A MULTIPLE REGRESSION ANALYSIS OF PREDICTIVE ACCURACY: THE EFFECTS OF COMMUNICATION SENSITIVITY, ESTIMATABILITY, AND SELECTED DEMOGRAPHIC VARIABLES IN ZERO-HISTORY DYADS

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PREFACE

This study is concerned with the analysis of predictive accuracy in zero-history dyads. The primary objective is to produce predictive models for several indices of predictive accuracy. The independent variables used in the models are communication sensitivity, estimatability, and selected demographic variables. A multiple regression analysis is used to produce the predictive models.

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LIST OF SYMBOLS

Variable Name	Interpretation	Construct
NCSR1	Judge's CSRI Red score	Communication Sensitivity
NCSR2	Object's CSRI Red score	Communication Sensitivity
NCSY1	Judge's CSRI Yellow score	Communication Sensitivity
NCSY2	Object's CSRI Yellow score	Communication Sensitivity
NCLASS1	Judge's college classification	Cognitive Complexity
NCLASS2	Object's college classification	Cognitive Complexity
NAGE1	Judge's age	Age
NAGE2	Object's age	Age
NHGPA1	Judge's high school grade point average	Cognitive Ability
NHGPA2	Object's high school grade point average	Cognitive Ability
NCOLL1	Judge's college	Human Relations Orientation
NCOLL2	Object's college	Human Relations Orientation
NSEX1	Judge's sex	Sex
NSEX2	Judge's sex	Sex
VS	Value set of the Object	Estimability
NWDYADSX	Dyad sex mix	Dyad sex mix

Variable Name	Interpretation	Construct
S	Similarity of dyad members	Similarity
NPS	Judge's raw prediction score	Predictive Accuracy
CRS	Compounded ratio score	Predictive Accuracy
ERS	Empathy ratio score	Predictive Accuracy
ARS	Ambiguity ratio score	Predictive Accuracy
PJRS	Projection ratio score	Predictive Accuracy
USR	Unperceived similarity ratio score	Predictive Accuracy

CHAPTER I

INTRODUCTION

Statement of the Problem

Synthesizing prior theoretical formulations and pertinent research findings, Berger and Calabrese (1975) have presented several propositions about the role of communication in the aquaintance process. They concluded that the central function of communication during the early stages of interaction in zero-histroy dyads is uncertainty reduction. Each member of the dyad searches for clues to the other's identity. As information is exchanged during the encounter, uncertainty about the other is decreased. However, certain methodological and conceptual issues were not addressed by their otherwise comprehensive treatment of the initial stages of interaction between strangers.

Methodologically, Berger and Calabrese did not offer an operational index of uncertainty reduction. Marwell (1964) noted twenty types of indices that could be used to measure how well one person knows another; further, he produced a matrix-type table of 200 indices of "all of the possible two way difference scores that may be elicited

using the 20 noted measures" (p. 94). He noted that some of these measures have never been used and that some may have no significant meaning, but even these 200 may be recombined into another matrix-type table. The present study asked what type of operational index is appropriate for predictive accuracy as affected by communication in zero-history dyads.

Conceptually, Berger and Calabrese did not deal with the possible impact of certain organismic variables on the aquaintance process. It has been observed that the members of a dyad differ in their responsiveness to verbal and non-verbal messages; that is, they differ in their sensitivity to messages, or more precisely, in their communication sensitivity (Hughey and Johnson, 1975). The present study asked what role, if any, does the communication sensitivity of the members of a zero-history dyad play in uncertainty reduction.

In addition, some members of dyads are easier to get to know than others; they are more estimatable than others (Broffenbrenner, Harding, and Gallwey, 1958). The individuals in the dyad may also differ in terms of age, sex, cognitive ability, college classification, and college choice. Dyads differ from each other in terms of similarity of the members' values and sex mix (same-sex dyads or mixed-sex dyads). The present study asked what role, if any, do estimatability and these selected demographic characteristics of individuals and dyads play in uncertainty

reduction.

Previous communication studies have addressed some of these methodological and conceptual issues in terms of intact dyads (dyads with a history of interaction). For example, Smith (1967), Mix (1972), Ross (1973), and Northhouse (1977) studied intact groups using a single measure of uncertainty from the social perception literature. This measure of predictive accuracy is called the Empathy Ratio Score (ERS) and is one of several suggested by Hobart and Fahlberg (1965). However, none of these investigators tested empirically the assumption that the ERS was the appropriate measure for studying communication in intact dyads.

Methodologically, the present study considered the relative merits of six operational indices of predictive accuracy related to the effects of communication in zero-history dyads. In brief, the first is an index of the total number of accurate predictions made by one member of the dyad (in the present study referred to as the "Judge") about the other member of the dyad (the "Object"). It is called the Raw Prediction Score (NPS). Two of the indices deal with the prediction of similarities: the Compounded Ratio Score (CRS) or the accurate prediction of similarities and the Unperceived Ratio Score (URS) of the failure of the Judge to correctly predict existing similarities. Three of the indices deal with the prediction of differences: the Empathy Ratio Score (ERS) which deals with the

accurate prediction of differences; the Projection Ratio Score deals with the Judge's prediction of similarities where difference existed; the Ambiguity Ratio Score (ARS) deals with the Judge's prediction of a response which differed from both his own and the Object's actual responses.

Rather than assuming that one measure is the appropriate one for studying communication in zero-history dyads, the present study put this assumption to the test.

Conceptually, the impact of communication sensitivity, estimability, and several selected demographic variables on each of these six operational indices of predictive accuracy was determined through the use of multiple regression techniques. Although some of these variables have previously been studied in relation to a single index of predictive accuracy, the investigator could find no single study where more than three of these variables were considered in relation to predictive accuracy. Moreover, many of the demographic variables have been studied in "artificial" prediction situations where the object of prediction was a photograph or a recording. Whether the same variables are important in "live" interaction situations was a question asked by the present study. In addition, some researchers have taken a "static" perspective rather than a transactional perspective when they studied dyads. That is, they considered predictive accuracy to be a function of the indi-

vidual doing the prediction rather than the product of both the Judge and the Object. The present study asked whether or not the transactional perspective was a more operationally accurate one for the study of predictive accuracy in zero-history dyads.

Research Questions

As the previous section indicates, empirical evidence concerning predictive accuracy in zero-history dyads is at best sketchy. Although support was found in the literature for inclusion of communication sensitivity, estimability, and certain demographic variables in the present study, this support was not considered sufficient grounds for prediction of the strength or direction of their relations with any of the six indices of predictive accuracy used in the present study. The purposes of the present study were stated as research questions rather than as directional hypotheses. The six research questions under consideration were stated as follows:

Research Question 1: What is the relationship between the raw prediction score index of predictive accuracy and communication sensitivity, estimability, and selected demographic characteristics of zero-history dyads?

Research Question 2: What is the relationship between the compounded ratio score index of predictive

accuracy and communication sensitivity, estimability, and selected demographic characteristics of zero-history dyads? (Note: The compounded ratio score index and the unperceived similarity ratio index are not considered seperately in the formulation of the study, since the ratios are directly related mathematically; that is, the sum of the two will always equal one and operations using the two will always yield the same results except for difference in sign.)

Research Question 3: What is the relationship between the empathy ratio score index of predictive accuracy and communication sensitivity, estimability, and selected demographic characteristics of zero-history dyads?

Research Question 4: What is the relationship between the projection ratio score index of predictive accuracy and communication sensitivity, estimability, and selected demographic characteristics of zero-history dyads?

Research Question 5: What is the relationship between the ambiguity ratio score index of predictive accuracy and communication sensitivity, estimability, and selected demographic characteristics of zero-history dyads?

Research Question 6: What are the relative merits of each index for the study of predictive accuracy in zero history dyads?

General Procedures

In order to answer the above questions more than three hundred zero-history dyads were created as part of a class assignment in sections of an introductory speech communication course. The communication sensitivity and demographic characteristics of both members of the dyads were measured. Each member of the dyad was instructed to get to know the other member as well as possible during a fifty minute period. Each member then responded to a prediction exercise. Each member responded to a short version (part II) of the Study of Values (Allport, Vernon and Lindzey, 1960) first for her/himself and then as she/he thought the other person would respond. This procedure allowed each of the six indices of predictive accuracy to be calculated. A complete set of data was obtained from 225 dyads.

A multiple regression analysis was conducted for each of the six indices of predictive accuracy. The analysis was conducted in such a way that the communication sensitivity and demographic characteristics of each member of the dyad were considered. That is, a transactional perspective was taken where predictive accuracy was considered to be influenced by not only the Judge's behavior but also the Object's behavior.

The data were submitted to a multiple regression analysis. The analysis was carried out using the

Maximum R-Square Improvement option of the Stepwise procedure from the SAS765 programs (Barr, et al., 1976).

Chapter Sequencing

Although the area of person perception in zero-history dyads has been the subject of little empirical research, the area of person perception in various other settings has a long and complex history. Chapter II of the present manuscript is a review of the literature dealing with person perception and the variables which have previously been examined in relation to it. This review includes the rationale for the selection of the variables for the present study and the expectations of results based on previous research. Chapter III describes the measurement of the variables and the statistical methodology used in the present study. Chapter IV reports the results of the present study and discusses their meaning and their connection with previous research and theory. Chapter V includes a brief summary of the present study, a discussion of theoretical and methodological implications of the study, and a brief statement about the direction future person perception studies can possibly lead.

Summary

The present study was an ex post facto examination of the aquaintance process. Several independent factors

previously determined to be related to person perception in various situations were included in a multivariate design and analysed using a multiple stepwise regression. Six research questions were presented for examination.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter discusses the relationship of the dependent variable, predictive accuracy, to the selected organismic variables in the light of the previous research. The dependent variable is considered within the contexts of the person perception literature. Attention is given to both methodological issues and operational indices of predictive accuracy. Each major organismic variable or variable class is then considered in relation to predictive accuracy. Finally, the expectations based on the review of literature are presented.

The Dependent Variable

As a result of the widespread differences of opinion about what is being studied and how it should be studied, several extensive reviews of the literature on person perception have already been done. Tagiuri notes several of these and lists several authors who have done books and monographs about special areas (1969, p. 396). From these reviews Tagiuri presents a comprehensive view of

the issues and problems facing researchers in the area of person perception. The following review of literature borrows heavily from his analysis of past research.

The way we get to know others and judge them is a subject of major importance and a subject pursued by scientists in many fields. The questions raised in this pursuit and the methods used to answer them come from social psychologists, communication researchers, child psychologists, educational philosophers and an endless list of related fields.

The history and breadth of this area have caused many different terms to be used as new perspectives and new strategies were used to identify and account for different findings. Tagiuri (1969) lists person perception, social perception, and interpersonal perception as a few of the phrases used, but finds all of these less useful than the French words la connaissance d'atrui which he claims have "connotations . . . not inherent in the word knowledge" (1969, p. 395, author's italics). Hobart and Fahlberg (1965) list "empathy" and "social perception" as the major terms in their evaluation of various measurement techniques. Several authors have titled the process and its outcomes in terms of "prediction" or "accuracy". Dance and Larson identify two forms of judgement involved in accuracy, "global" and "analytical", which they differentiate "on the basis of the extent to which the two forms of judgements

rely on specific instances of interpersonal speech communication feedback" (1972, p. 151).

In order to avoid confusion the term "person perception" is used throughout this study to refer to the process of uncertainty reduction, and the term "predictive accuracy" is used to refer to the outcome or result of the process. In this review the process of perception is considered first and then its outcome, predictive accuracy is discussed.

Person Perception

The process of understanding a person is an entirely different processs than that involved in understanding, for example, a mathematical principle simply on the basis that a person is not a fixed or entirely consistent entity and not all people are the same (Tagiuri, 1969). To understand any one person at one time or in any one situation is not sufficient to really know that person. The knowledge of a person requires a continuing dynamic process involving the inputting and evaluation of messages from and about that person.

The process of person perception deals with various aspects of one individual's (the Judge's) perception or cognition of another's (the Object's) characteristics or states. Tagiuri (1969) lists the main elements of this process as follows:

1. [The Object's] characteristics or states [for

> example, fear, courage, intelligence, happiness, attractiveness to others, or intention to help .
> 2. The concomitants of [the Object's] characteristics.
> 3. The distal cues or manifestations of [the Object's] characteristics that are, so to speak, available to [the Judge].
> 4. The proximal cues of manifestations of [the Object's] characteristics that are utilized by [the Judge].
> 5. The cognitive processes that utilize the proximal cues.
> 6. The percept or judgement by [the Judge] of [the Object's] characteristics (p. 396-397).

This descritpion of the person perception process emphasizes the way that the elements and mental processes work together.

A slightly contrasting view of the process based on the philosophy of learning is presented by Hamlyn (1974). He develops four principles, which he considers to be "statements of what is necessary to something's being properly considered as an object of knowledge" (p. 6).

> The first principle is that a necessary, but not sufficient, condition of our being said to know X is that we should understand what kind of relations can exist between X and ourselves (p. 6). Principle B states that a necessary condition of being said to know X is that one should know through experience what it is to stand in appropriate relations to things of the kind that X is (p. 12). Principle C . . . says that is is a necessary condition of being said to know X is that we should actually stand to X in relations which are appropriate to the kind of thing that X is (p. 15). Principle D, the invalid one, is that a necessary condition of my being said to know X is that I should stand to X in relations which are appropriate to X (p. 20, author's italics throughout).

This last principle points out that our knowledge is not necessarily based on our being in a relationship which is appropriate to X, but appropriate to the type of thing that X is. In terms of person perception, this

indicates that we know people as types of people, for example it is possible to know a woman as a wife, a secretary, or a teacher. Our relationship to the woman may be appropriate to her role or type rather than her entire personality or make-up. Person perception, then, deals not with every possible facet of an individual, but with those characteristics which are relevant to the relationship or role in which the person is perceived.

These descriptions of the person perception process indicate that each case of person perception involves several different factors. The present study proposed that person perception in a zero-history dyad would be different from perception in an intact dyad because of the different roles assumed by the individuals in these two situations. The following sections of this review consider the effects of several different factors as they have been presented and researched in previous reports.

The Transactional Perspective

Although Tagiuri (1969) and Hamlyn (1974) used different approaches to the process of person perception, there is one major similarity: the requirement that two people be present and active in the situation. Although the presence of two individual in a communication situation was recognized as important as early as 1957 by Deutschmann ("one aspect is the number of persons involved in the communication process. The minimum, of course, is two"[p. 63]),

more recently communication theorists have recognized the active presence of two individuals, or the "transactional perspective" is a major consideration in the explanation of interpersonal communication. Stewart (1972) explained the effect of the transactional perspective as it is affecting the teaching of interpersonal communication courses. The transactional perspective indicates the need to recognize that "each communicator 'construes' the persons who are active participants in the communication event with him" (p. 10). Thayer (1968), Barnlund (1962) and Marwell (1964) identify these construals of each individual's perception of not only the other, but also the other's perception of that perception (e. g., Bill's perception of Paul and Paul's perception of Bill's perception of Paul). In his discussion, Marwell notes twenty types of variables that could be used to measure interpersonal perception and gives a matrix composed of "all of the possible two-way difference scores that may be elicited by using the 20 noted measures" (1974, p. 94), a total of about two hundred measures.

The transactional perspective recognizes that in dyadic communication, each individual contributes to the meaning evolved through the situation his/her intent and perception of self, the other, and the situation. The present study postulated that an individual involved in person perception is affected not only by his/her perceptual abilities, but also by the personality and

abilities of the other and by factors characteristic of the particular interaction involved. The research previously completed in person perception has not been strongly influenced by the transactional perspective.

Recent studies by Feshbach and Roe (1968), Kurdek and Rodgon (1975), Rothenberg (1970) and Fry (1976) have used pictures, videotapes, narratives and other non-person situations to study social sensitivity and perspective taking. Although these are interesting studies, one questions their validity as indicators of how children perceive real people in "live" transaction.

Even the studies using two persons in face-to-face or small group situations have occasionally failed to utilize the transactional perspective of this process. In studies reviewed by Gompertz (1960) only a few took into account the effect of the predictee on the ability to empathize or predict. In their communication studies, Larson (1965), Mix (1972), Ross (1973) and Northhouse (1977) did deal with both the Judge and the Object, but not in the same analysis. That is, they looked first at the Judge's communication characteristics, then at the Object's communication characteristics. They did not consider the conjoint effects of both on a given prediction score.

The emphasis on the transactional perspective is in part a response and solution to the long debate about the difference between the ability to judge the generalized

other or global ability and the ability to detect individual differences. In 1955 Stone, Gage and Leavitt did a study reported in 1957 in which they found these two judging abilities to be negatively correlated. The subjects who could predict accurately for the generalized other could not predict individual differences. In the same year Cronbach (1955) published a report of an analysis of accuracy scores as a function of both the predictee and the predictor. Tagiuri (1969) made the following statement about this problem and the type of research needed to deal with it:

> While it has not been possible to design a study that takes into account all the elements, effects, and artifacts that have been identified, several investigators have since taken new and vigorous approaches to the problem, with more appropriate methodologies that have been designed with two major aims: (1) to yield reasonably 'pure' accuracy scores of one type or another, and (2) to allow multivariate forms of analysis (p. 412).

In addition to including the transactional emphasis then, the present study attempts to fulfill these two specific goals.

Predictive Accuracy

Early studies were concerned mainly with the outcome of person perception and operationally defined empathy, person perception and role taking in terms of the individual's ability to predict or recognize emotions or personal characteristics. Tagiuri (1969) identifies several personal characteristics that are possible areas

of perception or knowledge. His list includes fear, courage, intelligence, happiness, attractiveness to others and intention to help as possible states or characteristics to be perceived (p. 396).

Hamlyn's discussion of what it is to know a person emphasizes that we must go beyond what is directly observable as the only data for our knowledge.

> . . . not all or even much that is the case about a person may show on his face or even be evident in his external behavior. Much of the work discussed in the psychological literature about the recognition of emotions or attitudes in people on the basis of such things as facial expressions bears this out. But to put this kind of thing at the centre of any investigation of what it is to know or understand another person seems a strangely intellectual, not to say artificial, way of construing the situation. We may in our everyday lives have to form judgements about other people on this kind of basis, but we should surely admit that when we do so we are not in the position of knowing much about the person concerned (1974, p. 1).

The process of judging the internal states of an individual based on external cues is necessarily a central, if weak, part of the reduction of uncertainty in entry phase or zero-history communication. This process, commonly identified as "inference drawing", was outlined by Sarbin, Taft and Bailey (1960). Their theory, which is descriptive rather than prescriptive, distinguishes six major phases in the inference process.

> 1. The postulate system of the judge or diagnostician, his tacit or explicit premises [for example, team sports require cooperation; cooperative people tend to have many friends].
> 2. A syllogistic major premise, derived from the postulate system [for example, people who enjoy team sports tend to be cooperative].

> 3. Search for and observation of occurances relevant to the major premise [for example, Jack plays football].
> 4. Instantiation or conversion of occurances into an instance of a general class [for example, football is a team sport].
> 5. Inference product or conclusion [for example, Jack is probably cooperative].
> 6. Prediction [for example, Jack probably has many friends] (Quoted in Tagiuri, 1969, p. 416).

The process of drawing inferences as an intrapersonal function is the main part of any type of perception. As noted earlier, there are several different types of perception which are differentiated by the situation and the individuals involved. As a result of the studies investigating the differences between global ability and the ability to identify individual differences, social scientists began to consider the different types of predictive accuracy. Tagiuri (1969) describes the work of Brofenbrenner, et al., (1958) in this area as follows:

> He distinguished three categories of persons or groups to be judged [social objects]: (1) the generalized other [for example, a community], (2) the face-to-face group [for example, a committee], and (3) the particular other a specific individual . The 'referent' of the quality or state of the individual to be judged may be: (1) a third person or party that is, a person or group other than the judge or the object , (2) the object's self, (3) the judge's self, or (4) a non-personal event - in other words, a person's feeling toward another person, himself, the judge, and an issue respectively. These four types of referents . . . when cross-classified with the social objects, give rise to twelve possible kinds of sensitivity that may represent different abilities in this area. . . . Broffenbrenner's empirical work supports the hypothesis that <u>these judgements require a variety of skills, rather than related aspects of a generalized ability</u> (Tagiuri, 1969, p. 417, my italics).

The majority of the studies reviewed in the present study deal either with the perceptions of emotions or attitudes. Several methodological problems make these studies difficult to interpret. Labeling or describing emotions is a very subjective and elusive task. In the present study the predicted personal characteristic used was the values of the individual being predicted for. Support for the use of values in this type of study was given by Rokeach (1968).

> Value is a clearly more dynamic concept than attitude having strong motivational components as well as cognitive, affective, and behavioral components. Second, while attitude and value are both widely assumed to be determinants of social behavior, value is a determinant of attitude as well as behavior. Third, if we further assume that a person possesses considerably fewer values than attitudes, then the value concept provides us with a more economical tool for describing and explaining similarities and differences between persons, groups, nations, and cultures (pp. 14-15).

The present study used a modified version of the Allport-Vernon-Lindzey Study of Values Test to measure predictive accuracy. The test and its use in the present study are explained in the methodology section.

The judgements involved in this study were judgements of how a particular other felt about a non-personal event (the values revealed in the Study of Values). The variety of skills involved in this particular judging task centered around the ability to make accurate inferences about the other's values from the judge's postulate system after his search for and observation of occurances

relevant to certain major premises. Two major aspects of the skills and judgement involved are emphasized in the present study: first, the communication behaviors of both of the idividuals involved, and second, the backgrounds and characteristics of both individuals as they affect their postulate systems.

