,032.25

Mean - 70.90

t TEST FOR CELL 8-8

	GROUP A (Positive) Student Score	Scores^2		GROUP B (Negative) Student Score	Scores^2
1.	144.9	20,996.01	1.	53.1	2,819.61
2.	76.6	5,867.56	2.	63.7	4,057.69
3.	88.7	7,867.69	3.	73.4	5,387.56
4.	73.6	5,416.96	4.	77.0	5,929.00
5.	44.2	1,953.64	5.	126.5	16,002.25
6.	72.0	5,184.00	6.	30.7	942.49
7.	226.8	51,438.24	7.	45.9	2,106.21
8.	121.9	14,859.61	8.	103.2	10,650.24
9.	201.8	40,723.24	9.	38.1	1,451.61
10.	90.3	8,154.09	10.	67.0	4,489.00
11.	85.1	7,242.01	11.	60.9	3,708.81
12.	110.0	12,100.00	12.	135.0	18,225.00
13.	116.0	13,456.00	13.	86.0	7,499.56
14.	115.0	13,225.00	14.	75.6	5,715.36
15.	111.0	12,321.00	15.	69.0	4,761.00
	1,677.9 Total of Scores	220,805.05 Total of Scores^2		1,105.7 Total of Scores	93,745.99 Total of Scores^2

Total of Scores Squared - 2,815,348.41

Mean - 111.86

t Test - 2.349

Total of Scores Squared - 1,222,572.49

Mean - 73.71

t TEST FOR CELL 9-9

	GROUP A (Positive)			GROUP B (Negative)	
	Student Score	Scores^2		Student Score	Scores^2
1.	191.0	36,481.00	1.	32.7	1,069.29
2.	21.9	479.61	2.	43.4	1,883.56
3.	13.3	176.89	3.	94.4	8,911.36
4.	16.1	259.21	4.	150.8	22,740.64
5.	31.5	992.25	5.	120.6	14,544.36
6.	62.4	3,893.76	6.	23.9	571.21
7.	111.8	139.24	7.	39.8	1,584.04
8.	73.3	5,372.89	8.	24.4	595.36
9.	68.0	4,624.00	9.	24.7	610.09
10.	54.2	2,937.64	10.	10.8	116.64
11.	67.8	4,596.84	11.	38.6	1,489.96
12.	50.0	2,500.00	12.	63.3	4,006.89
13.	74.0	5,476.00	13.	149.4	22,320.36
14.	56.0	3,136.00	14.	98.1	9,623.61
15.	70.3	4,942.09	15.	101.0	10,201.00
	961.6 Total of Scores	76,007.42 Total of Scores^2		1,015.9 Total of Scores	136,268.37 Total of Scores^2

Total of Scores Squared - 924,674.56

Mean - 64.11

t Test - .25

Total of Scores Squared - 1,032,052.81

Mean - 67.73

APPENDIX B

Conversion Matrixes
For Each Student Teacher

Conversion Matrix
Teacher A-1

	1	2	3	4	5	6	7	8	9	10	Total
1											
2			19.8	19.8	6.6	3.3			6.6		
3			9.9	9.9	6.6				13.2		
4			2.2	49.2	3.3	2.2		56.0		26.3	
5				19.8	200.9			2.2	13.2	2.2	
6				6.6		3.3		3.3			
7				3.3					3.3		
8		36.2		13.2	3.3		3.3	144.9	16.5	3.3	
9		19.8	6.6	6.6	9.9	3.3	3.3		191.0		
10				19.8	6.6			3.3	6.6	9.9	
Total		56.0	38.5	148.2	237.2	12.1	6.6	209.7	250.4	41.7	1000.4

ID = 242.7 = .948
255.9

Rev. i/d = 94.5 = 5.053
18.7

S/T = 460.1 = .923
498.5

Conversion Matrix
Teacher A-2

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		2.7	10.9	10.9	10.9				5.5	5.5	
3		5.5	21.9	4.6	5.5						
4				60.2	2.7	5.5		16.4		21.9	
5		5.5		16.4	348.5	10.9	5.5			49.3	
6				5.5	16.4	27.4					
7					16.4		32.8				
8		21.9			6.4			76.6	10.9	5.5	
9		5.5							21.9		
10		5.5		10.9	43.8	5.5	10.9	10.9		38.3	
Total		46.6	32.8	108.5	450.6	49.3	49.2	103.9	38.3	120.5	999.7

