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AN EXPLORATORY STUDY OF INTERCULTURAL COMMUNICATION BETWEEN NATIVE AMERICAN AND ANGLO-AMERICAN COLLEGE STUDENTS

The University of Oklahoma PH.D. 1981

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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

AN EXPLORATORY STUDY OF INTERCULTURAL COMMUNICATION BETWEEN NATIVE AMERICAN AND ANGLO-AMERICAN COLLEGE STUDENTS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

By

WILLIAM RAY KENNAN

Norman, Oklahoma

1981

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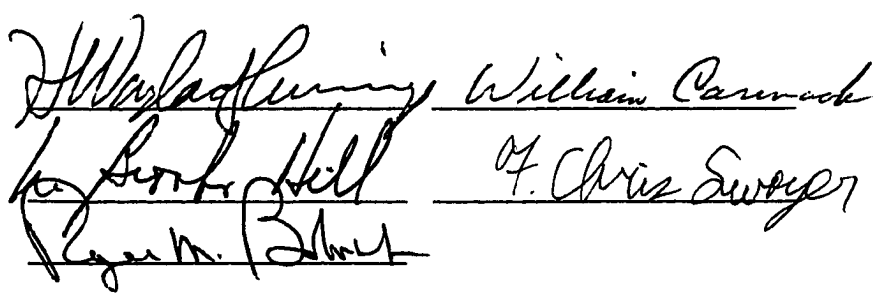

ABSTRACT

Intercultural communication is seen by Native Americans as a means of acculturation, and universities are viewed as distinctly non-Indian institutions. Thus, because the educational process is predicated on effective communication American Indian students have come to see the educational atmosphere as one in which "Indianness" is lost. Thus, Native Americans appear to adopt a communication strategy of interactional avoidance which they believe will allow them to maintain cultural standing while remaining in the educational context. Unfortunately, this strategy has led to significant dropout rates among male Indian students. An exploratory study was conducted in order to better understand the dimensions and process of this strategy. Two specific research questions guided the study: first, how do Native American college students differ in their patterns of communication from Anglo-Americans? Second, how do Native Americans and Anglo-Americans adapt or fail to adapt to each other's patterns of communication behavior when placed in an intercultural interface situation? Conversational data was gathered from five five member problem solving groups containing from zero to five Native American males. The other participants were Anglo-American males. The resulting data was segmented into time units and submitted to an interaction analysis that focused on information exchange, negotiation, problem solving, and behavior change features of communication. Forty specific variables operationalized these general categories. Multiple discriminant analysis revealed a linear combination of fourteen interaction analysis variables that predicted cultural membership (canonical correlation $r=.96$, $p \geq .0002$). Plots of values of the interaction analysis variables across time indicated that while information exchange activity, remained constant across time negotiation, problem solving, and behavior change categories were inversely related suggesting that the basis for any communication situation must be negotiated before other activities may proceed. This observation is supported by the fact that the groups containing Native Americans required longer periods of time to reach solutions. The study concludes that the patterns of communication for Native Americans and Anglo-Americans is fundamentally different as are their approaches to structuring communication events.

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CHAPTER I

AN EXPLORATORY STUDY OF INTERCULTURAL COMMUNICATION BETWEEN NATIVE AMERICAN AND ANGLO-AMERICAN COLLEGE STUDENTS

Introduction

Intercultural research focusing on Native Americans and non-Indians in the classroom is complex and diverse. Such research takes poor academic performance as a cultural characteristic and seeks correlations with psychological, social, and cultural constructs. This approach yields insight into factors affecting intercultural communication, and it leads to the development of educational and counseling strategies designed to improve academic performance and communication in bi-cultural and multi-cultural settings. As yet, however, researchers have scarcely considered communication interaction as the central focus for study.

The purpose of this study is to determine how Native American and Anglo-American college students differ in their patterns of communication behavior and how these two groups adapt or fail to adapt to each other's behavior when placed in an intercultural communication condition. A review of previous research outlines significant variables related to Native American communication and educational success, but it has not specifically considered communication interaction as a means of describing the composition and patterning of behaviors as they may be related to education. This study proposes a descriptive analysis of

the communication interaction between Indian and non-Indian college students in an educational environment. Section one of this chapter identifies three approaches to education and inter-cultural communication. Section two advances two research questions for study.

Perspectives on Educational Performance And Intercultural Communication

The situation at the University of Oklahoma and other institutions with significant Indian enrollments demonstrates the challenge facing educators and the need for intercultural communication research. Despite the time and effort of many educators, the general experience of Native American students has been negative. A survey conducted at the University of Oklahoma (Carney, 1978, 1979) revealed a combined dropout rate for Indian men and women of 63 percent. The attrition rate for Indian women alone is 78 percent. The survey also reports lower grade point averages for Native Americans than for their non-Indian counter- parts; thirty-seven percent accumulated a grade point average of less than 2.0 on a 4.0 scale. The situation is not limited to any particular institution, age, sex, or tribe. On a nationwide basis Harris (1976) estimates that the college dropout rate may be as high as 75 percent. Kleinfield and Kohout (1974) note similar findings.

Three very general explanations for this phenomenon exist. One blames the environment created by educational institutions, and the second argues that culturally based differences between Indians and non-Indians are responsible. The third suggests that it is the conflict between cultures which accounts for educational failure. All

three highlight the issues and constructs important to a proper understanding of intercultural communication in educational settings.

The Institutional Deficiency Model

Critics of educational institutions emphasize that classroom requirements, dormitory facilities, and class offerings are diametrically opposed to Indian cultural needs and values. Indian students who attend colleges and universities are confronted with an environment that is bewildering and frustrating. The gulf between the expectations of the educational environment and those of the student's tribe seems insurmountable, thus creating an unbearable atmosphere which leads to classroom failure. Recommendations vary including demands for more and better Native American studies programs and serious challenges to the utility of Anglo education for students of Indian descent.