Operational Indices of Predictive Accuracy

The use of various approaches to person perception has resulted in the formulation of many different methods used to measure predictive accuracy. The basic procedure used involves having a "Judge" predict the responses of an other (the "Object") on a set of items and then comparing the Object's actual responses to the Judge's predictions. This technique was first used by Dymond in 1945. The Judge's predictions and the Object's responses were indicated on a five-point scale (Dymond, 1949, 1950). The accuracy of the prediction was indicated by the closeness of the Judge's prediction to the Object's response on that scale. The raw score composed of the sum of these differences was called empathy and defined by Dymond as the "imaginative transporting of oneself into the thinking, feeling, and acting of another and so structuring the world as he does" (1950, p. 343). Dymond (1949) found that subjects were able to predict correctly more accurately than if chance alone were operating.

At about the same time of Dymond's work, Chowdhry and Newcomb (1952) completed study on the ability of leaders and non-leaders to predict the attitudes of members of their own groups. The method they used was very similar to Dymond's. They compared the individual's prediction of how many (in terms of percentage) of the group's members would agree to various items to the actual percentage of members agreeing with the items. They used the average of the differences on all of the items as the measure of that individual's predictive ability. They found significant differences between leaders and non-leaders in prediction of attitudes in areas connected to the group.

The present study used four-choice forced-choice items rather than scales or percentage estimates. The decision to use forced-choice items was based on the attempt to eliminate problems of "equality of scale intervals and tendencies of respondents to make mid-scale or end-scale responses" (Hobart and Fahlberg, 1965, p. 599). The decision and effects of using a four-choice rather than the two-choice item suggested by Hobart and Fahlberg are discussed later in this review.

The raw prediction score used in this study was operationally defined a the sum of the items on which the Judge predicted exactly the same response as the Object actually selected. This raw prediction score (NPS) was found to be related to the communication

sensitivity construct by both Roberts (1969) and Hughey (1977b).

The measurement of empathy through use of Dymond's raw score was studied by Hastorf and Bender (1952), who considered the possibility that projection was compounded with the empathy score in her measurement. They demonstrated that the Judge's prediction was related more to the Judge's own response than to the Object's response, which suggests more projection than empathy by the Judge. They then developed a method to eliminate this projection from the empathy score by subtracting Dymond's raw score from a projection score (the difference between the Judge's prediction and the Judge's own response). They called this score the refined empathy score amd found it to be related to the raw empathy score by a rank order correlation of .30 (Hastorf and Bender, 1952, p. 573). They concluded that this low correlation indicated that the two methods were not measuring the same thing.

A weakness in this refined empathy score was discovered by Hobart and Fahlberg (1965), who noticed that it penalizes highly similar dyads. In an extensive investigation of the problems involving the measurement of empathy, Hobart and Fahlberg explained the methods of measurement they developed to deal with this weakness and several other problems. One of the major revisions of the testing method they suggested was the use of an item with two response alternatives rather

than a five-point scale. In this type of item either the Judge and the Object give exactly the same response or entirely different responses. This eliminates the problems of the equality of scale intervals or response sets as mentioned above. From this two-choice item a total of four types of raw scores are possible based on the correctness of the Judge's prediction and the similarity of the Judge's and Object's responses. The relationship of the raw scores to the similarity and prediction are shown in Table I.

TABLE I

RELATIONSHIPS BETWEEN RAW SCORES, SIMILARITY SCORES AND PREDICTION SCORES

	Correct Prediction	Incorrect Prediction
Similarity Score	Compounded Score	Unperceived Similarity Score
Dissimilarity Score	Empathy Score	Projection Score

Adapted from: Hobart and Fahlberg (1965, p. 600)

The present study utilized a four choice item rather than the two choice item. The use of the four choice item allowed the Judge to predict a response which was different from his own and the Object's response. This type of

prediction was named the ambiguity score.

To eliminate the effect of different amounts of similarity in different dyads and the resultant contamination of the raw scores the raw scores were converted to ratios. The compounded score and the unperceived similarity score were divided by the similarity score (the number of items to which the Judge and the Object gave the same own response) producing the Compounded Ratio Score (CRS) and the Unperceived Similarity Ratio Score (USR). The empathy, projection, and ambiguity scores were divided by the dissimilarity score to produce the Empathy Ratio Score (ERS), the Projection Ratio Score (PJRS), and the Ambiguity Ratio Score (ARS). It should be noted that the CRS and the USR are complementary parts of the similarity score and need not be considered seperately, but the ERS, PJRS, and ARS divide the dissimilarity score into three parts and each must be considered individually.

Hobart and Fahlberg (1965) suggest that the ERS is the most valid measure of predictive ability in intact groups, since there is a need for an unlikeness bias. That is, because individuals tend to become more similar to each other through continued interaction, the ERS neutralizes this tendency by dealing only with the differences between the individuals. Smith (1967), Mix (1972), Ross (1973) and Norhthouse all used the ERS in their studies of communication patterns and predictive accuracy in intact groups. The present study postulated that the CRS and the USR would

be more appropriate for use with zero-history dyads because of Berger and Calabrese's (1975) theoretical proposition that in entry phase encounters the individuals look for similarities. Because of the absence of prior interaction, there is no need to compensate for the likeness bias above.

Communication Sensitivity and Predictive Accuracy

Many researchers in communication have pointed out the significance of the ability to predict as a central component and outcome of effective interpersonal communication. Keltner (1970) pointed out the importance of sensitivity to effective communication and said, in effect, that communication sensitivity is prerequisite to most speech communication efforts. In 1975 Miller and Steinberg published a text called Between People: A New Analysis of Interpersonal Communication in which they discussed the relationship between the ability to predict and interpersonal communication. They said that communication involves the process of people in the process of making predictions about the outcomes of communication behavior. The predictions are made on three levels: (1) the cultural level, (2) the sociological level, and (3) the psychological level. At the cultural level these predictions are based upon a total set of characteristics we attribute to a large group of people sharing the same geographic area, or upon a common set of norms or values. At the

sociological level the predictions are based upon encounters with particular individuals. Miller and Steinberg (1975) make the following statement about the nature of interpersonal communication:

> We can now state the conceptual distinction between interpersonal and non-interpersonal communication that serves as a foundation for this book: when predictions about communication outcomes are based primarily on a cultural or sociological level of analysis, the communicators are involved in non-interpersonal communication; when predictions are based primarily on a psychological level of analysis, the communicators are involved in interpersonal communication (p. 22).

Dance and Larson (1972) also defined interpersonal communication in terms of the type of accuracy involved in making judgements about people. The distinction they made between global and analytical judgements as they relate to communication closely parallels that of Miller and Steinberg.

> Although both types of judgement . . . may lead to more accurate judgements of others, they may be tentatively distinguished on the basis of the extent to which the two forms of judgements rely on specific instances of interpersonal communication feedback . . . global or stereotyped judgement may be accuratte with comparatively little interpersonal feedback. On the other hand, the minimal requirement for differential accuracy is that an individual be capable of judging way in which others are different from him and different from each other. Differential accuracy implies greater attention to instances of feedback provided in individual interpersonal encounters (Dance and Larson, 1972, p. 151).

Recently, two groups have operationalized the particular communicative behaviors they feel most strongly affect the interpersonal communicator's ability to pre-

dict. Several studies directed by Hughey have focused specifically on the communication sensitivity construct, while studies directed by Larson have focused on general interaction patterns in intact dyads.

When applied to dyadic encounters, communication sensitivity refers to the responsiveness of the parties in the encounter to verbal and non-verbal stimuli. Hughey and Johnson (1975) described a sensitive communicator as one who "enters into a human encounter with the ability to accurately take into account what is going on, to size up the situation effectively, and to evoke an appropriate response" (p. 382, author's italics). They attribute this ability to the fact that his "sensory avenues are focused on others rather than turned inward and focused on himself" (p. 382). Dance and Larson (1976) have labeled this shift from self to others "decentering" (p. 68).

The results of the research on communication sensitivity directed by Hughey support these generalizations:

> 1. The communication attitudes and behaviors self-disclosed by more sensitive communicators differ from the characteristics self-disclosed by less sensitive communicators. The suggestions in this unit text concerning patterns of sensitive communication are based on self-report inventories from more than 6000 college students.
> 2. [More sensitive communicators were found to be] better able to predict how others will respond in various situations than those possessing less sensitive patterns of communication. In other words, empirical evidence has validated the claim that a person's insight into another's behavior is related to how he communicates.
> 3. People participating in communication encounters with more sensitive communicators report that they

> receive more satisfaction from the encounters than people participating in encounters with less sensitive communicators (Hughey and Johnson, 1975, pp. 382-383).

This empirical evidence was collected through research using the Conversation Self-Report Inventory (CSRI), a paper and pencil instrument developed by Hughey to operationalize the communication sensitivity construct. In a nutshell, work with the CSRI has suggested that individuals with high communication sensitivity differ from those with low communication sensitivity in six major aspects: (1) the way they view the purpose of communication, (2) the communicative climate they create, (3) the way they transmit information, (4) the way they receive information, (5) the way they sequences messages, and (6) the way they cope with communication barriers. Highly sensitive individuals view understanding as the goal of interpersonal encounters, work actively to create a favorable communicative climate, adapt their transmissions to others, listen empathically, sequence their messages coherently, and cope actively with communication barriers. Low sensitivity individuals view influence as the goal of interpersonal encounters, are self-centered in their transmissions, pretend to listen, sequence their messages incoherently, and either ignore or are not aware of communication barriers in an encounter.

The first study using the CSRI was by Roberts (1969). In her investigation of the relationship between com-

munication sensitivity and predictive skill, she controlled gender by using only female subjects belonging to a social sorority on a university campus. Each of the thirty members of the sorority responded to fifteen items taken from the Allport-Vernon-Lindzey Study of Values. First, each subject responded to the items in terms of her own personality. Second, the subject chose four other members of the sorority, two that she knew very well and two she knew less well. Third, the subject responded to the items in the way she believed each of the chosen members would respond. The subject indicated how long she had known each of the four chosen members. The level of predictive skill for a subject was determined by counting the total number of correct predictions and dividing by four to determine the mean. A correct prediction occured when the subject's predicted response for a chosen member was the same as the chosen member's own response to the item.

In this initial study Roberts found that communication sensitivity, as measured by the CSRI, was related to predictive skill, but concluded that length of aquaintance did not play a significant role in predicting the behavior of others with the particular sample she used. Several other studies using the CSRI followed and were reviewed briefly by Tucker (1977):

> First, Neal's [1969] research indicated there was a difference between the communication attitude and behavioral characteristics of more sensitive

> communicators and less sensitive communicators. His ambitious work correlated demographic and personality factors with communication sensitivity. Second, Hughey and Johnson [1975] found that more sensitive communicators were better able to predict accurately communication behavior than less sensitive communicators; and, finally, Evan's [1970] research presented evidence that there was a higher degree of satisfaction from a conversation with a more sensitive communicator than from a conversation with a less sensitive communicator (p. 14).

More recently, Leesevan (1977) summarized studies that found a significant relationship between communication sensitivity and the ability to predict the behavior of others, communication satisfaction, management style, decision-making effectiveness, and several personality and demographic variables. Tucker (1977) reported findings supporting an inverse relationship between violence proneness and communication sensitivity. Hughey (1977b) reported several conclusions from a study utilizing an advanced level speech communication course. Comparing his findings with Roberts' (1969) he considered the applicability of the CSRI in different circumstances.

(1) The relationship between communication sensitivity and predictive ability appears to hold regardless of the gender of the individuals involved. In both studies that used only female subjects and studies using female and male subjects, a significant relationship was observed. (2) The relationship appears to hold for intact groups and zero-history dyads. (3) The relationship seems to hold for different motive-incent-

ive situations. (4) A significant relationship was noted using subjects both with and without some course work in communication. (5) The relationship appears to hold whether the subject chooses his/her own predictee or the predictee is chosen for the subject by an outside agent. (6) The relationship was found significant even when a single set of 30-item predictions as opposed to four sets of 15-item predictions was used to measure predictive skill. (7) A significant relationship was observed when communication sensitivity was estimated by either self-reports or other-reports.

This last conclusion needs some clarification. Hughey (1977b) drew this conclusion based upon the fact that Roberts' (1969) use of the self-report form (CSRI) for an intact group produced significant results in terms of the raw prediction score (NPS) index of predictive accuracy and his own use of the other-report form (CORI) for zero-history dyads produced significant results for the same measure. However, when Hughey (1977b) used both the CSRI and the CORI in his study there was no significant relationship between the CSRI and the prediction score. Because the CSRI was administered early in the same course during which the prediction took place later, he attributed the lack of significance to the learning which occured during the course. Since the CORI measure was taken more closely to the prediction exercise in terms of time, it was assumed to be a more

reliable measure of the subjects' communication sensitivity at the time of the prediction.

However, he offers another possible explanation for this lack of relationship between the CSRI and the raw prediction score index of predictive accuracy in zero-history dyads. The CSRI is a self-report of a subject's typical patterns of communication, the communication behaviors and attitudes he/she exhibits in most conversations. The CORI, as used in his study, was used by five strangers to estimate the subject's communication behaviors and attitudes in an actual conversation. As mentioned previously in this review of literature, the types of prediction skills involved in different situations are different. It may be that the CSRI does give a reliable measure of a subject's usual behavior, it does not give a reliable estimate of a subject's communication sensitivity in conversations with strangers when judged in terms of the raw predicton score (NPS) index of predictive accuracy.

Thus one of the goals of the present study was to clarify the relationship of the CSRI to the NPS index of predictive accuracy in zero-history dyads. In terms of the NPS it is possible that the CSRI is an appropriate measure of "typical" patterns of communication in intact dyads where there is a history of communication interaction, but that the CORI is a better index for zero-history dyads. It is also possible that one of the

other indices of predictive accuracy is more appropriate when using the CSRI as opposed to the CORI or that the CORI (or some other form of inventory) must be used in zero-history dyads.

Hobart and Fahlberg (1965) and others have indicated that the NPS type of index is not refined enough to represent adequately what is happening in zero-history dyads. If this is the case, then the lack of significance noted when Hughey (1977b) used the CSRI in zero-history dyads may be attributable to the fact that both the CSRI and the NPS are both gross measures. The present study investigated the CSRI in relation to several more refined indices of predictive accuracy in an attempt to partially explain this lack of significance.

The results of Hughey's (1977b) study further suggested that the gender of the parties in a dyadic relationship plays a role in making predictions. However, the gender of the Judge does not appear to have any impact. In other words, no evidence was found that either males or females have an edge when it comes to predicting the behavior of others. Rather, it appears that the gender of the individual being predicted for influences the Judge's predictive accuracy.

This finding concerning the effect of the Object's gender on the predictive process prompted the present study to consider the overall effect of the object of prediction on the predictive accuracy in an interpersonal

encounter. The need for a transactional perspective was referred to earlier in this review of literature. Further support for the need for this perspective came from the studies directed by Larson and Northhouse's (1977) study.

McCroskey, Larson, and Knapp (1971) included a chapter in their introductory interpersonal communication text explaining accuracy and understanding as two major outcomes of interpersonal communication (chapter 2, pp. 15-36). Several factors are listed as affecting those outcomes. As a suggestion to those wishing to improve their accuracy, the authors give a list of suggestions for success in accuracy (pp. 33-34). The list is divided into two sections, the first containing suggestions for communicators or transmitters and the second for receivers. Although these lists do closely resemble the six role requirements or components of communication sensitivity identified by Hughey and Johnson (1975), they imply a more important role for the Object as a source of the information used by the Judge.

The studies directed by Larson and Northhouse identified the outcome of certain communication patterns as something they term "interpersonal understanding" or "predictive accuracy." Dance and Larson (1976) identified the focus of their studies as follows:

> If we wish to know which basic dimensions or factors characterize the communicative linking of individuals, a reasonable sound approach would involve the following: (1) Ask individuals to describe ways in which they communicate with specific others. (2) Ask individuals to describe ways in which particular others communicate with them. (3) Gather such descriptions from a variety of social contexts - marriage,

> work, and so on. (4) Identify the dimensions or factors in terms of which individuals perceive their communicative interaction. (5) Compare these dimensions or factors, across the social contexts, in an attempt to discover those that are basic to interpersonal communication, that is, those that characterize the interpersonal communication regardless of the social context in which the communication occurs (p. 74).

The instrument used by Larson (1965), Mix (1972), and Ross (1973) to measure the communication patterns in interpersonal encounters was a revision of the Ruesch, Block, and Bennett (1953) test battery. The original test consisted of several groupings of 100 items each designed for sorting along an enforced distribution. The complete battery included groupings measuring intrapersonal, interpersonal, and group dimensions of interaction. Each of these groupings has two forms, the "I" and "he" forms for the intrapersonal level, the "I - him" and "he - me" forms for the interpersonal level, the "we" and the "they" forms for intragroup interaction, and the "we - they" and "they - us" sets for the intergroup level.

> The tests, except for the Communication Test, consist of statements people make about themselves, about others and about interacting with others. . . . Our selection has been determined by a number of factors, the most important of which is language. . . . Our selection excludes these extremes [slang or psychological terminology] as much as possible and is restricted to 'plain language." . . . We have used almost exclusively, short sentences referring to single actions. . . . The collection of statements, then, can be classified into the following categories: Statements refering to action . . . feelings . . . attitudes and expectations . . . [and]

> interactive statements bearing upon personality 'traits' (Ruesch, Block, and Bennett, 1953, pp. 63-64).

The studies directed by Larson used 50 statements from the "I - him" set and 50 statements from the "he - me" set of the interpersonal test. Ruesch, Block, and Bennett (1953) identify the interpersonal as:

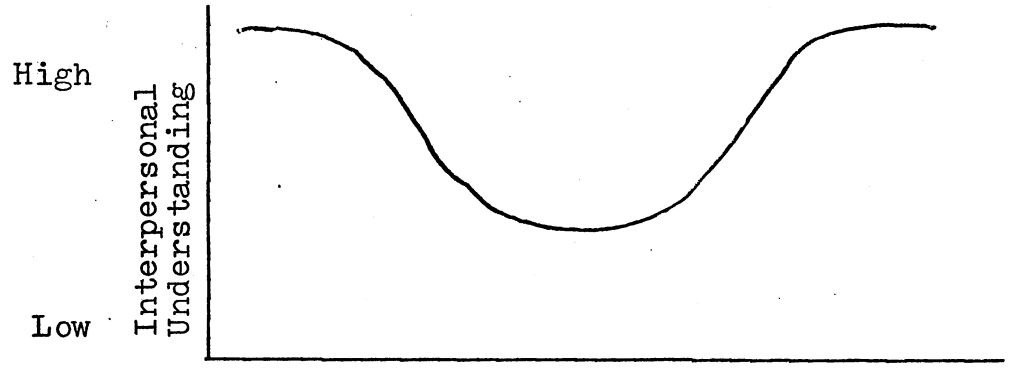
> The focus upon two people which includes observations in terms of actions, motivations, intents and effects of messages, and moods occuring in two-person situations (p. 62).

The basic intent of these statements seems to be to measure interaction and not necessarily communication behavior. The measurement of actual communication behavior can be attained by use of the communication test, but Ruesch, Block, and Bennett (1953) noted some restrictions on its use:

> The Communication Test does not from an integral part of the previously described test battery. It stands by itself and is thought of as a tool which enables a <u>suitable</u> sorter to summarize his impressions of an individual in terms relevant for a theory of human communication. . . . The language used is somewhat technical and presupposes some knowledge of human communication theory (p. 74, my italics).

Despite the handicap presented by the restricted amount of actual communication behavior measurable using the above inventories, Dance and Larson (1976) reported a major finding about the nature of interpersonal communication from the results of these studies. They describe their use of the term "interpersonal understanding" as the process by which "one person . . . understands [correctly predicts or identifies] the attitudes, beliefs, values, or sentiments of

another" (p. 120). The relationship between interpersonal understanding and the level of trust or threat in the relationship is postulated to be a curvilinear function. At the two ends of the continuum trust and threat are seen as the positions where decentering (the shift from self to others) takes place and the maximum level of interpersonal understanding occurs. The increased accuracy under the threat condition comes from the interpersonal response of rejection which produces a basis of accuracy from attention as a receiver in an attempt to avoid the threat. The hypothesized relationship is expressed in Figure 1.



Conditions	Trust	Threat
Interpersonal Response	Acceptance	Rejection
Basis of Accuracy	Disclosure as Source	Attention as Receiver

Source: Dance and Larson (1976)

Figure 1. Hypothesized Relationship Between Interpersonal Understanding and Conditions

This postulated relationship has been supported by studies of various interaction patterns and the accuracy of interpersonal understanding. Larson (1965) studied marriage relationships and found that the accuracy of

> . . . interpersonal understanding was positively related to the extent to which one or the other person provided a threat of unfavorable reaction to inaccurate or inappropriate responses from the partner (Dance and Larson, 1976, p. 118).

Mix (1972) studied relationships between fathers and sons and found that in "interaction patterns relatively free of threat, characterized by Mix as 'trusting' were associated with higher levels of interpersonal understanding" and also paradoxically reported that "the presence of threat was also associated with higher levels of interpersonal understanding" (Dance and Larson, 1976, p. 130). Ross (1973) studied interactions in an organizational setting and concluded that

> . . . the initiator who implied a threat, or was critical or unkind, tended to be perceived more accurately by his partner. What seems to be implied by this finding is that interpersonal communication patterns which consist of explicit messages and which carry threats of criticism and negative reaction are likely to result in higher degrees of accuracy (p. 130).

Northhouse (1977) also studied interaction in an organizanal setting and explained his study and results as follows.

> The study sought to determine the relative strengths of association of intimacy, status difference, and trust with empathic ability. . . . A stepwise multiple regression analysis indicated that the combination of trust and intimacy, which accounted for 19.5% of the variance in the criterion, was the best combination of the context variables for prediction of empathic ability. Status difference explained an additional 2.3% of the variance in empathic ability (p. 178).