ID = 187.9 = .342
549.1

Rev. i/d = 79.4 = .806
98.5

S/T = 142.2 = .193
737.0

Conversion Matrix
Teacher A-3

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		4.4	13.3	11.1	8.7				2.2		
3		4.4	8.9	2.2	11.1		2.2				
4				28.9			4.4	31.0		20.0	
5				26.6	337.0	2.2	11.1		37.7	39.9	
6					37.7	4.4				2.2	
7				4.4	15.5		17.7		4.4	2.2	
8		26.6	2.2	2.2	6.7		4.4	88.7	2.2	8.7	
9		2.2	4.4	4.4	31.0		4.4		13.3	2.2	
10		2.2		11.1	39.9	2.2	2.2	15.5	2.2	22.2	
Total		39.8	28.8	90.9	487.6	8.8	46.4	135.2	62.0	97.4	996.9

ID = 159.5 = .294
542.8

Rev. i/d = 68.6 = 1.243
55.2

S/T = 141.4 = .201
702.3

Conversion Matrix
Teacher A-4

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		2.3	23.0	6.9	2.3			2.3			
3			36.8	9.2	27.6					4.6	
4				52.9	2.3			32.2		32.2	
5				27.6	386.2	6.9		2.3	2.3	27.6	
6				4.6	4.6	6.9					
7											
8		27.6	13.8	2.3	2.3		2.3	73.6			
9		6.9							16.1		
10	2.3	2.3	13.8	23.0	2.3		11.5	4.6	92.0		
Total		39.1	75.9	117.3	448.3	16.1	2.3	121.9	23.0	156.4	10000.3

ID = 232.3 = .498
466.7

Rev. i/d = 115.0 = 6.250
18.4

S/T = 144.9 = .207
699.0

Conversion Matrix
Teacher A-5

	1	2	3	4	5	6	7	8	9	10	Total
1											
2			15.8	9.5					3.2		
3			18.9	25.2	34.7			9.5	3.2	9.5	
4				69.4	3.2		3.2	66.2		25.2	
5				37.9	290.2		6.3	3.2	15.8	6.3	
6						18.9	6.3			6.3	
7				3.2	9.5	9.5	3.2	3.2	6.3	3.2	
8		18.9	50.5	3.2	6.3		3.2	44.2		3.2	
9		9.5	6.3	6.3	9.5		3.2		31.5		
10			6.3	12.6	9.5	3.2	9.5	3.2	6.3	12.6	
Total		28.4	97.8	167.3	362.9	31.6	34.9	129.5	66.3	66.3	985.0

ID = 293.5 = .684
429.2

Rev. i/d = 126.2 = 1.900
66.5

S/T = 195.8 = .271
722.9

Conversion Matrix
Teacher A-6

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		5.2	13.0	7.8	7.8				7.8	2.6	
3		10.4	10.4	23.4	10.4		2.6	1.7	5.2	10.4	
4				17.3	13.0	1.7		82.4	2.6	19.9	
5		1.7	1.7	28.6	213.4	5.2		1.7	35.6	17.3	
6				1.7	1.7	7.8	1.7	2.6	4.3	5.2	
7			1.7				1.7	2.6	2.6	1.7	
8		22.5	27.8	19.9	17.3	2.6	4.3	72.0	4.3	7.8	
9		7.8	13.0	15.6	31.2		1.7		62.4	2.6	
10		1.7	2.6	19.9	14.7	6.9		15.6	9.5	19.9	
Total		49.3	70.2	134.2	309.5	24.2	12.0	178.6	134.3	87.4	999.7

ID = 253.7 = .734
345.7

i/d = 119.5 = 3.300
36.2

S/T = 25.1 = .042
599.4

Conversion Matrix
Teacher A-7

	1	2	3	4	5	6	7	8	9	10	Total
1											
2			3.2	6.4							
3			22.4	6.4	12.8		6.4		12.8		
4				63.9	3.2		3.2	60.7	3.2	6.4	
5			9.6	16.0	102.2		22.4		9.6		
6						6.4				3.2	
7		3.2	6.4	19.2	25.6		25.6	16.0	16.0		
8		6.4	6.4	19.2	9.6		19.2	226.8	12.8	9.6	
9			12.8	9.6	3.2		25.6	3.2	111.8	3.2	
10				3.2	3.2	3.2	6.4	3.2	3.2	6.4	
Total		9.6	60.8	143.9	159.8	9.6	108.8	309.9	169.4	28.8	1000.6

ID = 214.3 = .770
278.2

i/d = 70.4 = .595
118.4

S/T = 479.3 = .973
492.5

Conversion Matrix
Teacher A-8

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		5.4	12.0	26.1	4.4	2.2		4.4	6.5	2.2	
3		9.8	9.8	27.2	8.7	3.3		6.5	12.0	2.2	
4		1.1	1.1	50.1	5.4	1.1	1.1	141.2	3.3	20.7	
5				27.2	46.8	3.3	1.1	4.4	20.7	5.4	
6		1.1		10.9	2.2	3.3		3.3	2.2		
7						2.2		1.1			
8		27.2	44.6	43.5	25.0	2.2	1.1	121.9	18.5	14.1	
9		15.2	10.9	19.6	16.3	4.4			77.3	3.3	
10		2.2	1.1	20.7	3.3	1.1	1.1	15.2	3.3	4.4	
Total		62.0	79.5	225.3	112.1	23.1	4.4	298.0	143.8	52.3	1000.5