The strengths of the association of intimacy and status difference with empathic ability were both low, but the association of trust with empathic ability was substantial and in an inverse direction ($r = -.40$; $p < .01$).

These studies directed by Larson and Northhouse's (1977) study indicated that the interaction pattern of the Object is highly related to predictive accuracy. The present study postulated that the Object's CSRI score would be related to the indices of predictive accuracy.

Estimatability and Predictive Accuracy

One of the major distinctions of the process of predicting about persons is that not all persons are alike. In an early study setting up the framework for analyzing social sensitivity Brofenbrenner, Harding, and Gallwey (1958) discovered that the same person predicting for individuals in different groups varied widely in their ability to predict those individuals. Further analysis of their data led them to the postulate that some individuals were more difficult to predict than others and that this difficulty was determined by the Object's estimatability. They explained this estimatability as being specific to the Judge's expectations of the Object's similarity to certain sex related role stereotypes. The more the Object was similar to a role stereotype, the more estimatable the Object was assumed to be.

In the present study the Object's estimatability

was defined as her/his congruity to a particular value set which was measured by the largest number of responses the Object made to any one of the possible value types. It was postulated that since individuals look for and expect consistancy from others as well as themselves (Berger and Calabrese, 1975) the estimatability of the Object would explain a large amount of variance in at least the similarity related indices of predictive accuracy.

Demographic Factors and Predictive Accuracy

Along with the communication attitudes and behaviors and the estimatability considered by previous researchers, several demographic and personality variables have been identified by communication researchers as relating to predictive accuracy. DeVito (1976) lists age, sex, intelligence, cognitive complexity, popularity, personality characteristics and the effects of training as important factors in interpersonal perception accuracy. Since the present study used dyads composed of strangers, the popularity variable was not assumed to be operational. The effects of training were not considered since the subjects were all enrolled in an introductory level speech communication course. Age, sex, and cognitive ability were considered in the present study, as were four not mentioned by DeVito: dyad sex mix, similarity, college choice and

college classification. The age, sex, cognitive ability, college classification and college choice of both the Judge and the Object were included as possible factors in the accuracy of the prediction. The similarity and sex mix of the dyad were also considered.

The theoretical basis for the inclusion of these variables came partially from Hamlyn's (1974) discussion of the process of person perception. In order for something to be properly considered an object of knowledge, we must have experience with that type of thing and understand what relationships are proper between us and that type of thing. The cognitive ability of an individual is an indication of his/her ability to gain knowledge of any sort and his/her college classification is an indication of the individual's past experience and relationships with types of people. Age is also a factor in this. The sex, similarity and sex mix in the dyad are indicators of some of the factors that must be coped with in the individual's efforts to utilize their experience and knowledge. The postulate system referred to by Sarbin, Taft and Bailey (1960) in the first phase of inference making is composed of various tacit or explicit premises. These premises are built from the individual's experience and cognitive ability and based on and focused toward the ages, sex mix, and similarity found in the dyad. The majority of these demographic variables were found to be related to

an early form of the CSRI by Neal (1970).

Age

Most of the reported studies dealing with age have focused on children below the age of 12. Gates (1923), Kellogg and Eagleson (1931), and Dimitrovsky (1964) found that the ability of children to identify emotions expressed in a series of photographs of facial expressions improved with the age of the children. Kurdek and Rodgon (1975) found that perceptual, cognitive, and appropriative affective perspective taking increased with grade level in kindergarten through sixth-grade children. Rothenberg (1970) found that age was one of the strongest contributors to the development of accurate social perceptions in third- and fifth-grade children. However, studies by Turner (1964) and Levy (1964) indicated that social perception in adult samples was negatively correlated to age. No research has yet indicated at what age the trend found by the research on children reverses to the trend found in studies of adults. Neal (1970) found that age was significantly related to the CSRI in a study of college students. The present study postulated that the age of either or both of the individuals in the dyad would affect the indices of predictive accuracy.

Sex

Allport (1924), Guilford (1929), and Fernberger (1928) reported no difference in the ability of members of either

sex in judging pictures of facial expression. Although Kanner (1931) reported a slight superiority of males over females, Jenness (1932), Vinacke (1949), and Levy (1964) all indicated that women excel over men in this skill. Hughey (1977) reported tha the sex of the predictor was not related to predictive accuracy, but that females were more accurately predicted than males. The present study postulated that the sex of either or both members of the dyad would significantly affect the indices of predictive accuracy.

Cognitive Ability

Many studies have verified the relationship of high school grade-point average to predictive accuracy. Gates (1923), Kellogg and Eagleson (1931), Kanner (1931), Beldoch (1964), Levy (1964), Levitt (1964), and Davitz and Mattis (1964) all reported a positive relationship between high school grade-point average and the abilities of social perception. Neal (1970) indicated that high school grade-point average was positively related to communication sensitivity. The present study postulated that the cognitive ability as indicated by the high school grade-point average of either or both members of the dyad would be significantly related to the indices of predictive accuracy.

College Choice

It was postulated that an individual's choice of colleges (e.g. agriculture, business) revealed something about his

human relations orietation. The sociability and social presence factors of the California Personality Inventory have been shown to relate to student's college major (Gough, 1957). These two human relations personality factors were found by Smith (1966) and Chance and Meaders (1960) to be related to social perception. The present study postulated tha the individual's college choice would be related to the indices of predictive accuracy.

College Classification

In the present study the college clsssification of the subject was used as an indication of the individual's interaction with more diverse types of situations, concepts, and persons. The college classification of either or both of the members of the dyad was postulated to be related to the indices of predictive accuracy.

Dyad Sex Mix

Feshbach and Roe (1968) found that predictions in same-sex situations were more accurate than predictions in mixed-sex situations. It was postulated in the present study that same-sex dyads would be significantly different from mixed-sex dyads in terms of the indices of predictive accuracy.

Similarity

Berger and Calabrese (1975) suggested that individuals search for similarities through their communication in

zero-history dyads. Since the dyads in the present study were zero-history dyads, it was postulated that similarity in the dyad would account for a significant amount of the variance in the compounded ratio score and for some of the variance in the other indices of predictive accuracy.

Expected Relationships

This review of literature reported some of the findings of past research in person perception as they were seen to affect the present study. The present research was an investigative effort to open a multivariate perspective on various types of predictive accuracy indices. Although past research did indicate that the variables included in the present study did affect social perception, little evidence was found directly related to the effects of communication sensitivity, estimatability and selected demographic variables on the types of predictive accuracy utilized by zero-history dyads using four-choice forced-choice prediction items.

Enough evidence was found to support the following directional postulates: (1) The Judge's CSRI score was expected to explain a significant amount of the variance in the compounded ratio score index of predictive accuracy. Berger and Calabrese (1975) identified the search for similarity as a central part of entry phase communication and Hobart and Fahlberg (1965) suggested that the CRS index was the best index in situations where prior interaction

produced a similarity bias. The Object's estimatability was expected to significantly affect all types of predictive accuracy. Brofenbrenner et al., (1958) suggested that estimatability was a major factor in predictive accuracy in zero-history dyads. (3) The similarity of the dyad was expected to be directly and significantly related to the CRS index on the basis of Berger and Calabrese's (1975) postulation of the search for similarity in zero-history dyads.

The evidence concerning the remaining organismic variables was insufficient or too contradictory to support postulates about the strenth or direction of their relationships to the indices of predictive accuracy. The sex, age, cognitive ability, college choice, and college classification of both individuals and the sex mix of the dyad were postulated to have some effect on indices of predictive accuracy.

CHAPTER III

METHODOLOGY

Introduction

The present study was concerned with two problems in the area of person perception. The conceptual problem involved determining the various factors affecting an individual's ability to predict. Before the conceptual problem could be solved, a methodological problem had to be addressed. In the review of the literature it was mentioned that an analysis of the four-choice item used showed the question of predictive accuracy to be a far more complex one than was originally believed. This analysis of the four-choice item created a total of five ratio scores in addition to the raw prediction scores used by previous studies in communication sensitivity. An examination of the literature and the nature of the ratio scores revealed a need to study each of these indices of predictive accuracy in terms of the factors included in previous studies.

A multiple regression analysis was chosen for present study because of the complexity of the phenomena under investigation. It was postulated that each index of predictive accuracy would be affected by its own set of pre-

dictor variables in a modle peculiar to that index.

This chapter discusses the method of measurement for each of the variables included in the study. It also describes the sample and procedures used in the investigation and the multiple regression analysis used.

Measurement of Variables

Predictive Accuracy

An adaptation of the Allport-Vernon-Lindzey Study of Values was used to measure the predictive accuracy of the subjects. In its original form the Study of Values was designed to measure the relative strengths of six interests or motives in the basic human personality. These six motives were drawn from Spranger's Types of Men (1953). The six basic motives included in and measured by the Study of Values are the theoretical, economic, aesthetic, social, political and religious. In the original form 120 statements were included, 20 statements from each of the six values.

The present study utilized only the 60 statements in part II of the test instrument, 10 from each of the six values. These 60 statements were in the form of 15 four-choice forced-choice items. The prediction instrument is presented in Appendix A.

In the measurement of predictive accuracy, the subjects were first allowed to interact with each other in the classroom. They were told to get to know each other for fifty

minutes. The two individuals in the dyad were strangers before this time period. After this interaction the subjects were given the prediction instrument. They were instructed first to complete the test selecting from each item their own response to the item. Then they were asked to respond to the items as they predicted their partner in the dyad would respond to the items. After these steps were completed the subjects were instructed to write down their partner's responses to the item on their own answer sheet. The raw prediction score (NPS) was calculated by each individual at that time. The NPS was composed of the sum of items where the Judge's prediction exactly matched the Object's response.

Additional prediction scores were scored later by the researcher using the methodology described in the review of literature. A brief summary of those scores follows in Table II. A correlation table of the relationships among these indices is presented in Table III.

The test manual for the Study of Values (Allport, Vernon and Lindzey, 1960) reported internal consistancy of the original items evaluated using split-half reliability tests for each value. For a sample group (n=100) the product-moment correlations (Spearman-Brown) are as follows:

Theoretical	.85
Economic	.93
Aesthetic	.89
Social	.90
Political	.87
Religious	.95

TABLE II

RATIO SCORES DEVELOPED FROM
THE SCALE OF VALUES

J's Response*	J's Prediction	O's Response*	Prediction Type
A	A	A	Compounded
A	B	C or D	Ambiguity
A	A	B, C or D	Projection
A	B	B	Empathy
A	B, C or D	A	Unperceived Similarity

Prediction Type	Ratio Divisor	Accuracy
Compounded	Similarity Score	Correct
Ambiguity	Dissimilarity Score	Incorrect
Empathy	Dissimilarity Score	Correct
Projection	Dissimilarity Score	Incorrect
Unperceived Similarity	Similarity Score	Incorrect

* J = Judge, O = Object

The mean reliability coefficient, using a z transformation, is .90.

The internal consistancy was also evaluated using item analysis. Successive revisions of the test have shown that each theoretical item is positively associated with the total score derived from all the theoretical items, and that the items for each of the values hang together consistantly. The final item analysis - carried out on a group of both sexes from six different colleges - shows a positive cor-

TABLE III

CORRELATIONS BETWEEN PREDICTIVE ACCURACY MEASURES

	ERS*	ARS*	CRS*	PJRS*	USR*	RPS*
ERS	------	-0.3708	-0.0758	-0.6057	0.0758	0.7023
	------	0.0001**	0.0675	0.0001	0.0675	0.0001
ARS		------	-0.1283	-0.5143	0.1283	-0.4071
		------	0.0019	0.0001	0.0001	0.0001
CRS			------	0.1802	-1.0000	0.5335
			------	0.0001	0.0001	0.0001
PJRS				------	-0.1802	-0.2998
				------	0.0001	0.0001
USR					------	-0.5335
					------	0.0001
RPS						------
						------

* ERS = Empathy Ratio Score ARE = Ambiguity Ratio Score
CRS = Compounded Ratio Score PJRS = Projection Ratio Score
USR = Unperceived Similarity Ratio Score RPS = Raw Prediction Score

** Probability Level n=582

relation for each item with the total score for its value, significant at the .01 level of confidence.

Repeat reliability has been determined for two populations, one after an interval of one month and the other after an interval of two months. The mean repeat reliability coefficient, using the z transformation, was .89 for the one month study and .88 for the two month interval. The n's for the studies were 34 and 53 respectively (Allport, Vernon and Lindzey, 1960).

Communication Sensitivity

The communication sensitivity construct was measured using from 977AB of the Conversation Self-Report Inventory (CSRI) found in Appendix B. The CSRI is a pencil and paper instrument developed by Hughey. It utilizes a forced-choice four-choice format completed by the subject as a self report of his/her own communication behaviors and attitudes in most conversations. Since its first use in an empirical study (Roberts, 1969) the CSRI has undergone six revisions of which form 977AB is the most recent and extensive one.

The CSRI was developed using a functional mode of test construction, where there is maximum interaction between empirical data and theory. Initially, several statements describing the characteristics of sensitive and insensitive transceivers (speaker-listeners) were collected from more than 100 people, including undergraduate and graduate students, professors, and lay people. Each statement was checked against the theoretical basis for sensitivity in interpersonal communication. Statements with a basis in theory were retained and the resulting 500 statements were checked for duplication. The 260 surviving statements were submitted to a panel of 100 judges, including students and professors, who rated the statements according to their degree of sensitivity. These same statements were also presented to 370 college students for the purpose of establishing the social desirability of each statement. Those statements meeting the require-

ments of theory, judged sensitivity, and social desirability were grouped together. This procedure produced a sixty-item, forced-choice test with each item having four alternatives. In the the various versions produced by the six revisions the CSRI has undergone since its original formulation, it has been administered to more than 8,000 individuals and has proven to be a reliable and valid measure of communication sensitivity. The most recent form, 977AB, used in the present study takes into account Hughey's (1977a) factor analysis of the communication sensitivity construct. Other revisions have been focused on equalizing the social desirability of the four choices in each item. Item analysis and a re-evaluation of items in terms of current sources of interpersonal communication theory changed some alternatives, modified the groupings of some alternatives for some items, and reduced the total number of items. Forms 369 and 369A/revised of the CSRI had 60 items, form 1169L had 50 items, and subsequents forms have had 40 items.

An other report form of the inventory has been used by Evans (1970) to cross validate the CSRI. The CORI (referred to by Evans as the CIP - Conversation Interaction Patterns) or Conversation Other-Report Inventory was used as a post-test, and the CSRI was used as a pre-test. The subjects took the CSRI before communicating with five strangers. The strangers then responded to the CORI. In the CORI the statement "I use a lot of slang" (from

the CSRI) would be changed to "he uses a lot of slang" and so on. Evans (1970, p. 85) found a Spearman Rho coefficient of .71 ($p<.001$) between the CSRI and the CORI.

Several estimates of the reliability of the CSRI are available. They are presented in Table IV.

TABLE IV

RELIABILITY ESTIMATES FOR THE CSRI

Type of Reliability	Form	n	r_{tt}	Type of Population
Kuder-Richardson--20	369A/revised	150	.80	General College Students
Kuder-Richardson--20	1169L	130	.83	Upper Division Education Student Teachers
Kuder-Richardson--20	1169L	303	.75	Lower Division College Students
Split-half	1169L	303	.73	Lower Division College Students
Test-retest	1169L	38	.77	Lower Division College Students
Kuder-Richardson--20	477(Red) 477(Yellow)	370 370	.81 .75	Lower Division College Students
Kuder-Richardson--20	977AB(Red) 977AB(Yellow)	26 26	.79 .50	Lower Division College Students

Construct validity for the CSRI was obtained using form 369A/revised. A t-test comparing the scores of students in an advanced level speech communication class did score significantly higher than did the students in an introductory level speech communication class ($t=4.51$; $p<.001$).

The early forms of the CSRI produced only one score for the subject. This score was the sum of the items for which the subject chose the most sensitive response as representative of his/her behavior or attitudes in most conversations. The range of scores produced by this procedure indicated the communication sensitivity of the subject as being high or low, but did not measure the amount of insensitive behavior the subject engaged in. Forms 477 and 977AB were revised to include an insensitivity score.

In the revised 977AB form the subject is requested to indicate (1) his/her most typical communication behavior and attitudes and (2) his/her least typical communication behavior and attitudes for each item. The subject's CSRI scores as measured by this form are evaluated using the scoring sheet presented in Appendix C. The sensitivity score of each subject (identified as the CSRI Red score in the present study) is the sum of the high sensitivity responses (marked by a slash [/] in Column A of the scoring sheet) chosen by the subject as most typical of her/his communication plus the sum of the most insensitive state-

ments (marked by a slash [/] in Column B of the scoring sheet) chosen by the subject as the least typical of her/his communication. The insensitivity score of each subject (identified as the CSRI Yellow score in the present study) is the sum of the most insensitive statements (marked by a dash [-] in Column A of the scoring sheet) chosen by the subject as most typical of his/her communication plus the sum of the high sensitivity statements (marked by a dash [-] in Column B of the scoring sheet) chosen by the subject as least typical of his/her communication.

The internal consistancy of form 977AB of the CSRI was determined using a split-half reliability test on both the Red and Yellow scores of 26 subjects. A Pearson's r (Downie and Heath, 1959, pp. 85-86) was calculated for this random sample. The Spearman-Brown prophecy formula (pp. 193-194) was used to correct the split-half reliability score. The corrected r for the Red score was .79 ($p<.005$) and the corrected r for the Yellow score was .50 ($p<.01$).

The means and standard deviations for the original sample used in the present study are indicated in Table V.

Estimatability

The estimatability of the Object was derived from the predictive accuracy test. Out of the 60 statements in the test 10 statements reflected each of the six values. An estimatable Object would choose most of the 10 statements reflecting his/her stomgest or most central value. The estimat-

TABLE V

MEANS AND STANDARD DEVIATIONS FOR THE CSRI 977AB

	n	Mean	Standard Deviation
Red Score	583	28.3224	8.5867
Yellow Score	583	7.1801	5.0237

ability of the Object was operationally defined as the largest number of statements the Object chose for any one of the six values. The number of statements the Object chose for each value was counted and the largest number was used as the index of estimatability. The values reflected by each of the responses in the predictive accuracy test are reported in Appendix D.

Demographic Variables

The demographic variables used in the present study were self-reported by the subjects on the CSRI answer sheet. The age of the subject was entered directly into the data set. The sex of the subject was expressed as a numerical value, the female gender being assigned the digit one (1) and the male being assigned the digit two (2). The sex mix of the dyad was assigned numbers similarly, the same-sex dyad being assigned the digit one (1) and the mixed-sex dyads being assigned the digit two (2). The assignment of these digits

allowed the entry of the sex and sex mix variables into the multiple regression formula.

Cognitive Ability. The subject's cognitive ability was measured by his/her high school grade-point average. The subjects were given the option to release or withhold this information when they filled out the CSRI. Only 489 of the 584 subjects in the present study revealed their high school grade-point average. The subject's grade-point average is entered as a two digit number without a decimal, ranging from 17 to 40 on a scale where 0 equals F and 40 equals A.

College Classification. The conceptual basis for the use of this measure was the assumption that the length of time an individual had been in college indicated the amount of experience he/she had with a variety of concepts, people, and situations. Freshman subjects were assigned the digit one (1), sophomores were assigned the digit two (2), juniors were assigned the digit three (3), and seniors were assigned the digit four (4). One subject reported a classification of special and was assigned the digit five (5).

College Choice. The subject's choice of colleges within the university was postulated to be related to his/her human relations orientation. Six graduate students and one professor were asked to rank the eight colleges at the university on the basis of the expected human relations orientation of the individuals choosing to enroll in those

colleges. The number one (1) was used to indicate the most human relations oriented and the number eight to indicate the least human relations oriented. The results of the rankings are shown in Table VI. It should be noted that the number of judges used was very small and that the colleges were ranked rather than rated on a scale.

TABLE VI

HUMAN RELATIONS ORIENTATION RANKING OF COLLEGES

College	Ranking	Frequencies Rank 1 2 3 4 5 6 7 8	Mean Rank
Education	1	5 1	1.16
Arts and Sciences	2	1 3 1 1	2.33
Home Economics	3	2 4	3.33
Business Administration	4	3 1 1 1	4.16
Agriculture	5	2 4	4.33
Veterinary Medicine	6	1 2 1 2	6.66
Technical Institute	7	3 1 2	6.83
Engineering	8	1 3 2	7.13

The college choice of each subject was entered as the number of the ranking of his/her college.

Similarity. The similarity of the two individuals in the dyad was derived from the predictive accuracy instrument. The similarity score was operationally defined as the number of items on which the Judge's response and the Object's response were exactly the same.

Data Presentation

The means, standard deviations, sums, minimums, and maximums of all variables mesaured in the present study are presented in Appendix E. The frequencies, cumulative frequencies, percentages, and cumulative percentages of the levels measured in each variable are presented in Appendix F.

Sample

The sample for this study was composed of students in an introductory speech communication course at Oklahoma State University during the Fall semester, 1977. This sample was used mainly because of its easy availability. The subjects completed all of the measurement instruments during normal course work and the results were made available by the instructors of the course. All dyads in which both individuals had completed the CSRI and the predictive accuracy test were included in the study.

Procedure

Early in the course every subject completed the Conversation Self-Report Inventory (form 977AB). About one

week later dyads were formed in the classes with the stipulation that the two individuals in the dyad were to be strangers. These dyads then spent fifty minutes in conversation getting to know each other. After this period of interaction the two individuals were asked to complete the predictive accuracy test. The individuals were allowed to compare their responses and then asked to turn the test in.

In the administration of the CSRI the students were informed that the department of Speech would use the information as indicator of their communication efficiency and to help adapt the course to the student's changing needs.

Statistical Analysis

The use of a multiple regression analysis was briefly discussed earlier. The analysis of the data was controlled by three: the transactional perspective of the study, the multivariate form used to account for the complexity of the phenomena under consideration, and the number of independent or predictor variables examined.

Transactional Perspective

The factors related to predictive accuracy and the types of indices used to measure it were studied in a dyadic setting. The influence of the Judge and the influence of the Object were both studied in relation to the accuracy of the Judge's predictions. To accomodate the transactional perspective each observation in the data contained information about

both the Judge and the Object. Each observation in the data set contained the following information presented in Table VII.

TABLE VII

VARIABLES INCLUDED IN EACH OBSERVATION

Judge	Object	Dyad
CSRI Red score	CSRI Red score	
CSRI Yellow score	CSRI Yellow score	
Age	Age	
Sex	Sex	
Cognitive ability	Cognitive ability	
College classification	College classification	
College choice	College choice	
Projection ratio score		
Compounded ratio score		
Empathy ratio score		
Ambiguity ratio score		
Unperceived similarity ratio score		
	Estimatability	
		Sex mix
		Similarity

Under this system each dyad contributed two observations, one in which one individual's (A) prediction of the other (B) was examined and the second in which the other's (B) prediction for the first individual (A) was examined. This caused the first seven variables and the last two variables in Table VII to be entered twice. The scores

entered for these variables were the same numbers, but were considered to be different variables for the purpose of the analysis. For example, individual A's CSRI Red score was entered once as the Judge's CSRI Red score and related to A's prediction and entered again as the Object's CSRI Red score and related to B's prediction. Although this methodology did not cause an error in the analysis, it must be taken into account in the listing of the various means, standard deviations, and frequencies in Appendices E and F.

In Appendix E the first seven variables listed in Table VII are listed twice (for example, the CSRI Red score is listed as NCSR1 and NCSR2; both are actually the entire sample of the CSRI Red scores used). In Appendix F the frequencies of the first seven and the last two variables listed in Table VII must be divided by two to derive the actual frequencies encountered.

Only the Judge's prediction index scores were entered into each observation. The estimatability of the Object was entered as well as the sex mix and similarity of the dyad.

Multivariate Analysis

The relationship between the "independent" variables and the "dependent" variables was postulated to be a rather complex one. The effects of the independent variables were postulated to operate not seperately, but in conjunction with each other. The multivariate form of analysis used, the Maximum R^2 Improvement option of the Stepwise procedure

in SAS76 (Barr et al., 1976, pp. 251-256) is described as follows:

> The STEPWISE procedure can apply any of five techniques to find which variables of a collection of independent variables should most likely be included in a regression model. . . . The Maximum R^2 Improvement was developed by James H. Goodnight; he considers it superior to the stepwise technique and almost as good as calculating regressions on all possible subsets of the independent variables . . . this technique does not settle on a single model. Instead it looks for the 'best' one variable model, the 'best' two variable model, and so forth based on the maximum R^2 improvement produced by adding or replacing variables in the regression (p. 251).

The regression analysis was used to determine a formula which could be used to predict from the independent to the dependent variables specified.

The Stepwise procedure eliminates any observation from the analysis if any of the variables requested for inclusion in that model are missing in that observation. A total of 584 observations were originally included in the data set. This total was reduced to 450 when the observations in which values for variables were missing were dropped.

Variables Included

Each of the five indices of predictive accuracy was used as a criterion or dependent variable and assigned a model for analysis. In each regression the criterion was submitted to analysis using the CSRI Red score, CSRI Yellow score, sex, age, college classification, cognitive ability of both the Judge and the Object, the estimatability of the Object, and the sex mix and similarity in the dyad as possible predictor

or independent variables.

Summary

In this chapter the measurement of the variables was described. Each instrument and its use in the study were explained and the validity and reliability of each was examined. The statistical analysis was also briefly examined.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

This chapter presents the results of the present study in the form of regression models for the five indices of predictive accuracy. The models are presented in tabular form with explanations of the findings as they apply to the research questions. The second part of this chapter interprets the results in light of the previous research and discusses possible explanations for their weakness.

Regression Models

The regression procedure used in the present study produced fourteen models for each of the criterion variables. The procedure produced the best one variable model, the best two variable model, the best three variable model, and so on through the best fourteen variable model. For presentational purposes, the models displayed in this chapter include only the variables entered with a probability $p < .05$. The complete models including all fourteen predictor variables are presented in Appendix G.

The interpretation of the results in Tables VIII -

XII will be facilitated by reference to the List of Symbols on pages viii - ix.

Raw Prediction Score

Research Question 1: What is the relationship between the raw prediction score (NPS) index of predictive accuracy and communication sensitivity, estimatability, and selected demographic characteristics of zero-history dyads?

The regression model produced for the raw prediction score index (NPS) is presented in Table VIII. The three variables in the reported model entered at $p<.05$ and explained 11.6% of the variance in the raw prediction score index. The entry of the similarity of the dyad (S) accounted for 9.2%, the entry of the estimatability of the Object (VS) accounted for an additional 1.4%, and the entry of the college choice of the Judge (NCOLL1) accounted for an additional 1.0% of the total variance. The directions of the relationships indicated that the similarity score of the dyad and the estimatatbility of the Object are positively related to the raw prediction score. The ranking of the Judge's college choice is negatively related to the raw prediction score index; this is to say that Judges enrolled in such colleges as Arts and Sciences and Education are more accurate than Judges enrolled in Engineering.

Compounded Ratio Score

Research Question 2: What is the relationship between the

TABLE VIII

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE NPS

R SQUARE = 0.116					
	DF	SS	MS	F	PROB>F
Regression	3	230.13	76.71	19.59	0.0001
Error	446	1746.80	3.92		
Total	449	1976.93			
	B	R^2	r	F	
Intercept	4.563				
S	0.297	0.092	0.317	43.80	
VS	0.197	0.106	0.168	6.18	
NCOLL1	-0.148	0.116	-0.035	5.22	

compounded ratio score (CRS) index of predictive accuracy and communication sensitivity, estimatability, and selected demographic characteristics of zero-history dyads?

The regression model for the compounded ratio score index (CRS) is presented in Table IX. Only one variable, the sensitivity score of the Judge (NCSR1) entered the model at $p<.05$ and accounted for 1.2% of the variance in the compounded ratio score index. The direction of the relationship indicated that the sensitivity score of the Judge is positively related to the compounded ratio score index.

TABLE IX

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE CRS

R SQUARE = 0.012					
	DF	SS	MS	F	PROB>F
Regression	1	0.34	0.34	5.53	0.0191
Error	448	27.76	0.06		
Total	449	28.10			
	B	R^2	r	F	
Intercept	0.515				
NCSR1	0.003	0.012	0.042	5.53	

Empathy Ratio Score

Research Question 3: What is the relationship between the empathy ratio score (ERS) index of predictive accuracy and communication sensitivity, estimatability, and selected demographic characteristics of zero-history dyads?

The regression model produced for the empathy ratio score index (ERS) is presented in Table X. The model includes two variables entered at $p<.05$ which accounted for 3.5% of the total variance. The entry of the college choice of the Judge (NCOLL1) accounted for 2.4% and the entry of the estimatability of the Object accounted for an additinal 1.1% of the variance in the empathy ratio score. The directions of the relationships indicated that Judges enrolled in

TABLE X

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE ERS

R SQUARE = 0.035					
	DF	SS	MS	F	PROB>F
Regression	2	0.53	0.27	8.18	0.0003
Error	447	14.62	0.03		
Total	449	15.15			

	B	R^2	r	F
Intercept	0.337			
NCOLL1	-0.019	0.024	-0.117	10.43
VS	0.016	0.035	0.134	5.22

such as Education and Arts and Sciences are more accurate predictors than those enrolled in Engineering. The estimatability of the Object is positively related to the empathy ratio score index of predictive accuracy.

Projection Ratio Score

Research Question 4: What is the relationship between the projection ratio score (PJRS) index of predictive accuracy and communication sensitivity, estimatability, and selected demographic characteristics of zero-history dyads?

The regression model produced for the projection score index (PJRS) is presented in Table XI. The three variables

TABLE XI

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE PJRS

R SQUARE = 0.047

	DF	SS	MS	F	PROB>F
Regression	3	0.79	0.26	7.33	0.0001
Error	446	16.09	0.04		
Total	449	16.88			

	B	R^2	r	F
Intercept	0.307			
NCOLL1	0.018	0.024	0.945	8.64
S	0.011	0.039	0.133	6.50
NWDYADSX	-0.368	0.047	-0.111	3.92

included in the model presented entered at $p<.05$ and explained 4.7% of the variance. The entry of the Judge's college choice (NCOLL1) accounted for 2.4%, the entry of the similarity score of the dyad (S) accounted for an additional 1.5%, and the entry of the sex mix of the dyad (NWDYADSX) accounted for an additional 0.8% of the variance in the projection ratio score. The directions of the relationships indicated that the ranking of the college choice of the Judge and the similarity of the members of the dyad are positively related to the projection ratio score. In other words, Judges enrolled in Engineering make more projection errors than those enrolled in colleges such as Education and Arts and Sciences and members in highly similar dyads make

fewer projection errors than those in dissimilar dyads. The sex mix of the dyad is negatively related to the projection ratio score; same-sex dyads make less projection errors than mixed-sex dyads.

Ambiguity Ratio Score

Research Question 5: What is the relationship between the ambiguity ratio score (ARS) index of predictive accuracy and communication sensitivity, estimatability, and selected demographic characteristics of zero-history dyads?

The regression model for the ambiguity ratio score (ARS) index is presented in Table XII. The three variables included in the model presented entered a $p<.05$ and explained 5.6% of the variance. The similarity score of the dyad (S) accounted for 3.2%, the entry of the sex of the Object (NSEX2) accounted for an additional 1.3%, and the entry of the age of the Object (NAGE2) accounted for an additional 1.1% of the variance in the ambiguity ratio score. The direction of the relationships indicated that the similarity of the members of the dyad is negatively related to the ambiguity ratio score, a Judge predicting for a female Object will make more ambiguity errors than a Judge predicting for a male Object, and the age of the Object is positively related to the ambiguity ratio score index.

Summary

A summary of the results is presented in Table XIII. The

TABLE XII

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE ARS

R SQUARE = 0.056					
	DF	MS	SS	F	PROB>F
Regression	3	0.67	0.22	8.75	0.0001
Error	446	11.45	0.26		
Total	449	12.12			
	B	R^2	r	F	
Intercept	0.259				
S	-0.013	0.032	-0.158	12.76	
NSEX2	-0.042	0.045	-0.141	7.32	
NAGE2	0.007	0.056	0.104	5.19	

amount of variance explained by the variable into the models, the direction of the relationship of each to its respective criterion variable within that model, and the total amount of variance explained by the model for the criterion variable are given for each of the criterion variables.

The results indicated that each of the criterion variables is explained by a different collection of independent variables. The raw prediction score index (NPS) is related to the similarity of the dyad (S), the estimatability of the Object (VS), and the college choice of the Judge (NCOLL1). The compounded ratio score index (CRS) is related to the communication sensitivity of the Judge (NCSR1). The empathy

TABLE XIII

SUMMARY OF RESULTS

Variable	NPS	CRS	ERS	PJRS	ARS
S	9.2* +**			1.5 +	3.2 -
VS	1.4 +		1.1 +		
NCOLL1	1.0 -		2.4 -	2.4 +	
NCSR1		1.2 +			
NWDYADSX				0.8 -	
NSEX2					1.3 -
NAGE2					1.1 +
Total	11.6	1.2	3.5	4.7	5.6

* Percentage of total variance ** Direction of relationship

ratio score index (ERS) is related to the estimatability of the Object (VS) and the Judge's college choice (NCOLL1). The projection ratio score index (PJRS) is related to the similarity score of the dyad (S), the college choice of the Judge (NCOLL1), and the sex mix of the dyad (NWDYADSX). The ambiguity ratio score index (ARS) is related to the similarity of the dyad (S), the sex of the Object (NSEX2), and the age of the Object (NAGE2).

Discussion

The research questions asked in the present study have received little or no attention in past research. The results throw light on several areas of predictive accuracy in zero-history dyads. However, the results were much weaker than expected; not R^2 of over .116 was attained in the models produced including only variables entered at $p<.05$. This discussion explains the connection of the results to present interpersonal communication theory and the study of zero-hsitory dyads. It also discusses possible explanations for the weakness of the results.

Communication Sensitivity

Previous research and theory in person perception has indicated the importance of communication patterns as an influential factor. Berger and Calabrese (1975) indicated that the communication activities of the individuals in a zero-history dyad would be related to the search for similarities and the reduction of uncertainty. In the present study the communication sensitivity of the Judge was found to be related to the compounded ratio score, the correct prediction of similarities. This result was seen as a partial support for Berger and Calabrese's (1975) formulation of the entry phase of communicative interaction.

The studies directed by Larson indicated a relationship between communication patterns and the empathy ratio score in intact dyads which was not found in the zero-history

dyads used in the present study. In the Larson studies predictive accuracy as measured by the empathy ratio score was best under conditions of threat or trust. It is possible that in a brief interaction these conditions are not present in any appreciable amount and that this is an explanation of the present study's failure to replicate those findings. This seems to indicate that individuals do use different patterns of communication in zero-history dyads than they do in intact dyads. These patterns in turn produce different interpersonal conditions under which different types of prediction are more accurate.

If it is true that individuals do use different patterns of communication in entry phase as opposed to intact dyads, a reconsideration of the measurement of communication sensitivity used in the present study is necessary. The cue statements in the CSRI items refer to the individual's communication behaviors and attitudes in most conversations. It is feasible to assume, in light of the above reasoning, that an individual's most typical communication patterns are not those that he uses in conversations with strangers.

Partial support for this reasoning comes from Hughey (1977b). In a study of zero-history dyads where both the CSRI and its sister other-report form, the CORI, were used, only the other-report form was significantly related to predictive accuracy. The other-report form was filled out by a stranger on the basis of the actual interaction he/she had with the person being rated.

Another possibility is that if communication patterns are significantly different in zero-history and intact dyads, a lump rating of the communication behavior like the CSRI may be inappropriate for studying either situation. A recent factor analysis of the CSRI by Hughey (1977a) revealed several subscales operating within it. Research using these or similar subscales may enable researchers to identify the differences between communication patterns in zero-history and intact dyads.

Estimatability

Brofenbrenner et al., (1958) suggested that the accuracy of prediction depended partially upon the difficulty of the predictive task. The estimatability of the Object was mentioned as a factor influencing the predictive accuracy in zero-history dyads. The results ot the present study indicated a weak, but significant, relationship between the estimatability of the Object and both the raw prediction score and empathy ratio score indices of predictive accuracy. Since the estimatability score was derived from the prediction test, possible explanations for the weakness of its relationship with predictive accuracy can be understood in terms of the discussion of the weaknesses in the predictive accuracy instrument below.

Selected Demographic Variables

Berger and Calabrese (1975) proposed a theory of uncertainty

reduction based on communication factors. The present study seemed to indicate that this communication as it affected the various indices of predictive accuracy does not occur in a socio-cultural vacuum, but ist affected by other organismic factors. The college choice, age, sex, and similarity of the individuals involved in an entry phase encounter all were found to be weakly, but significantly, related to various indices of predictive accuracy.

Indices of Predictive Accuracy

The various predictive accuracy indices used in the present study were derived from an analysis of the four-choice item. The raw prediction score index was found to be more strongly related to the similarity in the dyad than any other factor. This finding supports Hobart and Fahlberg's (1965) that ratio type scores must be used to help eliminate the effect of similarity in prediction measures.

The other four indices were a breakdown of the various types of prediction occuring in the use of the four-choice item. The results indicated that each is affected by a different set of "independent" factors. This result seems to indicate that the use of any one of the four scores alone to determine the effects of various communication patterns on predictive accuracy is not sufficient to explain the processes involved. The present study showed that in a zero-history dyad the communication sensitivity of the Judge affects the compounded ratio score; the similarity of the

dyad affects the raw prediction score, the projection ratio score and the ambiguity ratio score; the estimatability of the Object affects the raw prediction score and the empathy ratio score; the college choice of the Judge affects the raw prediction score, the empathy ratio score, and the projection ratio score; the dyad sex mix affects the projection ratio score; the sex and the age of the Object affect the ambiguity ratio score. The use of any one of the four ratio scores or the raw prediction score alone would have limited the number of independent significant factors to three.

The measurement of the dependent variable is another factor to consider in the examination of the weakness of the derived results. The dependent variables were measured using an adapted version of part II of the Study of Values. As was mentioned earlier in the description of the instruments, the reliability of the scales in the Study of Values ranges around .90. The reduction of the test from 45 to 15 items was found to reduce the reliabilty to .75 using a Spearman-Brown prophecy formula.

The reliability of the test as a tool for predicting about another has never been established. There are many problems involved in establishing the reliability of the test in prediction uses, however a rough estimate of the reliability showed that it could at best be used to predict 13% of the variance in prediction. There are also several conceptual indications that the use of the Study of Values as a prediction instrument may produce weak results.

One factor in predictive accuracy in situations like that in the present study is the accuracy of the Object in reporting his/her responses. Kitwood (1976) states that

> . . . to describe a person as having 'values' is to say, on the basis of evidence, that he has certain fundamental beliefs about what is desirable or good, and that he attempts to use them in the directing of his life (p. 223, my italics).

It is possible that an individual's responses can be seen as statements about how he feels he should behave and not necessarily as statements about how the individual actually behaves. A Judge predicting values on the basis of his/her observations of the Object's actual behavior may conceivably be more accurate than the Object's own perceptions of the values behind his/her lifestyle.

Kitwood (1976) also pointed out that the results of his interviews with adolescents revealed that their adherence to values was inconsistant and situational. He also cautions researchers using scales like the Study of Values to recognoze that "the respondants may be in different stages of cognitive and moral development, and thus may be interpreting the questionaire content in different ways" (Kitwood, 1976, p. 230). In his conclusion, Kitwood (1976) stated that "it is incorrect to assume, a priori, the presence of a coherent value system, unique to each individual, among adolescents at least" (p. 230). The results of the present study seemed to indicate that this might be true of college students as well. Out of a possible 10 statments relating to each value in the test, almost 80 percent of the sample

chose only four, five, or six. A Judge seeking consistancy in one of the Objects in this 80 percent might predict that the Object would choose eight or nine of the ten statements relating to one of the values.

These results and considerations seem to indicate that a confounding factor in the ability to predict may be the lack of a definitive value set for the Object member. There have been no recent reliability checks of the Study of Values. It may be that the sample used in the present study have less stable value systems than the populations for which the instrument was originally checked for reliability.

Summary

The models produced for each of the five indices of predictive accuracy were presented and explained in this chapter. A discussion of the results described their implications for interpersonal communication theory and attempted to explain the weakness of the results derived in the present study.

CHAPTER V

SUMMARY AND IMPLICATIONS

Introduction

This chapter includes a summary of the present study and its results. The second part of this chapter discusses implications of the present study upon interpersonal communication theory and research.

Summary of the Study

The present study was designed to produce regression models for relationships between communication sensitivity, estimatability, and selected demographic characteristics of zero-history dyads and various indices of predictive accuracy. It utilized a sample of undergraduate college students. The study was ex post facto and used as data various measures produced during normal class work in an introductory speech class at Oklahoma State University.

Berger and Calabrese's (1975) explanation of their formulation of interpersonal communication theory was the springboard for the questions researched in the present study. In their explanation they point out that the reduction of uncertainty in the entry phase of interpersonal communication determines whether or not that interaction

will continue. Although they suggested several factors which possibly contribute to this reduction of uncertainty, these factors have not been empirically supported in many cases. The present study investigated questions which were related to the empirical measurement of the effects of some of the factors related to person prediction.

It is the contention of the present study that the reduction of uncertainty can best be studied in terms of actual entry phase communication occuring in the field. The reduction of uncertainty has been studied previously under such terms as social perception, person perception and empathy. The present study used the term "predictive accuracy" as the outcome of successful "person perception".

The design of the present study took into consideration several special facets of the particular problem under consideration: (1) The predictive accuracy being measured was in a zero-history situation. The individuals doing the predicting were strangers before the fifty minute period of time they spent interacting in class. Many previous studies used intact groups and did not contribute information to the area of entry phase communication. (2) The communication sensitivity of the subjects was measured using a self-report of actual communication behaviors. The study asked whether specific clusters of communication behaviors contribute to the reduction of uncertainty. Some previous studies used observation of specific individual types of behavior (e.g., eye contact, length of speech seg-

ments, etc. . .) as indicators of communication sensitivity. (3) Not only was the communication behavior of the subjects considered, but a measure of insensitive behaviors was also included. (4) The estimatability of the individual being predicted for was included as a major factor in predictive accuracy. This obvious factor was virtually ignored in almost all of the past research. (5) Under the emphasis of the transactional emphasis currently prominent in communication literature and research, the present study included the communication sensitivity and demographic characteristics of both the judge and the individual being judged. Previous research has focused mostly on the influence of the predictor or predictee on the prediction process, but never both. (6) An analysis of the four-choice prediction items used revealed five different indices of accuracy and error in the prediction process. Each of these five indices was analyzed seperately. (7) The effect of several demographic variables were considered in the analysis of each index. Several previous studies considered the relationships between predictive accuracy and single variables or small numbers of variables.

The results of the present study were very weak; none of the models explained more than 12% of the variance in any of the indices. The results seemed to indicate that each index was affected by a different set of independent variables. The communication sensitivity of the Judge, the estimatability of the Object and various

demographic characteristics of one or the other were found to be weakly, but significantly, related to some of the indices.

Theoretical Implications

The results of the present study were weak and their implications for interpersonal communication are more definite in the area of future research than in the area of theory. The following implications for theory are presented with a warning to consider them as tentatively as they are presented.

(1) The communication sensitivity of the Judge as measured by the CSRI was significantly related to the compounded ratio score. This finding seems to support a formulation of the entry phase of interpersonal communication which focuses on the reduction of uncertainty through a search for or scanning for similarity.