ID = $\frac{366.8}{139.6}$ = 2.627

i/d = $\frac{141.5}{27.5}$ = 5.145

S/T = $\frac{441.8}{506.4}$ = .872

Conversion Matrix
Teacher A-9

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		2.2	57.0	12.1	6.6	1.1	1.1	3.3			
3		1.1	38.2	41.7	12.1			3.3	13.2	4.4	
4				62.5	8.8		1.1	84.4	2.2	25.2	
5		1.1	1.1	30.7	81.1	2.2		1.1	8.8	2.2	
6				3.3	1.1	6.6			1.1		
7				5.5	2.2		1.1	3.3	2.2		
8		61.4	12.1	14.3	12.1		8.8	201.8	2.2	1.1	
9		23.0	3.3	4.4	5.5		2.2		68.0		
10			1.1	12.1	4.4	2.2		12.1	4.4	7.7	
Total		88.8	112.8	186.6	133.9	12.1	14.3	309.3	102.1	40.6	1000.5

ID = 388.2 = 2.421
160.3

i/d = 201.6 = 7.636
26.4

S/T = 411.4 = .750
548.5

Conversion Matrix
Teacher A-10

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		1.2	45.5	18.1	7.2	1.2		7.2	7.2	2.4	
3		31.3	18.1	56.6	22.9	1.2	2.4	9.6	18.1	3.6	
4				45.7	8.4	2.4		75.8	2.4	34.9	
5		1.2		27.7	84.2			3.6	9.6	10.8	
6				9.6	1.2	9.6		4.8		1.2	
7			1.2	2.4		1.2					
8		48.1	68.6	13.2	8.4	1.2		90.3	3.6	3.6	
9		9.6	20.5	3.6	8.4		1.2		54.2	2.4	
10				18.1	7.2	9.6	1.2	20.5	2.4	13.2	
Total		91.4	153.9	195.0	147.9	26.4	4.8	211.8	97.5	72.1	1000.8

ID = $\frac{440.3}{179.1} = 2.458$

Rev. i/d = $\frac{245.3}{31.2} = 7.862$

S/T = $\frac{309.3}{619.4} = .499$

Conversion Matrix
Teacher A-11

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		1.2	8.6	1.2	3.7	1.2	1.2		1.2	2.5	
3			9.9	21.0	19.7	2.5	1.2	6.2	7.4	7.4	
4		1.2	1.2	54.3	2.5	1.2	6.2	81.4	2.5	24.7	
5		1.2		27.1	189.9	6.2			7.4	13.6	
6				2.5	8.6	19.7	1.2			7.4	
7			1.2	17.3	2.5		4.9	7.4	6.2	4.9	
8		12.3	48.1	17.3	3.7		14.8	85.1	6.2	3.7	
9		4.9	17.3		3.7		3.7	2.5	67.8	2.5	
10		1.2		22.2	11.1	8.6	9.9	8.6	6.2	38.2	
Total		22.0	86.3	162.9	245.4	39.4	43.1	191.2	104.9	104.9	1000.1

ID = 271.2 = .827
327.9

i/d = 108.3 = 1.312
82.5

S/T = 296.1 = .494
599.1

Conversion Matrix
Teacher A-12

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		2	10	17	4	1	1				
3		2	22	15	20			7	8	5	
4				52	8	2	2	63	3	30	
5			3	34	215	5	3	2	22	21	
6		1		4	5	8	2		2		
7		1	2	6	6	4	7	7	8		
8		32	27	12	10		6	110	7	6	
9		10	10	3	12		8		50		
10			2	12	1			13	8	17	
Total		48	76	155	281	20	29	202	108	79	998.0

ID = 281 = .857
328

i/d = 124 = 2.530
49

S/T = 310 = .509
609

Conversion Matrix
Teacher A-13

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		3	31	5	5	1		3	8	3	
3		9	14	20	11	2	2		9	3	
4		1	2	48	1	1		70		17	
5		1		37	197	2	5	2	8	11	
6				4	2	8		3		5	
7				6	8		9			2	
8		24	23	15	8	1	6	116	7	5	
9		9	7	10	10	2		1	74	3	
10		3		12	29	8	7	7	4	31	
Total		50	77	157	271	25	29	202	110	80	1001

ID = 284 = .871
326

i/d = 127 = 2.309
55

S/T = 312 = .511
610

Conversion Matrix
Teacher A-14

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		2	15	11	10			3	7		
3		5	28	25	25			1	5	4	
4				40	3			53	3	28	
5			2	35	214	4	5	2	19	13	
6				3	5	9	2	3	2		
7			1	6	6	2	9	5	5		
8		39	28	11	5	1	3	115	12	2	
9		12	7	1	2		8		56		
10				12	19		3	11	12	22	
Total		58	81	144	289	16	30	193	121	69	1001