(2) The estimatability of the Object was significantly related to the raw prediction score and the empathy ratio score. This finding seems to indicate that the estimatability of the Object is an important variable in predictive accuracy and should be given more attention in theories dealing with communication and the aquaintance process.

(3) Each index of predictive accuracy was affected by a different set of independent variables. This seems to indicate that theories dealing with communication and the aquaintance process should not treat predictive accuracy as

a global construct, but should precisely delimit the type of predictive accuracy under consideration.

Research Implications

The following research implications were developed from the consideration of the possible explanations for the weakness of the results explained in the previous chapter. They are presented in the same order in which those explanations were discussed.

(1) The results indicated that a different index of predictive accuracy (the compounded ratio score) was related to communication sensitivity in the present zero-history research than that found to be related (the empathy ratio score) to communication patterns in past research on intact dyads. Future research should directly compare intact and zero-history dyads.

(2) Future research should develop methods to measure the subject's actual communication behavior in zero-history dyads as opposed to the use of self-reported communication behavior in most conversations.

(3) The use of subscales of communication behavior should be utilized in future research in place of a lump score measure like the CSRI. These subscales should be used to determine if there are specific areas of communication which differentiate between zero-history and intact dyads.

(4) Various measures of Object estimatability should

be developed to determine its effect on predictive accuracy. Attempts should be made to identify the effects of the Judge's expectations of the Object's estimatability on the predictive accuracy of the Judge.

(5) Future research should continue to utilize multivariate designs in the investigation of the effects of the organismic characteristics of both the Judge and the Object.

(6) The use of several indices of predictive accuracy should be continued to determine which ones, if any, can be used most effectively as a single measure of predictive accuracy in various situations.

(7) Methods should be developed to eliminate the Object's error in reporting his/her own behavior or values. The prediction task should deal only with the Judge's accuracy rather than being confounded by the possibility of an upredictable or erratic Object.

Concluding Note

The researcher recommends that researchers in person perception reconsider the methods in present use for the measurement of predictive accuracy. The present research seems to indicate that the amount of solid empirical evidence for textbook formulations of the aquaintance process is scant. Further research is imperative in order to be able to explain a fundamental human activity - the aquaintance process.

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APPENDIXES

APPENDIX A

PREDICTION INSTRUMENT

PREDICTION EXERCISE

Place all responses on the answer sheet.

1W. I think that a good government should aim chiefly at -

a. more aid for the poor, sick and old
b. the development of manufacturing and trade
c. introducing highest ethical principles into its policies and diplomacy
d. establishing a position of prestige and respect among nations

1X. My partner thinks that a good government should aim chiefly at -

---

2W. In my opinion, a person who works in business all the week can best spend Sunday in -

a. trying to educate himself or herself by reading serious books
b. trying to win at golf, or racing
c. going to an orchestral concert
d. hearing a really good sermon

2X. My partner thinks, a person who works in business all the week can best spend Sunday in -

---

3W. If I could influence the educational policies of the public schools of some cities, I would undertake -

a. to promote the study and participation in music and fine arts
b. to stimulate the study of social problems
c. to provide additional laboratory facilities
d. to increase the practical value of courses

3X. If my partner could influence the educational policies of the public schools of some cities, my partner would undertake -

---

4W. I prefer a friend who -

a. is efficient, industrious and of a practical turn of mind
b. is seriously interested in thinking out his/her attitude toward life as a whole
c. possesses qualities of leadership and organizing ability
d. shows artistic and emotional sensitivity

4X. My partner prefers a friend who -

5W. If I lived in a small town and had more than enough income, I would prefer to -

a. apply it productively to assist commercial and industrial development
b. help to advance the activities of local religious groups
c. give it for the development of scientific research in the local community
d. give it to The Family Welfare Society

5X. If my partner lived in a small town and had more than enough income, my partner would prefer to -

---

6W. When I go to the theater, I, as a rule, enjoy most -

a. plays that treat the lives of great men
b. ballet or similar imaginative performances
c. plays that have a theme of human suffering and love
d. problem plays that argue consistently for some point of view

6X. When my partner goes to the theater, my partner, as a rule, enjoys most -

---

7W. Assuming that I have the necessary ability and that the salary for each of the following is the same, I would prefer to be a -

a. mathematician
b. sales manager
c. clergyman
d. politician

7X. Assuming that my partner has the necessary ability and that the salary for each of the above is the same, my partner would prefer to be a -

---

8W. If I had sufficient time and money, I would prefer to -

a. make a collection of fine sculptures or paintings
b. establish a center for the care and training of the feeble-minded
c. aim at a senatorship, or a seat in the Cabinet
d. establish and own a business or financial enterprise

8X. If my partner had sufficient time and money, my partner would prefer to -

---

9W. At an evening discussion with intimate friends, I am most interested when we talk about -

a. the meaning of life
b. developments in science
c. literature
d. social issues

9X. At an evening discussion with intimate friends, my partner is most interested when they talk about -

---

10W. During part of my next summer vacation (if I had the ability and other conditions would permit), I would prefer to -

a. write and publish an original biological essay or article
b. stay in some secluded part of the country where there is fine scenery to appreciate
c. enter a local tennis or other athletic tournament
d. get experience in some new line of business

10X. During part of my partner's next summer vacation (if my partner had the ability and other conditions would permit), my partner would prefer to -

---

11W. In my opinion, the great exploits and adventures of such people as Columbus, Magellan, Byrd, and Amundsen seem significant because -

a. they represent conquests by man over the difficult forces of nature
b. they add to our knowledge of geography, meteorology, oceanography, etc.
c. they weld human interests and international feelings throughout the world
d. they contribute each in a small way to an ultimate understanding of the universe

11X. My partner will say, the great exploits and adventures of such people as Columbus, Magellan, Byrd and Amundsen seem significant because -

---

12W. In my opinion, one should guide one's conduct according to, or develop one's chief loyalties toward -

a. one's religious faith
b. ideals of beauty
c. one's occupational organization and associates
d. ideals of charity

12X. My partner will say, one should guide one's conduct according to, or develop one's chief loyalties toward -

---

13W. The famous person that interests me most is -

a. Florence Nightingale
b. Napoleon
c. Henry Ford
d. Galileo

13X. The famous person that interests my partner most is -

14W. In choosing a mate, I prefer one that -

a. can achieve professional success or social prestige, commanding admiration from others
b. likes to help people
c. is fundamentally spiritual in his/her attitudes toward life
d. is gifted along artistic lines

14X. In choosing a mate, my partner prefers one that -

15W. Viewing Leonardo da Vinci's picture, "The Last Supper," I think of it -

a. as expressing the highest spiritual aspirations and emotions
b. as one of the most priceless and irreplaceable pictures ever painted
c. in relation to Leonardo's versatility and its place in history
d. the essence of harmony and design

15X. Viewing Leonardo da Vinci's picture, "The Last Supper," my partner thinks of it -

---

APPENDIX B

CONVERSATION SELF-REPORT INVENTORY

FORM 977AB

THE OSU CONVERSATION SELF-REPORT INVENTORY

FORM: 977AB

On the following pages are forty (40) items concerning the way a person feels about and behaves in the most common of all communication situations--the conversation. We would like for you to read each item and decide which of the four alternatives is most characteristic and which is least characteristic of your own feelings and behavior.

Since different people think different things about the items, NO ALTERNATIVE IS NECESSARILY MORE CORRECT THAN ANY OTHER. We simply want to know which alternatives YOU consider most and least typify your ACTUAL CONVERSATION FEELINGS AND BEHAVIOR.

Our purpose is to catalog the similarities and differences in conversational patterns among various people. Your particular responses will be pooled with those of others, thus insuring anonymity.

In responding to the Inventory, please follow these directions:

1. On the provided answer sheet, fill in the information blanks at the top of the page (name, etc.).

2. For each item, you are asked to do two things:

   a. Select the one alternative that is most typical of your actual feelings and behaviors in a conversation. "X-out" the corresponding alternative number in Column A on the answer sheet.

   b. Select the one alternative that is least typical of your actual feelings and behaviors in a conversation. "X-out" the corresponding alternative number in Column B on the answer sheet.

   Be sure and choose one most and one least typical characteristic for every question, even if the preference for one alternative over the others is very slight.

3. Here is an example:

Item in the Booklet	Answer Sheet Response Options	
	COLUMN A	COLUMN B
41. In conversations:	41. (1) (2) (X) (4)	41. (1) (2) (3) (X)
1. I'm cheerful. 2. I'm polite. 3. I'm resourceful. 4. I'm tactful.	[This example has "I'm resourceful" being chosen as most typical and "I'm tactful" as least typical.]	

There is no time limit, but work as rapidly as you can. Please return both this booklet and the answer sheet to the person administering the Inventory. Thank you for your cooperation.

PLEASE DO NOT WRITE ON THIS BOOKLET

THE OSU CONVERSATION SELF-REPORT INVENTORY

FORM: 977AB

1. After a conversation has been going on for some time:
   1. I get very tired if it drags on too long.
   2. I let the other person use as much time as it takes to make his/her point clear.
   3. I repeat my statements so that he/she will catch my meaning.
   4. I avoid repeating what I've said before.

2. In my conversation with a person I don't know very well:
   1. I compete with the person to win the dominant position.
   2. I use my hands alot when I speak.
   3. I speak in a business-like manner.
   4. I'm seldom surprised or confused by what the person does or says.

3. In conversations where controversial topics are being talked about:
   1. I control my emotions by maintaining a calm outward appearance.
   2. I tend to be suspicious of other people's motives.
   3. I am able to disagree in an agreeable way.
   4. I lean toward the other person when I am speaking or listening.

4. In conversations:
   1. I am preoccupied with some person other than the one speaking.
   2. I'm understood by others.
   3. I try to see things from the other person's viewpoint.
   4. the mood or tone of the conversation changes without warning.

5. In conversations:
   1. I avoid giving negative criticism.
   2. I feel I can learn something from the other person if I really listen.
   3. I'm extremely eager to talk.
   4. I tend to be dogmatic (hard headed and stubborn) when I know I'm right.

6. In conversations:
   1. I'm dissatisfied with what happens.
   2. I avoid misunderstanding by speaking in terms of the other person's frame of reference.
   3. I avoid misunderstanding by speaking distinctly and loudly enough to be heard by all participants.
   4. I'm confused by what happens.

7. In conversations:
   1. I feel like I'm being forced to speak when I would prefer to listen.
   2. I answer troublesome questions in a round-about way.
   3. I look the other person directly in the eye when we talk.
   4. I show enthusiasm for the other person and his/her ideas.

BE SURE AND CHOOSE ONE MOST AND ONE LEAST TYPICAL CHARACTERISTIC FOR EVERY QUESTION, EVEN IF THE PREFERENCE FOR ONE ALTERNATIVE OVER THE OTHERS IS VERY SLIGHT.

8. In conversations:
   1. I build hostility in the other person by not agreeing with him/her.
   2. I don't talk when subjects come up that I don't know much about.
   3. I listen to a person even if I think the person doesn't really have anything to say.
   4. I show a disregard for social conventions (social rules).

9. In conversations:
   1. I'm very objective about the views I express.
   2. I find it very easy to mentally experience whatever the other person is describing.
   3. I use other people's ideas without indicating where I got them.
   4. I tend to get bored.

10. In conversations:
   1. When the other person is searching for the right word, I supply just the one he/she was looking for.
   2. I tend to be evasive.
   3. I enjoy persuading others to my point of view.
   4. I check out whether I understand the other person by restating or paraphrasing what he/she says.

11. I relate myself to the other person in a conversation by:
   1. expressing interest in the subject at hand.
   2. speaking with a pleasant tone of voice.
   3. acting as if I like the other person whether I do or not.
   4. making the other person think I'm listening even if I'm really thinking of something else.

12. When personal matters concerning the other person are being discussed in a conversation:
   1. I make certain I am directly facing the other person.
   2. I become very biased when certain subjects are brought up.
   3. I make each contribution as brief as possible.
   4. I am able to remain open-minded throughout the conversation.

13. In conversations:
   1. I look around alot.
   2. I use quite a bit of slang.
   3. My posture is very relaxed.
   4. I am eager to listen.

14. In conversations:
   1. I look directly at the other person.
   2. I consciously modulate (control) the tone of my voice.
   3. My views and opinions usually "win out" in the end.
   4. I involve the other person as much as possible.

BE SURE AND CHOOSE ONE MOST AND ONE LEAST TYPICAL CHARACTERISTIC FOR EVERY QUESTION, EVEN IF THE PREFERENCE FOR ONE ALTERNATIVE OVER THE OTHERS IS VERY SLIGHT.

15. In conversations:
   1. I reveal negativeness in my facial expression.
   2. I could care less about what is being said.
   3. I let my expectations become apparent to other people.
   4. I avoid prejudging what the other person is saying.

16. In conversations:
   1. I use words that are meaningful in terms of the other person's background.
   2. I'm usually in the background and seldom in the "spot light."
   3. I believe a large vocabulary helps conversational effectiveness.
   4. I am critical of the views of others.

17. In conversations:
   1. I ask the other person for his/her ideas frequently.
   2. I use a great deal of vocal expression.
   3. I don't get very involved in what is going on.
   4. people have indicated that I speak above the listener's level of understanding.

18. Various people have indicated in one way or another that:
   1. I have distracting mannerisms.
   2. I fail to follow the main topic of conversation.
   3. I can take criticism from others well.
   4. I use varied and interesting vocabulary words.

19. Various people have indicated in one way or another:
   1. I'm a thoughtful conversationalist.
   2. I fail to explain my views.
   3. I should talk more.
   4. I seldom act illogically.

20. Various people have indicated in one way or another that:
   1. I'm steadfast or staunch in my views.
   2. I'm adaptable or flexible.
   3. I make inappropriate comments.
   4. I talk too much.

21. In conversations:
   1. I make a point to appear calm.
   2. I get totally involved in what I am talking about or listening to.
   3. I'm filled with nervous energy.
   4. I overreact when certain subjects are brought up.

22. When a person is distressed and expresses his/her feelings on a very personal matter:
   1. I make mental judgments about the person but appear objective outwardly.
   2. I don't often give encouragement to the other person.
   3. I do something to change the subject of the conversation.
   4. I find myself getting caught up in those feelings and experiencing them myself.

BE SURE AND CHOOSE ONE MOST AND ONE LEAST TYPICAL CHARACTERISTIC FOR EVERY QUESTION, EVEN IF THE PREFERENCE FOR ONE ALTERNATIVE OVER THE OTHERS IS VERY SLIGHT.

23. In conversations:
    1. I'm extremely frank and candid.
    2. I gain the trust of the other person.
    3. I change the subject when a topic comes up that disturbs me.
    4. I appear unfriendly.

24. In conversations:
    1. I place as much reliance on my vocal, facial, and hand expressions to convey meaning as I do the words I use.
    2. people have a hard time understanding me.
    3. I use many trite phrases.
    4. I accurately "size-up" what is really going on.

25. In conversations:
    1. I focus primarily on the words the speaker uses.
    2. I am really not interested in what is being said.
    3. I avoid touching the other person.
    4. I give support to the other person whenever I can.

26. Frequently in conversations:
    1. people reveal personal information about themselves to me that they are reluctant to reveal to others.
    2. I find it difficult or impossible to look the other person in the eye.
    3. I feel somewhat anxious.
    4. I express my opinions freely and often.

27. In conversations:
    1. I seldom comment on what is being said.
    2. I believe the subject of the conversation is more important than the way it is being talked about.
    3. when I know what the other person is going to say next, I interject my comment before he/she completely finishes the comment.
    4. I accept the ideas of the other person and build on them.

28. In conversations:
    1. I listen in order to conform to the wishes of others.
    2. I listen primarily for facts and specific details.
    3. I listen primarily for general ideas and underlying feelings.
    4. I don't listen very closely.

29. When I feel friction developing between me and the other person in a conversation:
    1. my ability to improvise is a real asset.
    2. I become tense and uncomfortable.
    3. I find out his/her expectations and point out areas of common agreement.
    4. I find it very difficult to trust the other person.

BE SURE AND CHOOSE ONE MOST AND ONE LEAST TYPICAL CHARACTERISTIC FOR EVERY QUESTION, EVEN IF THE PREFERENCE FOR ONE ALTERNATIVE OVER THE OTHERS IS VERY SLIGHT.

30. When I converse with argumentative people:
    1. I communicate better with those who are frank and candid.
    2. I hurry things along so we can get the conversation over with.
    3. I think it is more important to understand the ideas of the other people than to be convinced that they are right.
    4. I avoid revealing information that will be unfavorably received.

31. In conversations:
    1. I'm more eager to talk than to listen.
    2. I think being understood is more important than convincing the other person I am correct.
    3. I nod my head in agreement as the other person speaks.
    4. I occasionally touch the person I am talking with.

32. While the other person is asking questions:
    1. I try to appear interested in what is being asked.
    2. I decide what to say next.
    3. I decide what the person doesn't understand.
    4. I plan how to convince the person to my point of view.

33. In conversations:
    1. I force my viewpoint on the listener.
    2. I assume I will understand the other person and that he/she will understand me.
    3. I become distracted if a person uses many trite phrases.
    4. I choose topics of conversation that will interest the other person.

34. In conversations:
    1. I am the one to clarify troublesome points.
    2. I try to get my point of view adopted by others.
    3. people say that I talk too much.
    4. I draw incorrect conclusions.

35. In conversations:
    1. I nod my head in response to what the other person says.
    2. I talk with the other person, not at the other person.
    3. I ignore the listener's reaction while I am speaking.
    4. I am not completely relaxed--I possess some muscle tension.

36. I believe my conversations with others are effective when:
    1. each speaker is direct and to the point.
    2. an exchange of feelings takes place.
    3. people reach agreement after being convinced of a common viewpoint.
    4. people use common words with simple meanings.

BE SURE AND CHOOSE ONE MOST AND ONE LEAST TYPICAL CHARACTERISTIC FOR EVERY QUESTION, EVEN IF THE PREFERENCE FOR ONE ALTERNATIVE OVER THE OTHERS IS VERY SLIGH

37. In conversations:
    1. I depend on the speaker's words to explain the largest part of his/her meaning.
    2. I depend on the speaker's vocal, facial, and hand expressions to explain the largest part of his/her meaning.
    3. I have a hard time understanding others.
    4. my reactions are inappropriate.

38. In conversations:
    1. I'm distracted by the other person's mannerisms, such as excessive eye-blinking.
    2. various people have indicated that I am a very considerate conversationalist.
    3. I'm frequently surprised or confused by what the other person does or says.
    4. I am very direct and to the point.

39. In conversations:
    1. I tend to ramble.
    2. I try to keep others from knowing what I think about what is being said.
    3. I am not distracted by the other person's mannerisms.
    4. I think everything is going along fine only to learn later that the person I was talking with was upset or disturbed about something.

40. In conversations:
    1. I "tune-out" on people I can't trust.
    2. I tend to get hostile.
    3. I find it very easy to trust the other person.
    4. people puzzle me by saying one thing and then doing another.

BE SURE AND CHOOSE ONE MOST AND ONE LEAST TYPICAL CHARACTERISTIC FOR EVERY QUESTION, EVEN IF THE PREFERENCE FOR ONE ALTERNATIVE OVER THE OTHERS IS VERY SLIGHT.

APPENDIX C

CONVERSATION SELF-REPORT INVENTORY

FORM 977AB SCORING SHEET

ANSWER SHEET 977

Name_____ Circle: Male Female

I_____ II_____

III_____ IV_____ V_____ VI_____

For each item, place an "X" through the alternative number that is MOST TYPICAL of you and your conversations in Column A and place an "X" through the alternative number that is LEAST TYPICAL of you and your conversations in Column B.

COLUMN A MOST TYPICAL	COLUMN B LEAST TYPICAL	COLUMN A MOST TYPICAL	COLUMN B LEAST TYPICAL
1.(1)(2)(3)(4)	1.(1)(2)(3)(4)	21.(1)(2)(3)(4)	21.(1)(2)(3)(4)
2.(1)(2)(3)(4)	2.(1)(2)(3)(4)	22.(1)(2)(3)(4)	22.(1)(2)(3)(4)
3.(1)(2)(3)(4)	3.(1)(2)(3)(4)	23.(1)(2)(3)(4)	23.(1)(2)(3)(4)
4.(1)(2)(3)(4)	4.(1)(2)(3)(4)	24.(1)(2)(3)(4)	24.(1)(2)(3)(4)
5.(1)(2)(3)(4)	5.(1)(2)(3)(4)	25.(1)(2)(3)(4)	25.(1)(2)(3)(4)
6.(1)(2)(3)(4)	6.(1)(2)(3)(4)	26.(1)(2)(3)(4)	26.(1)(2)(3)(4)
7.(1)(2)(3)(4)	7.(1)(2)(3)(4)	27.(1)(2)(3)(4)	27.(1)(2)(3)(4)
8.(1)(2)(3)(4)	8.(1)(2)(3)(4)	28.(1)(2)(3)(4)	28.(1)(2)(3)(4)
9.(1)(2)(3)(4)	9.(1)(2)(3)(4)	29.(1)(2)(3)(4)	29.(1)(2)(3)(4)
10.(1)(2)(3)(4)	10.(1)(2)(3)(4)	30.(1)(2)(3)(4)	30.(1)(2)(3)(4)
11.(1)(2)(3)(4)	11.(1)(2)(3)(4)	31.(1)(2)(3)(4)	31.(1)(2)(3)(4)
12.(1)(2)(3)(4)	12.(1)(2)(3)(4)	32.(1)(2)(3)(4)	32.(1)(2)(3)(4)
13.(1)(2)(3)(4)	13.(1)(2)(3)(4)	33.(1)(2)(3)(4)	33.(1)(2)(3)(4)
14.(1)(2)(3)(4)	14.(1)(2)(3)(4)	34.(1)(2)(3)(4)	34.(1)(2)(3)(4)
15.(1)(2)(3)(4)	15.(1)(2)(3)(4)	35.(1)(2)(3)(4)	35.(1)(2)(3)(4)
16.(1)(2)(3)(4)	16.(1)(2)(3)(4)	36.(1)(2)(3)(4)	36.(1)(2)(3)(4)
17.(1)(2)(3)(4)	17.(1)(2)(3)(4)	37.(1)(2)(3)(4)	37.(1)(2)(3)(4)
18.(1)(2)(3)(4)	18.(1)(2)(3)(4)	38.(1)(2)(3)(4)	38.(1)(2)(3)(4)
19.(1)(2)(3)(4)	19.(1)(2)(3)(4)	39.(1)(2)(3)(4)	39.(1)(2)(3)(4)
20.(1)(2)(3)(4)	20.(1)(2)(3)(4)	40.(1)(2)(3)(4)	40.(1)(2)(3)(4)

Red ____ A____ B____ C____ D____ E____ F____ G____

Yel ____ H____ I____ J____ K____ L____ M____ N____

O____ P____ Q____ R____ S____ T____ U____

APPENDIX D

ITEM RESPONSE VALUES AND OPERATIONAL DEFINITIONS OF THE VALUES

ITEM	RESPONSE A	RESPONSE B	RESPONSE C	RESPONSE D
1	Social	Economic	Religious	Political
2	Theoretical	Political	Aesthetic	Religious
3	Aesthetic	Social	Theoretical	Economic
4	Economic	Religious	Political	Aesthetic
5	Economic	Religious	Theoretical	Social
6	Political	Aesthetic	Social	Theoretical
7	Theoretical	Economic	Religious	Political
8	Aesthetic	Social	Political	Economic
9	Religious	Theoretical	Aesthetic	Social
10	Theoretical	Aesthetic	Political	Economic
11	Political	Theoretical	Social	Religious
12	Religious	Aesthetic	Economic	Social
13	Social	Political	Economic	Theoretical
14	Political	Social	Religious	Aesthetic
15	Religious	Economic	Theoretical	Aesthetic

Theoretical - The dominant interest of the theoretical man is the discovery of truth. Since the interests of the theoretical man are empirical, critical and rational, he is necessarily an intellectualist, frequently a scientist or philospher. His chief aim in life is to order and systematize his knowledge.

Economic - The economic man is characteristically interested in what is useful. This type of thoroughly practical person conforms well to the prevailing stereotype of the average American businessman.

Aesthetic - The aesthetic man sees his highest value in form and harmony. He need not be a creative artist, nor need he be an effette; he is aesthetic if he but finds his chief interest in the artistic episodes of life.

Social - The highest value for this type is love of people. He is likely to find the theoretical, economic, and aesthetic attitudes cold and inhuman. In contrast to the political type, the socialman regards love as itself the only suitable form of human relationship.

Political - The political man is interested primarily in power. His activities are not necessarily within the narrow field of politics; but whatever his vocation, he betrays himself as a leader.

Religious - The highest value of the religious man may be called unity. He is mystical and seeks to comprehend the common as a whole, to relate himself to its embracing unity.

APPENDIX E

MEANS, STANDARD DEVIATIONS, SUMS, MINIMUMS, AND MAXIMUMS

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
S	584	5.69863014	2.17066000	3328.00000000	0	11.00000000
D	584	9.30136986	2.17066000	5432.00000000	4.00000000	15.00000000
NMDYADSX	584	1.63013699	0.48318126	952.00000000	1.00000000	2.00000000
NCSR1	583	28.32246998	8.58666909	16512.00000000	7.00000000	55.00000000
NCSY1	583	7.18010292	5.02367064	4186.00000000	0	27.00000000
NSEX1	584	1.60787671	0.48864248	939.00000000	1.00000000	2.00000000
NCCLL1	582	3.65292096	1.49577145	2126.00000000	1.00000000	8.00000000
NCLASS1	580	2.16551724	0.68805544	1256.00000000	1.00000000	5.00000000
NAGE1	524	19.70610687	2.42861387	10326.00000000	17.00000000	53.00000000
NHGPA1	489	32.92638037	4.69682263	16101.00000000	17.00000000	40.00000000
NMDT1	409	30.77995110	5.33399098	12589.00000000	10.00000000	40.00000000
NCSR2	583	28.32246998	8.58666909	16512.00000000	7.00000000	55.00000000
NCSY2	583	7.18010292	5.02367064	4186.00000000	0	27.00000000
NSEX2	584	1.60787671	0.48864248	939.00000000	1.00000000	2.00000000
NCCLL2	582	3.65292096	1.49577145	2126.00000000	1.00000000	8.00000000
NCLASS2	580	2.16551724	0.68805544	1256.00000000	1.00000000	5.00000000
NAGE2	524	19.70610687	2.42861387	10326.00000000	17.00000000	53.00000000
NHGPA2	489	32.92638037	4.69682263	16101.00000000	17.00000000	40.00000000
NMDT2	409	30.77995110	5.33399098	12589.00000000	10.00000000	40.00000000
VS	584	5.49657534	1.18451498	3210.00000000	3.00000000	9.00000000
E	584	3.29109589	1.83939811	1922.00000000	0	10.00000000
C	584	3.54623288	1.98569140	2071.00000000	0	10.00000000
A	584	2.53253425	1.72827453	1479.00000000	0	8.00000000
PJ	584	3.47773973	1.85942992	2031.00000000	0	10.00000000
US	584	2.15239726	1.48025115	1257.00000000	0	8.00000000
ERS	584	0.35394147	0.18117332	206.70182040	0	0.90000000
ARS	584	0.26609720	0.16809409	155.40076313	0	0.85714286
CRS	582	0.61096582	0.25201669	355.58210678	0	1.00000000
PJRS	584	0.37996133	0.19619622	221.89741647	0	1.00000000
USR	582	0.38903418	0.25201669	226.41789322	0	1.00000000
NPS	584	6.83732877	2.13905376	3993.00000000	0	12.00000000
NWCSR1	583	71.14236707	12.91015634	41476.00000000	33.00000000	105.00000000
NWCSR2	583	71.14236707	12.91015634	41476.00000000	33.00000000	105.00000000

APPENDIX F

FREQUENCIES, CUMULATIVE FREQUENCIES, PERCENTAGES, AND CUMULATIVE PERCENTAGES

S	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	2	2	0.342	0.342
1	10	12	1.712	2.055
2	18	30	3.082	5.137
3	62	92	10.616	15.753
4	108	200	18.493	34.247
5	72	272	12.329	46.575
6	88	360	15.068	61.644
7	108	468	18.493	80.137
8	62	530	10.616	90.753
9	26	556	4.452	95.205
10	18	574	3.082	98.288
11	10	584	1.712	100.000

NWDYADSX	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1	216	216	36.986	36.986
2	368	584	63.014	100.000

DYADSEX	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1	83	83	28.425	28.425
2	184	267	63.014	91.438
3	25	292	8.562	100.000

NHGPA1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	95	.	.	.
17	1	1	0.204	0.204
20	3	4	0.613	0.818
21	1	5	0.204	1.022
22	3	8	0.613	1.636
23	6	14	1.227	2.863
24	7	21	1.431	4.294
25	25	46	5.112	9.407
26	9	55	1.840	11.247
27	7	62	1.431	12.679
28	23	85	4.703	17.382
29	25	110	5.112	22.495
30	53	163	10.838	33.333
31	15	178	3.067	36.401
32	35	213	7.157	43.558
33	29	242	5.930	49.489
34	28	270	5.726	55.215
35	68	338	13.906	69.121
36	26	364	5.317	74.438
37	31	395	6.339	80.777
38	32	427	6.544	87.321
39	29	456	5.930	93.252
40	33	489	6.748	100.000

NCSR1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
7	2	2	0.343	0.343
10	4	6	0.686	1.029
11	9	15	1.544	2.573
12	3	18	0.515	3.087
13	5	23	0.858	3.945
14	7	30	1.201	5.146
15	10	40	1.715	6.861
16	10	50	1.715	8.576
17	13	63	2.230	10.806
18	18	81	3.087	13.894
19	20	101	3.431	17.324
20	16	117	2.744	20.069
21	21	138	3.602	23.671
22	13	151	2.230	25.901
23	27	178	4.631	30.532
24	20	198	3.431	33.962
25	22	220	3.774	37.736
26	21	241	3.602	41.338
27	27	268	4.631	45.969
28	23	291	3.945	49.914
29	27	318	4.631	54.545
30	26	344	4.460	59.005
31	24	368	4.117	63.122
32	23	391	3.945	67.067
33	23	414	3.945	71.012
34	33	447	5.660	76.672
35	17	464	2.916	79.588
36	20	484	3.431	83.019
37	18	502	3.087	86.106
38	12	514	2.058	88.165
39	12	526	2.058	90.223
40	9	535	1.544	91.767
41	7	542	1.201	92.967
42	11	553	1.887	94.854
43	7	560	1.201	96.055
44	11	571	1.887	97.942
45	1	572	0.172	98.113
46	3	575	0.515	98.628
48	1	576	0.172	98.799
49	2	578	0.343	99.142
50	3	581	0.515	99.657
51	1	582	0.172	99.828
55	1	583	0.172	100.000

NCSY1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
0	13	13	2.230	2.230
1	35	48	6.003	8.233
2	53	101	9.091	17.324
3	65	166	11.149	28.473
4	42	208	7.204	35.678
5	49	257	8.405	44.082
6	55	312	9.434	53.516
7	42	354	7.204	60.720
8	32	386	5.489	66.209
9	39	425	6.690	72.899
10	25	450	4.288	77.187
11	22	472	3.774	80.961
12	19	491	3.259	84.220
13	20	511	3.431	87.650
14	12	523	2.058	89.708
15	11	534	1.887	91.595
16	21	555	3.602	95.197
17	6	561	1.029	96.226
18	5	566	0.858	97.084
19	6	572	1.029	98.113
20	2	574	0.343	98.456
21	1	575	0.172	98.628
22	1	576	0.172	98.799
23	3	579	0.515	99.314
24	3	582	0.515	99.828
27	1	583	0.172	100.000

NSEX1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1	229	229	39.212	39.212
2	355	584	60.788	100.000

NCOLL1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	2	.	.	.
1	34	34	5.842	5.842
2	138	172	23.711	29.553
3	21	193	3.608	33.162
4	276	469	47.423	80.584
5	77	546	13.230	93.814
6	3	549	0.515	94.330
7	18	567	3.093	97.423
8	15	582	2.577	100.000

NCLASS1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	4	.	.	.
1	65	65	11.207	11.207
2	385	450	66.379	77.586
3	100	550	17.241	94.828
4	29	579	5.000	99.828
5	1	580	0.172	100.000

NAGE1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	60	.	.	.
17	2	2	0.382	0.382
18	66	68	12.595	12.977
19	283	351	54.008	66.985
20	91	442	17.366	84.351
21	41	483	7.824	92.176
22	13	496	2.481	94.656
23	7	503	1.336	95.992
24	5	508	0.954	96.947
25	4	512	0.763	97.710
26	3	515	0.573	98.282
28	1	516	0.191	98.473
29	2	518	0.382	98.855
30	2	520	0.382	99.237
31	1	521	0.191	99.427
34	1	522	0.191	99.618
37	1	523	0.191	99.809
53	1	524	0.191	100.000

NPS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	1	1	0.171	0.171
1	1	2	0.171	0.342
2	6	8	1.027	1.370
3	31	39	5.308	6.678
4	44	83	7.534	14.212
5	75	158	12.842	27.055
6	86	244	14.726	41.781
7	123	367	21.062	62.842
8	91	458	15.582	78.425
9	66	524	11.301	89.726
10	31	555	5.308	95.034
11	21	576	3.596	98.630
12	8	584	1.370	100.000

NMDT1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	175	.	.	.
10	1	1	0.244	0.244
11	1	2	0.244	0.489
13	1	3	0.244	0.733
15	2	5	0.489	1.222
16	1	6	0.244	1.467
17	3	9	0.733	2.200
18	1	10	0.244	2.445
19	5	15	1.222	3.667
20	2	17	0.489	4.156
21	3	20	0.733	4.890
22	11	31	2.689	7.579
23	6	37	1.467	9.046
24	7	44	1.711	10.758
25	18	62	4.401	15.159
26	15	77	3.667	18.826
27	23	100	5.623	24.450
28	20	120	4.890	29.340
29	35	155	8.557	37.897
30	26	181	6.357	44.254
31	28	209	6.846	51.100
32	30	239	7.335	58.435
33	35	274	8.557	66.993
34	28	302	6.846	73.839
35	32	334	7.824	81.663
36	17	351	4.156	85.819
37	18	369	4.401	90.220
38	20	389	4.890	95.110
39	15	404	3.667	98.778
40	5	409	1.222	100.000

VS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
3	5	5	0.856	0.856
4	117	122	20.034	20.890
5	200	322	34.247	55.137
6	149	471	25.514	80.651
7	78	549	13.356	94.007
8	28	577	4.795	98.801
9	7	584	1.199	100.000

ERS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	32	32	5.479	5.479
0.08333333	1	33	0.171	5.651
0.09090909	6	39	1.027	6.678
0.1	8	47	1.370	8.048
0.1111111	4	51	0.685	8.733
0.125	18	69	3.082	11.815
0.1428571	17	86	2.911	14.726
0.1666667	8	94	1.370	16.096
0.1818182	14	108	2.397	18.493
0.2	14	122	2.397	20.890
0.2222222	17	139	2.911	23.801
0.2307692	5	144	0.856	24.658
0.25	40	184	6.849	31.507
0.2727273	32	216	5.479	36.986
0.2857143	15	231	2.568	39.555
0.3	16	247	2.740	42.295
0.3076923	3	250	0.514	42.808
0.3333333	47	297	8.048	50.856
0.3571429	3	300	0.514	51.370
0.3636364	18	318	3.082	54.452
0.375	21	339	3.596	58.048
0.4	35	374	5.993	64.041
0.4166667	14	388	2.397	66.438
0.4285714	15	403	2.568	69.007
0.4444444	14	417	2.397	71.404
0.4545455	15	432	2.568	73.973
0.4615385	5	437	0.856	74.829
0.4666667	1	438	0.171	75.000
0.5	41	479	7.021	82.021
0.5384615	3	482	0.514	82.534
0.5454545	13	495	2.226	84.760
0.5555556	8	503	1.370	86.130
0.5714286	13	516	2.226	88.356
0.5833333	3	519	0.514	88.870
0.6	5	524	0.856	89.726
0.6153846	1	525	0.171	89.897
0.625	16	541	2.740	92.637
0.6363636	6	547	1.027	93.664
0.6428571	2	549	0.342	94.007
0.6666667	18	567	3.082	97.089
0.7	2	569	0.342	97.432
0.7142857	2	571	0.342	97.774
0.7272727	1	572	0.171	97.945
0.75	6	578	1.027	98.973
0.7777778	2	580	0.342	99.315
0.8	1	581	0.171	99.486
0.8333333	1	582	0.171	99.658
0.875	1	583	0.171	99.829
0.9	1	584	0.171	100.000

CRS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	2	.	.	.
0	23	23	3.952	3.952
0.1111111	1	24	0.172	4.124
0.125	1	25	0.172	4.296
0.1428571	4	29	0.687	4.983
0.1666667	6	35	1.031	6.014
0.2	7	42	1.203	7.216
0.25	17	59	2.921	10.137
0.2727273	1	60	0.172	10.309
0.2857143	6	66	1.031	11.340
0.3	2	68	0.344	11.684
0.3333333	32	100	5.498	17.182
0.375	5	105	0.859	18.041
0.4	12	117	2.062	20.103
0.4285714	20	137	3.436	23.540
0.4444444	4	141	0.687	24.227
0.5	83	224	14.261	38.488
0.5454545	1	225	0.172	38.660
0.5555556	11	236	1.890	40.550
0.5714286	18	254	3.093	43.643
0.6	20	274	3.436	47.079
0.625	18	292	3.093	50.172
0.6363636	2	294	0.344	50.515
0.6666667	51	345	8.763	59.278
0.7	3	348	0.515	59.794
0.7142857	32	380	5.498	65.292
0.7272727	3	383	0.515	65.808
0.75	46	429	7.904	73.711
0.7777778	2	431	0.344	74.055
0.8	30	461	5.155	79.210
0.8181818	1	462	0.172	79.381
0.8333333	17	479	2.921	82.302
0.8571429	18	497	3.093	85.395
0.875	8	505	1.375	86.770
0.8888889	4	509	0.687	87.457
0.9	1	510	0.172	87.629
0.9090909	2	512	0.344	87.973
1	70	582	12.027	100.000

PJRS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	23	23	3.938	3.938
0.06666667	1	24	0.171	4.110
0.07692308	2	26	0.342	4.452
0.09090909	9	35	1.541	5.993
0.1	2	37	0.342	6.336
0.1111111	13	50	2.226	8.562
0.125	9	59	1.541	10.103
0.1428571	12	71	2.055	12.158
0.1538462	4	75	0.685	12.842
0.1666667	15	90	2.568	15.411
0.1818182	15	105	2.568	17.979
0.2	12	117	2.055	20.034
0.2142857	3	120	0.514	20.548
0.2222222	16	136	2.740	23.288
0.2307692	3	139	0.514	23.801
0.25	35	174	5.993	29.795
0.2727273	22	196	3.767	33.562
0.2857143	14	210	2.397	35.959
0.3	20	230	3.425	39.384
0.3076923	2	232	0.342	39.726
0.3333333	36	268	6.164	45.890
0.3571429	1	269	0.171	46.062
0.3636364	14	283	2.397	48.459
0.375	22	305	3.767	52.226
0.3846154	1	306	0.171	52.397
0.4	18	324	3.082	55.479
0.4166667	15	339	2.568	58.048
0.4285714	19	358	3.253	61.301
0.4444444	18	376	3.082	64.384
0.4545455	22	398	3.767	68.151
0.4615385	2	400	0.342	68.493
0.5	68	468	11.644	80.137
0.5384615	2	470	0.342	80.479
0.5454545	14	484	2.397	82.877
0.5555556	10	494	1.712	84.589
0.5714286	7	501	1.199	85.788
0.6	9	510	1.541	87.329
0.6153846	1	511	0.171	87.500
0.625	15	526	2.568	90.068
0.6363636	5	531	0.856	90.925
0.6666667	10	541	1.712	92.637
0.7	4	545	0.685	93.322
0.7142857	8	553	1.370	94.692
0.7272727	4	557	0.685	95.377
0.75	7	564	1.199	96.575
0.7692308	1	565	0.171	96.747
0.7777778	1	566	0.171	96.918

PJRS (CONT.)	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0.8	3	569	0.514	97.432
0.8181818	1	570	0.171	97.603
0.8333333	3	573	0.514	98.116
0.8571429	4	577	0.685	98.801
0.875	3	580	0.514	99.315
0.8888889	2	582	0.342	99.658
1	2	584	0.342	100.000

ARS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	68	68	11.644	11.644
0.07142857	2	70	0.342	11.986
0.08333333	5	75	0.856	12.842
0.09090909	14	89	2.397	15.240
0.1	10	99	1.712	16.952
0.1111111	20	119	3.425	20.377
0.125	24	143	4.110	24.486
0.1428571	18	161	3.082	27.568
0.1538462	4	165	0.685	28.253
0.1666667	18	183	3.082	31.336
0.1818182	16	199	2.740	34.075
0.2	24	223	4.110	38.185
0.2222222	20	243	3.425	41.610
0.2307692	3	246	0.514	42.123
0.25	45	291	7.705	49.829
0.2666667	1	292	0.171	50.000
0.2727273	32	324	5.479	55.479
0.2857143	24	348	4.110	59.589
0.3	21	369	3.596	63.185
0.3076923	5	374	0.856	64.041
0.3333333	37	411	6.336	70.377
0.3571429	1	412	0.171	70.548
0.3636364	19	431	3.253	73.801
0.375	21	452	3.596	77.397
0.3846154	3	455	0.514	77.911
0.4	14	469	2.397	80.308
0.4166667	7	476	1.199	81.507
0.4285714	10	486	1.712	83.219
0.4444444	15	501	2.568	85.788
0.4545455	17	518	2.911	88.699
0.4615385	2	520	0.342	89.041
0.4666667	1	521	0.171	89.212
0.5	26	547	4.452	93.664
0.5454545	3	550	0.514	94.178
0.5555556	5	555	0.856	95.034
0.5714286	5	560	0.856	95.890
0.5833333	2	562	0.342	96.233
0.6	6	568	1.027	97.260
0.6153846	1	569	0.171	97.432
0.625	2	571	0.342	97.774
0.6363636	1	572	0.171	97.945
0.6666667	4	576	0.685	98.630
0.7	1	577	0.171	98.801
0.7142857	1	578	0.171	98.973
0.7272727	3	581	0.514	99.486
0.75	2	583	0.342	99.829
0.8571429	1	584	0.171	100.000