ID = 283 = .844
335

i/d = 139 = 3.022
46

S/T = 314 = .508
618

Conversion Matrix
Teacher A-15

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		2.0	25.5	11.2		1.0			1.0	3.1	
3		6.1	9.2	10.2	5.1		2.0	6.1	10.2	4.1	
4				62.1	7.1	2.0	2.0	80.4		19.3	
5		2.0		36.7	203.7	2.0	3.1		10.2	19.3	
6				4.1	7.1	7.1			4.1		
7		1.0	1.0	6.1	7.1	1.0	6.1	1.0		2.0	
8		17.3	22.4	15.3	13.2		9.2	111.0	5.1	9.2	
9		7.1	11.2	11.2	19.3	1.0		1.0	70.3	3.1	
10		3.1	2.0	11.2	9.2	8.2	5.1	11.2		27.5	
Total		38.6	71.3	168.1	271.8	22.3	27.5	210.7	100.9	87.6	998.8

ID = 278.0 = .863
322.1

i/d = 109.9 = 2.207
49.8

S/T = 311.6 = .519
600.1

Conversion Matrix
Teacher B-1

	1	2	3	4	5	6	7	8	9	10	Total
1											
2			4.1								
3			4.1		24.5		4.1		4.1	8.2	
4				16.3	8.2		4.1	20.4	8.2	28.6	
5				36.8	383.7			4.1	24.5	36.8	
6				4.1							
7				4.1	4.1		4.1		4.1	4.1	
8		4.1	28.6	4.1			4.1	53.1		4.1	
9			8.2	4.1	40.9	4.1			32.7		
10				16.3	16.3		8.2	20.4	8.2	88.0	
Total		12.3	45.0	87.6	477.7	4.1	24.6	98.0	81.8	169.8	1000.9

ID = 144.6 = .286
506.4

i/d = 57.3 = 1.996
28.7

S/T = 179.8 = .276
651.0

Conversion Matrix
Teacher B-2

	1	2	3	4	5	6	7	8	9	10	Total
1											
2			13.9	2.8	4.6				1.8	1.8	
3		2.8	22.2	1.8	18.5	1.8		4.6	4.6	11.2	
4				62.8	8.3			30.5		35.1	
5		1.8	1.8	24.9	335.2	5.5	1.8		10.2	24.0	
6				8.3	4.6	16.6			1.8	1.8	
7					1.8	2.8	4.6			1.8	
8		11.2	26.8	8.3				63.7	1.8	7.4	
9		8.3	1.8	2.8	4.6	1.8	1.8		43.4	1.8	
10			1.8	22.4	26.8	4.6	2.8	16.6	2.8	58.2	
Total		24.1	68.3	134.1	404.4	33.1	11.0	115.4	66.4	143.1	999.9

ID = 226.5 = .505
448.5

i/d = 92.4 = 2.095
44.1

S/T = 181.8 = .269
675.0

Conversion Matrix
Teacher B-3

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		4.8	11.4	19.1	11.4	2.9		1.9	22.9		
3		11.4	1.9	19.1	8.6	4.8			13.3		
4				93.4	1.9	1.9		103.0	4.8	14.3	
5		1.9		40.0	117.3	2.9	1.9		21.9	4.8	
6				7.6	4.8	11.4	1.9		5.7	1.9	
7				1.9					2.9	1.9	
8		25.7	21.9	22.9	20.0	2.9		73.4	22.9	2.9	
9		28.4	19.1	13.3	21.9	2.9	1.9		94.4	7.6	
10				11.4	2.9	2.9	1.9	11.4	1.9	1.9	
Total		72.2	54.3	228.7	188.8	32.6	7.6	189.7	190.7	35.3	999.9

ID = 355.2 = 1.551
229.0

i/d = 126.5 = 3.150
40.2

S/T = 380.4 = .651
584.2

Conversion Matrix
Teacher B-4

	1	2	3	4	5	6	7	8	9	10	Total
1					1.1						
2		1.1	19.0	2.1	4.2	1.1			4.2	1.1	
3		7.4	19.0	26.4	26.4	3.2	3.2		14.8	10.5	
4				25.3	6.3			72.8	1.1	7.4	
5		3.2	3.2	28.5	137.1	3.2	2.1	2.1	44.3	6.3	
6			2.1	1.1	6.3	12.7	1.1	2.1	1.1	3.2	
7				2.1	6.3		4.2	1.1	2.1	3.2	
8	1.1	9.5	34.8	16.9	11.6		1.1	77.0	6.3	6.3	
9		11.6	26.4	6.3	24.3	3.2	3.2		150.8	7.4	
10			7.4	8.4	7.4	5.3	3.2	5.3	9.5	20.0	
Total	1.1	32.8	111.9	117.1	231.0	28.7	18.1	160.4	234.2	65.4	1000.7
0											