APPENDIX G

FINAL REGRESSION MODELS

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE NPS

R SQUARE = 0.13080711

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	258.59838110	15.21166948	3.82	0.0001
ERROR	432	1718.34606334	3.97765292		
TOTAL	449	1976.94444444			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	2.16141273				
NCSR1	0.01293835	0.01882915	1.87812020	0.47	0.4924
NCSY1	-0.00800966	0.03103398	0.26495966	0.07	0.7965
NSEX1	0.06188419	0.22484335	0.30131882	0.08	0.7833
NAGE1	0.06237680	0.04714752	6.96234054	1.75	0.1865
NCLASS1	-0.19333891	0.16137339	5.70954568	1.44	0.2315
NHGPA1	0.01347334	0.02126674	1.59652502	0.40	0.5267
NHGPA2	0.01758551	0.02121805	2.73228341	0.69	0.4077
NCOLL1	-0.13073068	0.06774153	14.81398526	3.72	0.0543
NWDYADSX	-0.03073225	0.20879159	0.08617665	0.02	0.8830
NCSR2	-0.00366818	0.01881492	0.15119008	0.04	0.8455
NCSY2	0.00312171	0.03102408	0.04027291	0.01	0.9199
NSEX2	0.12394164	0.22557532	1.20082073	0.30	0.5830
NAGE2	0.00037869	0.04714966	0.00025659	0.00	0.9936
NCLASS2	-0.04500638	0.16128665	0.30972643	0.08	0.7803
NCOLL2	0.02766489	0.06762103	0.66576544	0.17	0.6827
VS	0.20220237	0.08079623	24.91249482	6.26	0.0127
S	0.29932685	0.04587227	169.36267129	42.58	0.0001

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE CRS

R SQUARE = 0.04401711

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	1.23685197	0.07275600	1.17	0.2852
ERROR	432	26.86249188	0.06218169		
TOTAL	449	28.09934385			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.36902961				
NCSR1	0.00411851	0.00235423	0.19030280	3.06	0.0809
NCSY1	0.00037050	0.00388021	0.00056694	0.01	0.9240
NSEX1	0.04092814	0.02811240	0.13179862	2.12	0.1462
NAGE1	0.00714367	0.00589490	0.09131701	1.47	0.2262
NCLASS1	-0.03303170	0.02017668	0.16665748	2.68	0.1023
NHGPA1	0.00126705	0.00265900	0.01411927	0.23	0.6339
NHGPA2	-0.00387262	0.00265292	0.13250312	2.13	0.1451
NCOLL1	0.01139574	0.00846979	0.11256453	1.81	0.1792
NWDYADSX	-0.01891690	0.02610543	0.03265133	0.53	0.4691
NCSR2	-0.00120863	0.00235245	0.01641381	0.26	0.6077
NCSY2	-0.00265125	0.00387897	0.02904896	0.47	0.4947
NSEX2	0.00252805	0.02820292	0.00049959	0.01	0.9286
NAGE2	0.00291090	0.00589517	0.01516092	0.24	0.6217
NCLASS2	-0.00919185	0.02016584	0.01291920	0.21	0.6488
NCOLL2	0.00547841	0.00845473	0.02610797	0.42	0.5173
VS	0.00262127	0.01010204	0.00418668	0.07	0.7954
S	0.00670851	0.00573546	0.08507047	1.37	0.2428

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE ERS

R SQUARE = 0.05497354

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	0.83292809	0.04899577	1.48	0.0979
ERROR	432	14.31850768	0.03314469		
TOTAL	449	15.15143577			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.21305310				
NCSR1	-0.00218970	0.00171880	0.05379433	1.62	0.2034
NCSY1	-0.00277190	0.00283290	0.03173273	0.96	0.3284
NSEX1	-0.01341881	0.02052455	0.01416755	0.43	0.5136
NAGE1	0.00357431	0.00430380	0.02286091	0.69	0.4067
NCLASS1	-0.00978540	0.01473077	0.01462581	0.44	0.5069
NHGPA1	-0.00080647	0.00194131	0.00572009	0.17	0.6780
NHGPA2	0.00305866	0.00193686	0.08265650	2.49	0.1150
NCOLL1	-0.01793539	0.00618370	0.27882931	8.41	0.0039
NWDYADSX	0.01708598	0.01905928	0.02663672	0.80	0.3705
NCSR2	0.00077655	0.00171750	0.00677584	0.20	0.6514
NCSY2	0.00278722	0.00283200	0.03210491	0.97	0.3256
NSEX2	0.02442564	0.02059137	0.04663754	1.41	0.2362
NAGE2	-0.00013691	0.00430400	0.00003354	0.00	0.9746
NCLASS2	-0.00600286	0.01472285	0.00550993	0.17	0.6837
NCOLL2	-0.00002891	0.00617270	0.00000073	0.00	0.9963
VS	0.01595531	0.00737538	0.15511542	4.68	0.0311
S	0.00165242	0.00418739	0.00516141	0.16	0.6933

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE PJRS

R SQUARE = 0.07749588

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	1.30864477	0.07697910	2.13	0.0055
ERROR	432	15.57799116	0.03606016		
TOTAL	449	16.88663593			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.54017247				
NCSR1	0.00224738	0.00179280	0.05666529	1.57	0.2107
NCSY1	0.00025940	0.00295487	0.00027789	0.01	0.9301
NSEX1	0.02000052	0.02140822	0.03147382	0.87	0.3507
NAGE1	-0.00015980	0.00448910	0.00004570	0.00	0.9716
NCLASS1	-0.01935739	0.01536499	0.05723432	1.59	0.2084
NHGPA1	-0.00174460	0.00202489	0.02676803	0.74	0.3894
NHGPA2	-0.00271158	0.00202025	0.06496233	1.80	0.1802
NCOLL1	0.01924667	0.00644994	0.32109105	8.90	0.0030
NWDYADSX	-0.02909301	0.01987986	0.07722859	2.14	0.1441
NCSR2	0.00066733	0.00179144	0.00500378	0.14	0.7097
NCSY2	-0.00034199	0.00295392	0.00048334	0.01	0.9079
NSEX2	0.02528069	0.02147791	0.04995989	1.39	0.2398
NAGE2	-0.00650448	0.00448930	0.07569985	2.10	0.1481
NCLASS2	-0.00135978	0.01535673	0.00028273	0.01	0.9295
NCOLL2	-0.00666375	0.00643846	0.03862783	1.07	0.3013
VS	-0.01008922	0.00769292	0.06202396	1.72	0.1904
S	0.01107754	0.00436768	0.23196005	6.43	0.0116

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE ARS

R SQUARE = 0.08500290

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	1.03069836	0.06062932	2.36	0.0018
ERROR	432	11.09475143	0.02568229		
TOTAL	449	12.12544979			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.24677443				
NCSR1	-0.00005767	0.00151298	0.00003732	0.00	0.9696
NCSY1	0.00251251	0.00249368	0.02607150	1.02	0.3142
NSEX1	-0.00658171	0.01806690	0.00340835	0.13	0.7158
NAGE1	-0.00341451	0.00378846	0.02086243	0.81	0.3679
NCLASS1	0.02914279	0.01296688	0.12972545	5.05	0.0251
NHGPA1	0.00255107	0.00170885	0.05723610	2.23	0.1362
NHGPA2	-0.00034707	0.00170494	0.00106428	0.04	0.8388
NCOLL1	-0.00131128	0.00544325	0.00149043	0.06	0.8097
NWDYADSX	0.01200703	0.01677708	0.01315442	0.51	0.4746
NCSR2	-0.00144388	0.00151184	0.02342519	0.91	0.3401
NCSY2	-0.00244523	0.00249289	0.02470978	0.96	0.3272
NSEX2	-0.04970633	0.01812571	0.19313772	7.52	0.0064
NAGE2	0.00664140	0.00378863	0.07892025	3.07	0.0803
NCLASS2	0.00736264	0.01295991	0.00828890	0.32	0.5703
NCOLL2	0.00669265	0.00543357	0.03896370	1.52	0.2187
VS	-0.00586609	0.00649224	0.02096728	0.82	0.3667
S	-0.01272997	0.00368599	0.30632383	11.93	0.0006

APPENDIX H

CORRELATION MATRIX

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	$	D	NWDYADSX	NCSR1	NCSY1	NSEX1	NCOLL1	NCLASS1	NAGE1	NHGPA1	NMDT1	NCSR2	NCSY2
$	1.00000 0.0000 584	-1.00000 0.0001 584	-0.05085 0.2198 584	-0.05065 0.2220 583	0.01311 0.7521 583	0.06305 0.1281 584	0.11538 0.0053 582	-0.01278 0.7588 580	-0.07275 0.0862 524	-0.04222 0.3515 489	0.00643 0.8969 409	-0.05065 0.2220 583	0.01311 0.7521 583
D	-1.00000 0.0001 584	1.00000 0.0000 584	0.05085 0.2198 584	0.05065 0.2220 583	-0.01311 0.7521 583	-0.06305 0.1281 584	-0.11538 0.0053 582	0.01278 0.7588 580	0.07275 0.0862 524	0.04222 0.3515 489	-0.00643 0.8969 409	0.05065 0.2220 583	-0.01311 0.7521 583
NWDYADSX	-0.05085 0.2198 584	0.05085 0.2198 584	1.00000 0.0000 584	0.05326 0.1991 583	-0.04819 0.2454 583	-0.25935 0.0001 584	-0.04912 0.2367 582	-0.09562 0.0213 580	-0.00288 0.9478 524	0.08498 0.0604 489	0.05036 0.3049 409	0.05126 0.1991 583	-0.04819 0.2454 583
NCSR1	-0.05065 0.2220 583	0.05065 0.2220 583	0.05326 0.1991 583	1.00000 0.0000 583	-0.78476 0.0001 583	-0.19411 0.0001 583	-0.11140 0.0072 581	0.00073 0.9860 579	0.09650 0.0273 523	0.11257 0.0128 488	0.06627 0.1810 409	-0.00550 0.8947 582	0.01067 0.8010 582
NCSY1	0.01311 0.7521 583	-0.01311 0.7521 583	-0.04819 0.2454 583	-0.78476 0.0001 583	1.00000 0.0000 583	0.17510 0.0001 583	0.07149 0.0851 581	0.03168 0.4467 579	-0.01837 0.6752 523	-0.07702 0.0892 488	-0.12034 0.0149 409	0.01047 0.8010 582	-0.01170 0.7875 582
NSEX1	0.06305 0.1281 584	-0.06305 0.1281 584	-0.25935 0.0001 584	-0.19411 0.0001 583	0.17510 0.0001 583	1.00000 0.0000 584	0.22579 0.0001 582	0.14756 0.0004 580	0.12094 0.0056 524	-0.27132 0.0001 489	-0.15544 0.0016 409	0.04897 0.2378 583	-0.02797 0.5003 583
NCOLL1	0.11538 0.0053 582	-0.11538 0.0053 582	-0.04912 0.2367 582	-0.11140 0.0072 581	0.07149 0.0851 581	0.22579 0.0001 582	1.00000 0.0000 582	0.13680 0.0010 580	0.10109 0.0206 524	-0.08589 0.0577 489	-0.05972 0.2281 409	0.01039 0.8027 581	-0.00459 0.9121 581
NCLASS1	-0.01278 0.7588 580	0.01278 0.7588 580	-0.09562 0.0213 580	0.00073 0.9860 579	0.03168 0.4467 579	0.14756 0.0004 580	0.13680 0.0010 580	1.00000 0.0000 580	0.42250 0.0001 524	-0.12763 0.0047 488	0.10658 0.0316 407	-0.00191 0.9634 579	0.00522 0.9002 579

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	S	D	NWDYADSX	NCSR1	NCSY1	NSEX1	NCOLL1	NCLASS1	NAGE1	NHGPA1	NMDT1	NCSR2	NCSY2
NAGE1	-0.07275 0.0962 524	0.07275 0.0962 524	-0.00288 0.9476 524	0.09650 0.0273 523	-0.01837 0.6752 523	0.12096 0.0056 524	0.10109 0.0206 524	0.42250 0.0001 524	1.00000 0.0000 524	-0.11876 0.0088 486	0.02329 0.6399 406	0.04497 0.3046 523	-0.05900 0.1779 523
NHGPA1	-0.04222 0.3515 489	0.04222 0.3515 489	0.08498 0.0604 489	0.11257 0.0128 488	-0.07702 0.0892 488	-0.27132 0.0001 489	-0.08589 0.0577 489	-0.12763 0.0047 488	-0.11876 0.0088 486	1.00000 0.0000 489	0.39054 0.0001 372	0.02360 0.6029 488	-0.04885 0.2815 488
NMDT1	0.00643 0.8969 409	-0.00643 0.8969 409	0.05086 0.3049 409	0.06627 0.1810 409	-0.12034 0.0149 409	-0.15544 0.0016 409	-0.05772 0.2281 409	0.10658 0.0316 407	0.02329 0.6399 406	0.39054 0.0001 372	1.00000 0.0000 409	-0.02465 0.6192 409	-0.03811 0.4421 409
NCSR2	-0.05065 0.2220 583	0.05065 0.2220 583	0.05326 0.1991 583	-0.00550 0.8947 582	0.01047 0.8010 582	0.04897 0.2378 583	0.01039 0.8027 581	-0.00191 0.9634 579	0.04497 0.3046 523	0.02360 0.6029 488	-0.02465 0.6192 409	1.00000 0.0000 583	-0.78476 0.0001 583
NCSY2	0.01311 0.7521 583	-0.01311 0.7521 583	-0.04819 0.2454 583	0.01047 0.8010 582	-0.01120 0.7875 582	-0.02797 0.5003 583	-0.00459 0.9121 581	0.00522 0.9002 579	-0.05900 0.1779 523	-0.04885 0.2815 488	-0.03811 0.4421 409	-0.78476 0.0001 583	1.00000 0.0000 583
NSEX2	0.06305 0.1281 584	-0.06305 0.1281 584	-0.25935 0.0001 584	0.04897 0.2378 583	-0.02797 0.5003 583	-0.31462 0.0001 584	-0.10233 0.0135 582	-0.03215 0.4396 580	-0.07375 0.0917 524	0.10472 0.0206 489	0.02993 0.5462 409	-0.19411 0.0001 583	0.17510 0.0001 583
NCOLL2	0.11538 0.0053 582	-0.11538 0.0053 582	-0.04912 0.2367 582	0.01039 0.8027 581	-0.00459 0.9121 581	-0.10233 0.0135 582	0.03925 0.3453 580	0.00208 0.9602 578	0.01453 0.7401 524	-0.01514 0.7385 489	0.06077 0.2200 409	-0.11140 0.0072 581	0.07149 0.0851 581
NCLASS2	-0.01278 0.7588 580	0.01278 0.7588 580	-0.09562 0.0213 580	-0.00191 0.9634 579	0.00522 0.9002 579	-0.03215 0.4396 580	0.00208 0.9602 578	-0.01602 0.7013 576	0.07561 0.0844 522	-0.02689 0.5538 487	-0.01426 0.7743 407	0.00073 0.9860 579	0.03168 0.4467 579
NAGE2	-0.07275 0.0962 524	0.07275 0.0962 524	-0.00288 0.9476 524	0.04497 0.3046 523	-0.05900 0.1779 523	-0.07375 0.0917 524	0.01453 0.7401 524	0.07561 0.0844 522	0.23471 0.0001 520	0.03781 0.4060 485	0.08988 0.0704 406	0.09650 0.0273 523	-0.01837 0.6752 523
NHGPA2	-0.04222 0.3515 489	0.04222 0.3515 489	0.08498 0.0604 489	0.02360 0.6029 488	-0.04885 0.2815 488	0.10472 0.0206 489	-0.01514 0.7385 489	-0.02689 0.5538 487	0.03781 0.4060 485	0.01998 0.6697 458	-0.04620 0.3742 372	0.11257 0.0128 488	-0.07702 0.0892 488
NMDT2	0.00643 0.8969 409	-0.00643 0.8969 409	0.05086 0.3049 409	-0.02465 0.6192 409	-0.03811 0.4421 409	0.02993 0.5462 409	0.06077 0.2200 409	-0.01426 0.7743 407	0.08988 0.0704 406	-0.04620 0.3742 372	0.14396 0.0044 390	0.06627 0.1810 409	-0.12034 0.0149 409
VS	0.09633 0.0199 584	-0.09633 0.0199 584	0.00677 0.8702 584	0.03604 0.3891 583	0.01379 0.7398 583	-0.03048 0.4623 584	-0.03235 0.4360 582	0.03205 0.4411 580	0.00470 0.9145 524	-0.06418 0.1564 489	-0.01619 0.7441 409	-0.04038 0.3306 583	0.05769 0.1642 583
E	-0.44110 0.0001 584	0.44110 0.0001 584	0.04152 0.3178 584	0.00114 0.9781 583	-0.00045 0.9911 583	-0.00652 0.8766 584	-0.16035 0.0001 582	-0.03149 0.4492 580	0.04810 0.2697 524	0.00681 0.8806 489	0.03204 0.5182 409	-0.03737 0.3677 583	0.01761 0.6722 583

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	S	D	NWDYADSX	NCSR1	NCSY1	NSEX1	NCOLL1	NCLASS1	NAGE1	NHGPA1	NMDT1	NCSR2	NCSY2
C	0.74979 0.0001 584	-0.74979 0.0001 584	-0.10371 0.0121 584	0.00495 0.9051 583	-0.02985 0.4719 583	0.07794 0.0598 584	0.11036 0.0077 582	-0.02248 0.5890 580	-0.03175 0.4683 524	0.01545 0.7332 489	0.03987 0.4213 409	-0.05859 0.1577 583	0.00182 0.9651 583
A	-0.47746 0.0001 584	0.47746 0.0001 584	0.08838 0.0327 584	-0.01674 0.6866 583	0.02994 0.4705 583	-0.04682 0.2587 584	-0.02021 0.6265 582	0.07040 0.0903 580	0.02840 0.5165 524	0.05948 0.1891 489	-0.05928 0.2316 409	0.07682 0.0638 583	-0.06483 0.1179 583
PJ	-0.28725 0.0001 584	0.28725 0.0001 584	-0.08364 0.0433 584	0.07348 0.0763 583	-0.04265 0.3039 583	0.05551 0.1804 584	0.04302 0.3001 582	-0.01939 0.6412 580	0.01127 0.7969 524	-0.01292 0.7757 489	0.01582 0.7498 409	0.02466 0.5523 583	0.00797 0.8477 583
US	0.46060 0.0001 584	-0.46060 0.0001 584	0.06455 0.1192 584	-0.08096 0.0507 583	0.05935 0.1524 583	-0.01210 0.7705 584	0.02090 0.6148 582	0.01148 0.7827 580	-0.06373 0.1452 524	-0.08067 0.0747 489	-0.04444 0.3700 409	0.00442 0.9152 583	0.01679 0.6857 583
ERS	0.00266 0.9488 584	-0.00266 0.9488 584	0.02918 0.4815 584	-0.02233 0.5904 583	0.00154 0.9705 583	-0.07523 0.0693 584	-0.11663 0.0048 582	-0.03903 0.3481 580	0.01623 0.7109 524	-0.00571 0.8998 489	0.05928 0.2316 409	-0.07358 0.0758 583	0.06239 0.1324 583
ARS	-0.15776 0.0001 584	0.15776 0.0001 584	0.09778 0.0181 584	-0.03822 0.3569 583	0.04953 0.2324 583	-0.02079 0.6162 584	0.01547 0.7096 582	0.05971 0.1509 580	0.00916 0.8344 524	0.03977 0.3801 489	-0.07233 0.1442 409	0.07835 0.0587 583	-0.08057 0.0519 583
CRS	0.11986 0.0038 582	-0.11986 0.0038 582	-0.08231 0.0472 582	0.04217 0.3102 581	-0.05535 0.1828 581	0.08456 0.0414 582	0.06120 0.1410 580	-0.03461 0.4062 578	0.02597 0.5538 522	0.02300 0.6122 488	0.02538 0.6097 407	-0.03739 0.3683 581	-0.00794 0.8485 581
PJRS	0.13271 0.0013 584	-0.13271 0.0013 584	-0.11072 0.0074 584	0.05337 0.1982 583	-0.04385 0.2905 583	0.08727 0.0350 584	0.09446 0.0227 582	-0.01510 0.7167 580	-0.02290 0.6009 524	-0.02817 0.5343 489	0.00609 0.9023 409	0.00081 0.9845 583	0.01143 0.7830 583
USR	-0.11986 0.0038 582	0.11986 0.0038 582	0.08231 0.0472 582	-0.04217 0.3102 581	0.05535 0.1828 581	-0.08456 0.0414 582	-0.06120 0.1410 580	0.03461 0.4062 578	-0.02597 0.5538 522	-0.02300 0.6122 488	-0.02538 0.6097 407	0.03739 0.3683 581	0.00794 0.8485 581
APS	0.31673 0.0001 584	-0.31673 0.0001 584	-0.04338 0.2953 584	0.00557 0.8932 583	-0.02810 0.4983 583	-0.00205 0.9605 584	-0.03543 0.3936 582	-0.04795 0.2489 580	0.01206 0.7830 524	0.02039 0.6528 489	0.06408 0.1959 409	-0.08653 0.0367 583	0.03386 0.4145 583
NWCSR1	-0.03879 0.3498 583	0.03879 0.3498 583	0.05418 0.1915 583	0.97048 0.0001 583	-0.91108 0.0001 583	-0.19724 0.0001 583	-0.10192 0.0140 581	-0.01184 0.7761 579	0.07093 0.1052 523	0.10410 0.0214 488	0.09106 0.0658 409	-0.00773 0.8523 582	0.01133 0.7851 582
NWCSR2	-0.03879 0.3498 583	0.03879 0.3498 583	0.05418 0.1915 583	-0.00773 0.8523 582	0.01133 0.7851 582	0.04345 0.2949 583	0.00870 0.8343 581	-0.00330 0.9368 579	0.05294 0.2268 523	0.03481 0.4430 488	-0.00127 0.9795 409	0.97048 0.0001 583	-0.91108 0.0001 583