ID = 262.9 = .946
277.8

i/d = 145.8 = 3.115
46.8

S/T = 394.6 = .730
540.7

Conversion Matrix
Teacher B-5

	1	2	3	4	5	6	7	8	9	10	Total
1											
2			28.4	2.9	1.9						
3			22.5	16.7	13.7		1.9		2.9	5.9	
4				58.8				44.1	1.9	22.5	
5				26.4	291.2	1.9			35.3	4.9	
6				1.9	1.9	1.9					
7					2.9						
8		24.5	4.9	1.9	8.8			126.5	5.9	4.9	
9		7.8	4.9	5.9	29.4		1.9		120.6	2.9	
10			1.9	13.7	11.8	1.9		8.8	5.9	11.8	
Total		32.3	62.6	128.2	361.6	5.7	3.8	179.4	172.5	52.9	999.0

ID = 223.1 = .601
371.1

i/d = 94.9 = 9.990
9.5

S/T = 351.9 = .592
594.2

Conversion Matrix
Teacher B-6

	1	2	3	4	5	6	7	8	9	10	Total
1						2.3					
2			12.5	2.3		2.3					
3			6.8	10.2	15.9	2.3			2.3	2.3	
4				34.1			2.3	36.4	3.4	29.6	
5				22.8	422.1	5.7	5.7		34.1	26.2	
6					5.7	9.1				6.8	
7	2.3				3.4		5.7	2.3	2.3	9.1	
8		12.5	13.7	12.5	12.5			30.7	3.4	9.1	
9		3.4	3.4	2.3	34.1		2.3		23.9	2.3	
10				20.5	26.2	3.4	9.1	23.9	2.3	20.5	
Total	2.3	15.9	36.4	104.7	519.9	25.1	25.1	93.3	71.7	105.8	1000.2

ID = 159.3 = .279
570.1

i/d = 54.6 = 1.088
50.2

S/T = 165.0 = .226
729.4

Conversion Matrix
Teacher B-7

	1	2	3	4	5	6	7	8	9	10	Total
1											
2				6.1	3.1			3.1	3.1		
3									3.1	3.1	
4		6.1		33.6	6.1		3.1	55.0	6.1	27.5	
5				24.5	107.0	15.3	3.1		30.6	24.5	
6				6.1	6.1	36.7			9.2	6.1	
7					6.1		9.2		6.1	18.3	
8		9.2	3.1	18.3	12.2		12.2	45.9	12.2	12.2	
9			3.1	21.4	36.7		6.1		39.8	18.3	
10				27.5	45.9	12.2	6.1	21.4	15.3	152.9	
Total		15.3	6.2	137.5	223.2	64.2	39.8	125.4	125.5	262.9	1000

ID = 159.0 = .486
327.2

i/d = 21.5 = .207
104.0

S/T = 250.9 = .516
486.2

Conversion Matrix
Teacher B-8

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		1.8	42.5	10.0	4.5			1.8			
3			23.5	32.6	32.6	1.8		2.7	10.0		
4		1.8	5.4	126.7	26.2	2.7		54.2	1.8	29.9	
5				58.8	228.1	5.4		7.2	4.5	2.7	
6				5.4	5.4	4.5					
7											
8		43.4	20.8	7.2	2.7			103.2	1.8	2.7	
9		8.1	7.2		4.5				24.4		
10			1.8	13.6	7.2	1.8		13.6		5.4	
Total		55.1	101.2	254.3	311.2	16.2		182.7	42.5	40.7	1003.9

ID = 410.6 = 1.254
327.4

i/d = 156.3 = 9.648
16.2

S/T = 225.2 = .305
738.0

Conversion Matrix
Teacher B-9

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		4.1	27.8	12.4	15.4			2.1	2.1	1.0	
3		13.4	6.2	30.9	36.0		2.1	2.1	7.2	3.1	
4				51.5	8.2	3.1	1.0	114.3	6.2	28.8	
5		1.0		69.0	157.6	1.0	2.1	3.1	16.5	16.5	
6				3.1	1.0			1.0			
7				5.1	2.1		2.1	1.0	1.0	6.2	
8		28.8	54.6	12.4	19.6		2.1	38.1	15.4	6.2	
9		17.5	13.4	5.1	13.4		2.1	1.0	24.7	4.1	
10		1.0		20.6	15.4		6.2	13.4	9.3	7.2	
Total		65.8	102.0	210.1	268.7	4.1	17.7	176.1	82.4	73.1	1000.0