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	NSEX2	NCOLL2	NCLASS2	NAGE2	NHGPA2	NMDT2	VS	E	C	A	PJ	US	ERS
S	0.06305 0.1281 584	0.11538 0.0053 582	-0.01278 0.7588 580	-0.07275 0.0962 524	-0.04222 0.3515 489	0.00643 0.8969 409	0.09633 0.0199 584	-0.44110 0.0001 584	0.74979 0.0001 584	-0.47746 0.0001 584	-0.28725 0.0001 584	0.46060 0.0001 584	0.00266 0.9488 584
D	-0.06305 0.1281 584	-0.11538 0.0053 582	0.01278 0.7588 580	0.07275 0.0962 524	0.04222 0.3515 489	-0.00643 0.8969 409	-0.09633 0.0199 584	0.44110 0.0001 584	-0.74979 0.0001 584	0.47746 0.0001 584	0.28725 0.0001 584	-0.46060 0.0001 584	-0.00266 0.9488 584
NWDYADSX	-0.25935 0.0001 584	-0.04912 0.2367 582	-0.09562 0.0213 580	-0.00288 0.9476 524	0.08498 0.0604 489	0.05086 0.3049 409	0.00677 0.8702 584	0.06152 0.1376 584	-0.10371 0.0121 584	0.08838 0.0327 584	-0.08364 0.0433 584	0.06455 0.1192 584	0.02918 0.4815 584
NCSR1	0.04897 0.2378 583	0.01039 0.8027 581	-0.00191 0.9534 579	0.04497 0.3046 523	0.02360 0.6029 488	-0.02465 0.6192 409	0.03604 0.3851 583	0.00114 0.9781 583	0.00495 0.9051 583	-0.01674 0.6866 583	0.07348 0.0763 583	-0.08096 0.0507 583	-0.02233 0.5904 583
NCSY1	-0.02797 0.5003 583	-0.00459 0.9121 581	0.00522 0.9002 579	-0.05900 0.1779 523	-0.04885 0.2815 488	-0.03811 0.4421 409	0.01378 0.7398 583	-0.00045 0.9913 583	-0.02985 0.4719 583	0.02994 0.4705 583	-0.04265 0.3039 583	0.05935 0.1524 583	0.00154 0.9705 583
NSEX1	-0.31462 0.0001 584	-0.10233 0.0135 582	-0.03215 0.4396 580	-0.07375 0.0917 524	0.10472 0.0206 489	0.02993 0.5462 409	-0.03048 0.4623 584	-0.08652 0.0366 584	0.07794 0.0598 584	-0.04682 0.2587 584	0.05551 0.1804 584	-0.01210 0.7705 584	-0.07523 0.0693 584
NCOLL1	-0.10233 0.0135 582	0.03925 0.3453 580	0.00208 0.9602 578	0.01453 0.7401 524	-0.01514 0.7385 489	0.06077 0.2200 409	-0.03235 0.4360 582	-0.16035 0.0001 582	0.11036 0.0077 582	-0.02021 0.6265 582	0.04302 0.3001 582	0.02090 0.6148 582	-0.11663 0.0048 582
NCLASS1	-0.03215 0.4396 580	0.00208 0.9602 578	-0.01602 0.7013 576	0.07561 0.0844 522	-0.02689 0.5538 487	-0.01426 0.7743 407	0.03205 0.4411 580	-0.03149 0.4492 580	-0.02248 0.5890 580	0.07040 0.0903 580	-0.01939 0.6412 580	0.01148 0.7827 580	-0.03903 0.3481 580
NAGE1	-0.07375 0.0917 524	0.01453 0.7401 524	0.07561 0.0844 522	0.23471 0.0001 520	0.03781 0.4060 485	0.08988 0.0704 406	0.00470 0.9145 524	0.04830 0.2697 524	-0.03175 0.4683 524	0.02840 0.5165 524	0.01127 0.7969 524	-0.06373 0.1452 524	0.01623 0.7109 524
NHGPA1	0.10472 0.0206 489	-0.01514 0.7385 489	-0.02689 0.5538 487	0.03781 0.4060 485	0.01998 0.6697 458	-0.04620 0.3742 372	-0.06418 0.1564 489	0.00681 0.8806 489	0.01545 0.7332 489	0.05948 0.1891 489	-0.01292 0.7757 489	-0.08067 0.0747 489	-0.00571 0.8998 489
NMDT1	0.02993 0.5462 409	0.06077 0.2200 409	-0.01426 0.7743 407	0.08988 0.0704 406	-0.04620 0.3742 372	0.14396 0.0044 390	-0.01619 0.7441 409	0.03204 0.5182 409	0.03987 0.4213 409	-0.05928 0.2316 409	0.01582 0.7498 409	-0.04444 0.3700 409	0.05928 0.2316 409
NCSR2	-0.19411 0.0001 583	-0.11140 0.0072 581	0.00073 0.9860 579	0.09650 0.0273 523	0.11257 0.0128 488	0.06627 0.1810 409	-0.04038 0.3304 583	-0.03737 0.3677 583	-0.05859 0.1577 583	0.07682 0.0638 583	0.02466 0.5523 583	0.00442 0.9152 583	-0.07358 0.0758 583
NCSY2	0.17510 0.0001 583	0.07149 0.0851 581	0.03168 0.4467 579	-0.01837 0.6752 523	-0.07702 0.0892 488	-0.12034 0.0149 409	0.05769 0.1642 583	0.03741 0.3672 583	0.00182 0.9651 583	-0.06483 0.1179 583	0.00797 0.8477 583	0.01679 0.6857 583	0.06239 0.1324 583

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	NSEX2	NCOLL2	NCLASS2	NAGE2	NHGPA2	NMDT2	VS	E	C	A	PJ	US	ERS
NSEX2	1.00000 0.0000 584	0.22579 0.0001 582	0.14756 0.0004 580	0.12094 0.0056 524	-0.27132 0.0001 489	-0.15544 0.0016 409	0.10288 0.0129 584	0.03180 0.4431 584	0.05849 0.1580 584	-0.13415 0.0012 584	0.01964 0.6358 584	0.01399 0.7359 584	0.07845 0.0581 584
NCOLL2	0.22579 0.0001 582	1.00000 0.0000 582	0.13680 0.0010 580	0.10109 0.0206 524	-0.08589 0.0577 489	-0.05972 0.2281 409	0.03954 0.3410 582	-0.03021 0.4670 582	0.10478 0.0114 582	-0.05485 0.1864 582	-0.05391 0.1941 582	0.02840 0.4941 582	0.02816 0.4977 582
NCLASS2	0.14756 0.0004 580	0.13680 0.0010 580	1.00000 0.0000 580	0.42250 0.0001 524	-0.12763 0.0047 488	0.10658 0.0316 407	0.05272 0.2048 580	0.00686 0.8691 580	-0.02352 0.5718 580	0.00536 0.8975 580	0.00314 0.9399 580	0.01289 0.7567 580	-0.00322 0.9384 580
NAGE2	0.12094 0.0056 524	0.10109 0.0206 524	0.42250 0.0001 524	1.00000 0.0000 524	-0.11876 0.0088 486	0.02329 0.6399 406	0.01325 0.7623 524	0.00399 0.9273 524	-0.05238 0.2313 524	0.12522 0.0041 524	-0.03488 0.4256 524	-0.03646 0.4049 524	-0.02395 0.5844 524
NHGPA2	-0.27132 0.0001 489	-0.08539 0.0577 489	-0.12763 0.0047 488	-0.11876 0.0088 486	1.00000 0.0000 489	0.39054 0.0001 372	-0.06694 0.1394 489	0.06504 0.1510 489	-0.04941 0.2755 489	0.05116 0.2588 489	-0.06237 0.1685 489	0.00383 0.9327 489	0.05798 0.2006 489
NMDT2	-0.15544 0.0016 409	-0.05972 0.2281 409	0.10658 0.0316 407	0.02329 0.6399 406	0.39054 0.0001 372	1.00000 0.0000 409	0.02016 0.6844 409	-0.00702 0.8874 409	-0.00033 0.9947 409	-0.02191 0.6586 409	0.01980 0.6897 409	0.01007 0.8391 409	-0.00069 0.9890 409
VS	0.10288 0.0129 584	0.03954 0.3410 582	0.05272 0.2048 580	0.01325 0.7623 524	-0.06694 0.1394 489	0.02016 0.6844 409	1.00000 0.0000 584	0.09729 0.0187 584	0.09086 0.0281 584	-0.13945 0.0007 584	-0.07908 0.0561 584	0.01937 0.6403 584	0.13439 0.0011 584
E	0.03180 0.4431 584	-0.03021 0.4670 582	0.00686 0.8691 580	0.00399 0.9273 524	0.06504 0.1510 489	-0.00702 0.8874 409	0.09729 0.0187 584	1.00000 0.0000 584	-0.37657 0.0001 584	-0.08176 0.0483 584	-0.39830 0.0001 584	-0.14169 0.0006 584	0.87249 0.0001 584
C	0.05849 0.1580 584	0.10478 0.0114 582	-0.02352 0.5718 580	-0.05238 0.2313 524	-0.04941 0.2755 489	-0.00033 0.9947 409	0.09086 0.0281 584	-0.37657 0.0001 584	1.00000 0.0000 584	-0.42028 0.0001 584	-0.11214 0.0067 584	-0.24195 0.0001 584	-0.05166 0.2125 584
A	-0.13415 0.0012 584	-0.05485 0.1864 582	0.00536 0.8975 580	0.12522 0.0041 524	0.05116 0.2588 489	-0.02191 0.6586 409	-0.13945 0.0007 584	-0.08176 0.0483 584	-0.42028 0.0001 584	1.00000 0.0000 584	-0.29120 0.0001 584	-0.13637 0.0010 584	-0.31677 0.0001 584
PJ	0.01964 0.6358 584	-0.05391 0.1941 582	0.00314 0.9399 580	-0.03488 0.4256 524	-0.06237 0.1685 489	0.01980 0.6897 409	-0.07908 0.0561 584	-0.39830 0.0001 584	-0.11214 0.0067 584	-0.29120 0.0001 584	1.00000 0.0000 584	-0.27079 0.0001 584	-0.57177 0.0001 584
US	0.01399 0.7359 584	0.02840 0.4941 582	0.01289 0.7567 580	-0.03646 0.4049 524	0.00383 0.9327 489	0.01007 0.8391 409	0.01937 0.6403 584	-0.14169 0.0006 584	-0.24195 0.0001 584	-0.13637 0.0010 584	-0.27079 0.0001 584	1.00000 0.0000 584	0.07321 0.0771 584
ERS	0.07845 0.0581 584	0.02816 0.4977 582	-0.00322 0.9384 580	-0.02395 0.5844 524	0.05798 0.2006 489	-0.00069 0.9890 409	0.13439 0.0011 584	0.87249 0.0001 584	-0.05166 0.2125 584	-0.31677 0.0001 584	-0.57177 0.0001 584	0.07321 0.0771 584	1.00000 0.0000 584

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	NSEX2	NCOLL2	NCLASS2	NAGE2	NHGPA2	NMDT2	VS	E	C	A	PJ	US	ERS
ARS	-0.14046 0.0007 584	-0.01906 0.6463 582	0.01665 0.6890 580	0.10444 0.0168 524	0.03200 0.4802 489	-0.01962 0.6923 409	-0.11493 0.0054 584	-0.25400 0.0001 584	-0.20322 0.0001 584	0.91797 0.0001 584	-0.41779 0.0001 584	0.04126 0.3196 584	-0.37093 0.0001 584
CRS	0.02158 0.6033 582	0.01566 0.7067 580	-0.02893 0.4875 578	-0.00671 0.8785 522	-0.06269 0.1668 488	-0.02320 0.6407 407	0.03124 0.4519 582	-0.12058 0.0036 582	0.68952 0.0001 582	-0.15245 0.0002 582	0.12143 0.0033 582	-0.74893 0.0001 582	-0.07584 0.0675 582
PJRS	0.04789 0.2479 584	-0.00972 0.8149 582	-0.01135 0.7850 580	-0.06692 0.1260 524	-0.08194 0.0702 489	0.01713 0.7298 409	-0.02563 0.5364 584	-0.58807 0.0001 584	0.22182 0.0001 584	-0.49397 0.0001 584	0.88593 0.0001 584	-0.10295 0.0128 584	-0.60572 0.0001 584
USR	-0.02158 0.6033 582	-0.01566 0.7067 580	0.02893 0.4875 578	0.00671 0.8785 522	0.06269 0.1668 488	0.02320 0.6407 407	-0.03124 0.4519 582	0.12058 0.0036 582	-0.68952 0.0001 582	0.15245 0.0002 582	-0.12143 0.0033 582	0.74893 0.0001 582	0.07584 0.0675 582
NPS	0.08164 0.0486 584	0.07140 0.0853 582	-0.01594 0.7016 580	-0.04547 0.2988 524	0.01098 0.8086 489	-0.00640 0.8973 409	0.16801 0.0001 584	0.51034 0.0001 584	0.60449 0.0001 584	-0.46046 0.0001 584	-0.44661 0.0001 584	-0.34644 0.0001 584	0.70230 0.0001 584
NWCSR1	0.04345 0.2949 583	0.00870 0.8343 581	-0.00330 0.9368 579	0.05294 0.2268 523	0.03481 0.4430 488	-0.00127 0.9795 409	0.01861 0.6539 583	0.00094 0.9820 583	0.01491 0.7195 583	-0.02279 0.5829 583	0.06547 0.1143 583	-0.07694 0.0634 583	-0.01545 0.7096 583
NWCSR2	-0.19724 0.0001 583	-0.10192 0.0140 581	-0.01184 0.7761 579	0.07093 0.1052 523	0.10410 0.0214 488	0.09106 0.0658 409	-0.04931 0.2346 583	-0.03942 0.3421 583	-0.03967 0.3389 583	0.07632 0.0655 583	0.01330 0.7486 583	-0.00360 0.9310 583	-0.07322 0.0773 583

	ARS	CRS	PJRS	USR	NPS	NWCSR1	NWCSR2
S	-0.15776 0.0001 584	0.11986 0.0038 582	0.13271 0.0013 584	-0.11986 0.0038 582	0.31673 0.0001 584	-0.03879 0.3498 583	-0.03879 0.3498 583
D	0.15776 0.0001 584	-0.11986 0.0038 582	-0.13271 0.0013 584	0.11986 0.0038 582	-0.31673 0.0001 584	0.03879 0.3498 583	0.03879 0.3498 583
NWDYADSX	0.09778 0.0181 584	-0.08231 0.0472 582	-0.11072 0.0074 584	0.08231 0.0472 582	-0.04338 0.2953 584	0.05418 0.1915 583	0.05418 0.1915 583
NCSR1	-0.03822 0.3569 583	0.04217 0.3102 581	0.05337 0.1982 583	-0.04217 0.3102 581	0.00557 0.8932 583	0.97048 0.0001 583	-0.00773 0.8523 582
NCSY1	0.04953 0.2324 583	-0.05535 0.1828 581	-0.04385 0.2905 583	0.05535 0.1828 581	-0.02810 0.4983 583	-0.91108 0.0001 583	0.01133 0.7851 582

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	ARS	CRS	PJRS	USR	NPS	NWCSR1	NWCSR2
AMDT2	-0.01962 0.6923 409	-0.02320 0.6407 407	0.01713 0.7298 409	0.02320 0.6407 407	-0.00640 0.8973 409	-0.00127 0.9795 409	0.09106 0.0658 409
VS	-0.11493 0.0054 584	0.03124 0.4519 582	-0.02563 0.5364 584	-0.03124 0.4519 582	0.16801 0.0001 584	0.01861 0.6539 583	-0.04931 0.2346 583
E	-0.25400 0.0001 584	-0.12058 0.0036 582	-0.58807 0.0001 584	0.12058 0.0036 582	0.51034 0.0001 584	0.00094 0.9820 583	-0.03942 0.3421 583
C	-0.20322 0.0001 584	0.68952 0.0001 582	0.22182 0.0001 584	-0.68952 0.0001 582	0.60449 0.0001 584	0.01491 0.7195 583	-0.03967 0.3389 583
A	0.91797 0.0001 584	-0.15245 0.0002 582	-0.49397 0.0001 584	0.15245 0.0002 582	-0.46046 0.0001 584	-0.02279 0.5829 583	0.07632 0.0655 583
PJ	-0.41779 0.0001 584	0.12143 0.0033 582	0.88593 0.0001 584	-0.12143 0.0033 582	-0.44661 0.0001 584	0.06547 0.1143 583	0.01330 0.7486 583
US	0.04126 0.3196 584	-0.74893 0.0001 582	-0.10295 0.0128 584	0.74893 0.0001 582	-0.34644 0.0001 584	-0.07694 0.0634 583	-0.00360 0.9310 583
ERS	-0.37083 0.0001 584	-0.07584 0.0675 582	-0.60572 0.0001 584	0.07584 0.0675 582	0.70230 0.0001 584	-0.01545 0.7098 583	-0.07322 0.0773 583
ARS	1.00000 0.0000 584	-0.12834 0.0019 582	-0.51433 0.0001 584	0.12834 0.0019 582	-0.40706 0.0001 584	-0.04470 0.2813 583	0.08346 0.0440 583
CRS	-0.12834 0.0019 582	1.00000 0.0000 582	0.18023 0.0001 582	-1.00000 0.0001 582	0.53350 0.0001 582	0.04959 0.2327 581	-0.02178 0.6003 581
PJRS	-0.51433 0.0001 584	0.18023 0.0001 582	1.00000 0.0000 584	-0.18023 0.0001 582	-0.29977 0.0001 584	0.05256 0.2051 583	-0.00391 0.9249 583
USR	0.12834 0.0019 582	-1.00000 0.0001 582	-0.18023 0.0001 582	1.00000 0.0000 582	-0.53350 0.0001 582	-0.04959 0.2327 581	0.02178 0.6003 581
NPS	-0.40706 0.0001 584	0.53350 0.0001 582	-0.29977 0.0001 584	-0.53350 0.0001 582	1.00000 0.0000 584	0.01464 0.7242 583	-0.07073 0.0880 583

	ARS	CRS	PJRS	USR	NPS	NWCSR1	NWCSR2
NSEX1	-0.02079 0.6162 584	0.08456 0.0414 582	0.08727 0.0350 584	-0.08456 0.0414 582	-0.00205 0.9605 584	-0.19724 0.0001 583	0.04345 0.2949 583
NCOLL1	0.01547 0.7096 582	0.06120 0.1410 580	0.09446 0.0227 582	-0.06120 0.1410 580	-0.03543 0.3936 582	-0.10192 0.0140 581	0.00870 0.8343 581
NCLASS1	0.05971 0.1509 580	-0.03461 0.4062 578	-0.01510 0.7167 580	0.03461 0.4062 578	-0.04795 0.2489 580	-0.01184 0.7761 579	-0.00330 0.9368 579
NAGE1	0.00916 0.8344 524	0.02597 0.5538 522	-0.02290 0.6009 524	-0.02597 0.5538 522	0.01206 0.7830 524	0.07093 0.1052 523	0.05294 0.2268 523
NHGPA1	0.03977 0.3801 489	0.02300 0.6122 488	-0.02817 0.5343 489	-0.02300 0.6122 488	0.02039 0.6528 489	0.10410 0.0214 488	0.03481 0.4430 488
AMDT1	-0.07233 0.1442 409	0.02538 0.6097 407	0.00609 0.9023 409	-0.02538 0.6097 407	0.06408 0.1959 409	0.09106 0.0658 409	-0.00127 0.9795 409
NCSR2	0.07835 0.0587 583	-0.03739 0.3683 581	0.00081 0.9845 583	0.03739 0.3683 581	-0.08653 0.0367 583	-0.00773 0.8523 582	0.97048 0.0001 583
NCSY2	-0.08057 0.0519 583	-0.00794 0.8485 581	0.01143 0.7830 583	0.00794 0.8485 581	0.03386 0.4145 583	0.01133 0.7851 582	-0.91108 0.0001 583
NSEX2	-0.14046 0.0007 584	0.02158 0.6033 582	0.04789 0.2479 584	-0.02158 0.6033 582	0.08164 0.0486 584	0.04345 0.2949 583	-0.19724 0.0001 583
NCOLL2	-0.01906 0.6463 582	0.01566 0.7067 580	-0.00972 0.8149 582	-0.01566 0.7067 580	0.07140 0.0853 582	0.00870 0.8343 581	-0.10192 0.0140 581
NCLASS2	0.01665 0.6890 580	-0.02893 0.4875 578	-0.01135 0.7850 580	0.02893 0.4875 578	-0.01594 0.7016 580	-0.00330 0.9368 579	-0.01184 0.7761 579
NAGE2	0.10444 0.0168 524	-0.00671 0.8785 522	-0.06692 0.1260 524	0.00671 0.8785 522	-0.04547 0.2988 524	0.05294 0.2268 523	0.07093 0.1052 523
NHGPA2	0.03200 0.4802 489	-0.06269 0.1668 488	-0.08194 0.0702 489	0.06269 0.1668 488	0.01098 0.8086 489	0.03481 0.4430 488	0.10410 0.0214 488

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	ARS	CRS	PJRS	USR	NPS	NWCSR1	NWCSR2
NWCSR1	-0.04470 0.2813 583	0.04959 0.2327 581	0.05256 0.2051 583	-0.04959 0.2327 581	0.01464 0.7242 583	1.00000 0.0000 583	-0.00955 0.8181 582
NWCSR2	0.08346 0.0440 583	-0.02178 0.6003 581	-0.00391 0.9249 583	0.02178 0.6003 581	-0.07073 0.0880 583	-0.00955 0.8181 582	1.00000 0.0000 583

VITA[2]

Thomas Jay Lyzenga

Candidate for the Degree

Master of Arts

Thesis: A MULTIPLE REGRESSION ANALYSIS OF PREDICTIVE ACCURACY: THE EFFECTS OF COMMUNICATION SENSITIVITY, ESTIMATABILITY, AND SELECTED DEMOGRAPHIC VARIABLES IN ZERO-HISTORY DYADS

Major Field: Speech

Biographical:

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Professional Experience: Graduate teaching assistant, Department of Speech, Oklahoma State University, 1976-78; practicum, Critical Incidents Study for Inter-Varsity Christian Fellowship, 1977; member of the Central States Speech Association and the Speech Communication Association.