ID = 377.9 = 1.300
290.5

i/d = 167.8 = 7.697
21.8

S/T = 258.5 = .387
668.4

Conversion Matrix
Teacher B-10

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		3.0	44.3	25.6	3.0				3.0		
3		5.9	17.7	26.6	23.6			2.0	13.8	4.9	
4			2.0	53.2	4.9			75.9	2.0	56.2	
5		2.0	2.0	35.5	174.4			5.9	13.8	25.6	
6					3.0	2.0					
7					2.0						
8		61.1	17.7	10.8	17.7			67.0		4.9	
9		8.9	7.9	4.9	11.8		2.0		10.8	2.0	
10				40.2	18.7	3.0	3.0	26.6	3.0	44.3	
Total		80.9	91.6	196.8	259.1	5.0	5.0	177.4	46.4	137.9	1000.1

ID = 369.3 = 1.372
269.1

i/d = 172.5 = 17.250
10.0

S/T = 223.8 = .351
638.4

Conversion Matrix
Teacher B-11

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		4.3	25.8	21.5	4.3	.9		1.7	7.7	3.4	
3		20.6	9.4	33.5	12.0			2.6	6.9	3.4	
4		1.7		50.6	6.9		.9	101.3	5.2	48.9	
5		.9	.9	29.2	121.9	3.4		2.6	24.0	6.9	
6				6.9	.9	4.3			.9	.9	
7				.9	.9					.9	
8		23.2	42.9	24.9	14.6	1.7		60.9	21.5	5.2	
9		17.2	9.4	18.0	22.3	.9	.9	.9	38.6	1.7	
10			.9	42.1	6.0	3.4	2.6	22.3	4.3	37.8	
Total		67.9	89.3	227.6	189.8	14.6	4.4	192.3	109.1	109.1	1004

ID = $\frac{384.8}{208.8} = 1.842$

i/d = $\frac{157.2}{19.0} = 8.273$

S/T = $\frac{301.4}{593.6} = .508$

Conversion Matrix
Teacher B-12

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		12.5	5.2	44.7	13.5	1.0		5.2	7.3	7.3	
3		26.0	3.1	29.1	7.3			1.0	13.5	3.1	
4		1.0		43.6	4.2			143.3	1.0	37.4	
5		3.1		31.2	35.3	2.1	1.0	3.1	5.2	9.3	
6		1.0		3.1		3.1		2.1			
7					1.0			1.0		1.0	
8		36.3	65.4	42.6	13.5			135.0	18.7	1.0	
9		15.6	10.4	11.4	7.3			1.0	63.3	1.0	
10		1.0		26.0	8.3	2.1	2.1	19.7	1.0	6.2	
Total		96.5	84.1	230.7	90.4	8.3	3.1	311.4	110.0	66.3	1000.8

ID = 411.3 = 4.040
101.8

i/d = 180.6 = 15.842
11.4

S/T = 421.4 = .821
513.1

Conversion Matrix
Teacher B-13

	1	2	3	4	5	6	7	8	9	10	Total
1					.9						
2		.9	18.6	1.8	4.4	.9			4.4	.9	
3		7.1	18.6	26.5	26.5	3.3	3.3		15.0	10.6	
4				24.8	6.2			71.6	.9	7.1	
5		3.3	3.3	28.3	135.3	3.3	1.8	1.8	44.2	6.2	
6			1.8	.9	6.2	12.4	.9	1.8	.9	3.3	
7				1.8	6.2		4.4	.9	1.8	3.3	
8	.9	9.7	34.5	16.8	11.5		.9	86.6	6.2	6.2	
9		11.5	26.5	6.2	23.9	3.3	3.3		149.4	7.1	
10			7.1	8.0	7.1	5.3	3.3	5.3	9.7	19.5	
Total	.9	32.5	110.4	115.1	228.2	28.5	17.9	168.0	232.5	64.2	998.2

ID = 258.9 = .943
274.6

i/d = 143.8 = 3.099
46.4

S/T = 400.5 = .751
533.5

Conversion Matrix
Teacher B-14

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		3.9	6.9	17.7	6.9	1.0		2.0	4.9		
3		7.9	8.8	16.7	11.8		2.0		7.9	9.8	
4				47.1	9.8		2.0	67.7	2.0	25.5	
5		2.9	2.0	34.3	206.1				23.6	15.7	
6				3.9		3.9		1.0		2.0	
7					2.9		3.9		2.9	4.9	
8		23.6	24.5	15.7	13.7			75.6	6.9	10.8	
9		12.8	12.8	7.9	16.7				98.1	6.9	
10			2.9	19.6	13.7		3.9	18.6	4.9	38.3	
Total		51.1	57.9	162.9	281.6	4.9	11.8	164.9	151.2	113.9	1000.2

ID = 271.9 = .912
298.3

i/d = 109.0 = 6.527
16.7

S/T = 316.1 = .555
570.2

Conversion Matrix
Teacher B-15

	1	2	3	4	5	6	7	8	9	10	Total
1											
2		1	13	6	3				3	3	
3		4	12	17	20	2		73	5	32	
4		3	2	60	9	2		73	5	32	
5				35	197	7	3	4	23	18	
6				4	7	4			3	1	
7				2	3		1	1		1	
8		24	31	16	9		3	69	11	1	
9		8	8	8	6		3	4	101	2	
10				20	18	7	4	13	6	37	
Total		40	66	168	272	22	14	166	160	95	1003

ID = 274 = .889
308

i/d = 106 = 2.941
36

S/T = 326 = .550
582

APPENDIX C

Index of Adjustment and Values Inventory
and Scores of Each Participant

The IAV

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DIRECTIONS
(Adult Form)

This device is a way of helping you to state some of your beliefs about yourself and other people. It tells nothing more than what you want it to say -- there are no hidden scores or tricks. *It will have value only if you are careful and do your best to give an accurate description of yourself and other people as you see them.*

On page 3 of this booklet is a list of 49 trait words. You will be asked to answer three questions about yourself and three about other people for each of these traits. For yourself, these questions are: 1. How often are you this sort of person, 2. How do you feel about being this way, and 3. How much of the time would you like this trait to be characteristic of you?

You will also answer these same questions about other people. In order to do this you will first think about other people like you (To the examiner: This refers to peers such as other college seniors, juniors, etc., other high school seniors, other teachers, other school principals, etc. You should help the subjects to determine their appropriate peer group.), and then *answer the questions as you think the average member of this group would answer it for himself.*

Please complete the ratings for yourself before you make the ratings for "other people." Be certain that you use the answer sheet marked "SELF" in the upper right hand corner for yourself and the one marked "OTHERS" when making the ratings for other people. Finally, please make the three ratings for each trait before going to the next trait.

On pages 3 and 4 are two lists of 49 trait words and an example. Take each word separately and apply it to yourself (or to other people) by completing the following sentence:

I am (average person in my group is) a (an) person.

The first word in the list is *academic*, so you would substitute this term in the above sentence. It would read:

"I am (He is) an *academic* person."

Then decide how much of the time this statement is like you (him), that is, is typical or characteristic of you (him) as an individual, and rate yourself (him as he would himself) on a scale from one to five according to the following key:

1. *Seldom*, is this like me (him).
2. *Occasionally*, this is like me (him).
3. *About half of the time*, this is like me (him).
4. *A good deal of the time*, this is like me (him).
5. *Most of the time*, this is like me (him).

Select the number beside the phrase that tells how much of the time the statement is like you (him) and insert it in Column I on the next page.

EXAMPLE: Beside the term ACADEMIC, a number two is inserted to indicate that, "Occasionally, I am (he is) an academic person."

Now go to Column II. Use one of the statements given below to tell how you feel (he feels) about yourself (himself) as described in Column I.

1. I (He) very much dislike(s) being as I am (he is) in this respect.
2. I (He) dislike(s) being as I am (he is) in this respect.
3. I (He) neither dislike(s) being as I am (he is) nor like(s) being as I am (he is) in this respect.
4. I (He) like(s) being as I am (he is) in this respect.
5. I (He) like(s) very much being as I am (he is) in this respect.

You will select the number beside the statement that tells how you (he) feel(s) about the way you are (he is) and insert the number in Column II.

EXAMPLE: In Column II beside the term ACADEMIC, number one is inserted to indicate that I (he) dislike(s) very much being as I am (he is) in respect to the term, academic. Note that being as I am (he is) always refers to the way you (he) described yourself (himself) in Column I.

Finally, go to Column III, using the same term, complete the following sentence:

I (He) would like to be a (an) person.

Then decide how much of the time you (he) would like this trait to be characteristic of you (him) and rate yourself (him as he would himself) on the following five point scale:

1. *Seldom*, would I (he) like this to be me (him).
2. *Occasionally*, I (he) would like this to be me (him).

3. *About half of the time*, I (he) would like to be me (him).
4. *A good deal of the time*, I (he) would like this to be me (him).
5. *Most of the time*, I (he) would like this to be me (him).

You will select the number beside the phrase that tells how much of the time you (he) would like to be this kind of person and insert the number in Column III.

EXAMPLE: In Column III beside the term ACADEMIC, number 5 is inserted to indicate that *most of the time*, I (he) would like to be this kind of person.

Start with the word ACCEPTABLE and fill in Columns I, II, and III before going on to the next word. There is no time limit. Be honest with yourself so that your description will be a true measure of how you see yourself and other people.

Please fill in the blanks with your name, date, school, class, section, age, and sex.

Name.....

		I	II	III			I	II	III
a.	academic								
1.	acceptable	.....	.....	.....	26.	merry	.....	.....	.....
2.	accurate	.....	.....	.....	27.	mature	.....	.....	.....
3.	alert	.....	.....	.....	28.	nervous	.....	.....	.....
4.	ambitious	.....	.....	.....	29.	normal	.....	.....	.....
5.	annoying	.....	.....	.....	30.	optimistic	.....	.....	.....
6.	busy	.....	.....	.....	31.	poised	.....	.....	.....
7.	calm	.....	.....	.....	32.	purposeful	.....	.....	.....
8.	charming	.....	.....	.....	33.	reasonable	.....	.....	.....
9.	clever	.....	.....	.....	34.	reckless	.....	.....	.....
10.	competent	.....	.....	.....	35.	responsible	.....	.....	.....
11.	confident	.....	.....	.....	36.	sarcastic	.....	.....	.....
12.	considerate	.....	.....	.....	37.	sincere	.....	.....	.....
13.	cruel	.....	.....	.....	38.	stable	.....	.....	.....
14.	democratic	.....	.....	.....	39.	studious	.....	.....	.....
15.	dependable	.....	.....	.....	40.	successful	.....	.....	.....
16.	economical	.....	.....	.....	41.	stubborn	.....	.....	.....
17.	efficient	.....	.....	.....	42.	tactful	.....	.....	.....
18.	fearful	.....	.....	.....	43.	teachable	.....	.....	.....
19.	friendly	.....	.....	.....	44.	useful	.....	.....	.....
20.	fashionable	.....	.....	.....	45.	worthy	.....	.....	.....
21.	helpful	.....	.....	.....	46.	broad-minded	.....	.....	.....
22.	intellectual	.....	.....	.....	47.	businesslike	.....	.....	.....
23.	kind	.....	.....	.....	48.	competitive	.....	.....	.....
24.	logical	.....	.....	.....	49.	fault-finding	.....	.....	.....
25.	meddlesome	.....	.....	.....					

Name..... "OTHERS"

(Complete this Index as you think the average person in your peer group would complete it for himself.)

	I	II	III		I	I	III
a. academic							
1. acceptable	.....	.....	.....	26. merry	.....	.....	.....
2. accurate	.....	.....	.....	27. mature	.....	.....	.....
3. alert	.....	.....	.....	28. nervous	.....	.....	.....
4. ambitious	.....	.....	.....	29. normal	.....	.....	.....
5. annoying	.....	.....	.....	30. optimistic	.....	.....	.....
6. busy	.....	.....	.....	31. poised	.....	.....	.....
7. calm	.....	.....	.....	32. purposeful	.....	.....	.....
8. charming	.....	.....	.....	33. reasonable	.....	.....	.....
9. clever	.....	.....	.....	34. reckless	.....	.....	.....
10. competent	.....	.....	.....	35. responsible	.....	.....	.....
11. confident	.....	.....	.....	36. sarcastic	.....	.....	.....
12. considerate	.....	.....	.....	37. sincere	.....	.....	.....
13. cruel	.....	.....	.....	38. stable	.....	.....	.....
14. democratic	.....	.....	.....	39. studious	.....	.....	.....
15. dependable	.....	.....	.....	40. successful	.....	.....	.....
16. economical	.....	.....	.....	41. stubborn	.....	.....	.....
17. efficient	.....	.....	.....	42. tactful	.....	.....	.....
18. fearful	.....	.....	.....	43. teachable	.....	.....	.....
19. friendly	.....	.....	.....	44. useful	.....	.....	.....
20. fashionable	.....	.....	.....	45. worthy	.....	.....	.....
21. helpful	.....	.....	.....	46. broad-minded	.....	.....	.....
22. intellectual	.....	.....	.....	47. businesslike	.....	.....	.....
23. kind	.....	.....	.....	48. competitive	.....	.....	.....
24. logical	.....	.....	.....	49. fault-finding	.....	.....	.....
25. meddlesome	.....	.....	.....				

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17. efficient	.....	.....	.....	42. tactful	.....	.....	.....
18. fearful	.....	.....	.....	43. teachable	.....	.....	.....
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23. kind	.....	.....	.....	48. competitive	.....	.....	.....
24. logical	.....	.....	.....	49. fault-finding	.....	.....	.....
25. meddlesome	.....	.....	.....				

INDEX OF ADJUSTMENT SCORES
FOR THE TWO SAMPLES OF
STUDENT TEACHERS

Positive Self-Accepting Sample		Negative Self-Accepting Sample	
Teacher	Score	Teacher	Score
A-1	207	B-1	158
A-2	214	B-2	150
A-3	189	B-3	160
A-4	190	B-4	136
A-5	186	B-5	160
A-6	224	B-6	161
A-7	202	B-7	130
A-8	191	B-8	161
A-9	194	B-9	130
A-10	205	B-10	160
A-11	218	B-11	145
A-12	202	B-12	121
A-13	201	B-13	146
A-14	186	B-14	163
A-15	204	B-15	155