Harris' (1976) critique of educational institutions argues that traditional approaches have never come to grips with the individual and cultural needs of Indian students. La Fromboise, Dauphinais, and Rowe (1978) argue that traditional educational settings fail because they "perpetuate racism and allow myths to go unchallenged" (p. 1). Bodner (1971) argues that educational institutions must be modified so that they better reflect the Indian value system. Forbes (1970 suggests that mainstreaming Indian students rarely works and that independent Native American studies programs afford one means of coping with the educational situation. Harris (1976) responds by suggesting that teachers at all levels be retrained and that a complete separation of Indian and non-Indian students may be desirable.

Carroll (1978) argues that an educational "anomie" may explain

the current situation. He suggests that the pattern of Indian eductional behavior is one of marginality. The subjects in his study appeared to operate in a limbo between Indian and non-Indian culture. Carroll notes that even better students exhibited excessive drinking and apparently felt obligated to prove their Indianness by not achieving too much in the classroom. Carroll concludes that the cultural conflict inherent in non-Indian educational institutions facilitates anomic feelings and behaviors which lead to poor performance and high dropout rates.

Bryde (1969) and Bayne and Bayne (1969) question the value of confronting Indian students with a non-Indian world in the educational setting. They note that institutions which do so create a cultural conflict among students. They hypothesize that facilitating educational success among Indian students may require a fundamental reordering of our thinking about intercultural communication and education.

The Cultural Deficiency Perspective

The second perspective presumes that educational institutions are sound. This position advances the hypothesis that Indian students lack certain traits, skills, dispositions, or attitudes which are required for success. These cultural differences presumably destine some Indian students to failure.

Query, Query, and Singh (1975) focus on motivation as one means of explaining educational performance. In prefacing their study they assert, "One of the more vital questions of social concern in our society today is whether members of sub-cultural and/or racial groups

are motivated to the same extent for success as others" (p. 255). They conclude that Caucasians tend to show a higher need for achievement and a higher need for affiliation than do Indian students. They speculate that these differences are cultural in nature and that they affect educational performance.

Other researchers report similar findings. For example, Church (1977, 1976) demonstrates that White high school students score higher than their Navajo classmates on academic achievement tests, intelligence measures, and measures of occupational planning. Chadwick, Behr, and Strauss (1977) report that differences in self-concept and achievement motivation are significantly related to academic performance. Lael (1976) suggests that cultural differences affect the strength of the tendency to view achievement as occuring within a specific time frame; thus, Indian attitudes toward achievement differ from that of Caucasians. Conway's (1977) study of five and six-year-old Indian children demonstrates similar differences in achievement. Talley (1976) reports similar findings.

Other studies examine the interrelationship of culture and educational failure by measuring various psychological or mental constructs. For example, Middleton's (1977) analysis of mental profiles across cultures reveals that American Indian children show significant variations from Black and Caucasian children of similar age and socioeconomic status. Gransberg (1976) considers differences in delay of gratification between Cree Indian and Euro-Canadian boys aged 8-11. His work suggests that Euro-Canadians are able to delay gratification longer than Cree subjects. In addition, Gransberg points to a signifi-

cant relation between delay of gratification and abstract ability as another indication of cultural diversity.

A study by Ecohawk and Parsons (1977) examines the relationship between locus of control and maladjustive behavior in educational settings. Their investigation focuses on sixth, seventh, and eighth grade subjects attending Bureau of Indian Affairs boarding schools in Oklahoma. In selecting locus of control as the dependent variable the authors note that culturally disadvantaged groups frequently score higher in external locus of control than do culturally advantaged individuals. They also suggest that high external dependence is related to maladjustive behavior. The study found that mean scores for Indians were higher than Caucasians. However, no statistically significant relation between locus of control and behavior was established. Tyler and Holsinger (1975) report similar findings.

Grinstaff, Calloway, and Nixon (1973) examine racial and cultural identification among Indian children aged 3-7. The authors argue that culture affects the development of self-image and ego structure, and that Indian people must come to view themselves in a more positive manner if they are to be successful in intercultural settings. Withycombe (1973) demonstrates differential correlations between self-concept, social status, and perceived social status among Indian and non-Indian students. The author suggests that these results may indicate differences in how peer acceptance is viewed by cultures. Indian subjects seem to respond negatively to their Native American identity, and they prefer identification with Caucasians. The authors suggest that lower levels of positive self-identification among Indians may

prevent effective interaction with the dominant culture.

Mason's (1969) study of junior high school students demonstrates differences in perceived self-worth between Indians and non-Indians. Martin (1978), in a study of 22 public school systems in Oklahoma, reports differences in developmental levels of self-esteem. Senior's (1974) application of the self-concept construct to a sample of public school students indicates that scores for Native Americans tend to be lower than norms established in non-Indian populations. Senior speculates that low self-concept is related to poor school performance, and that the observed differences are cultural.

Collectively, these two research models place the responsibility for poor academic performance with institutional and cultural characteristics. Both perspectives provide considerable insight into the difficulties associated with educating Indian students; however, neither completely conceptualizes the difficulties.

The Cultural Interface Hypothesis

Almost anyone who has taught Native Americans or who has had occasion to interact with those who do will agree that Indian students exhibit precisely the kinds of behaviors, traits, dispositions, etc., described in the literature. However, assessments focusing on either the institution or the student's culture are overly simplistic. A third alternative is that all participants and environments influence and are influenced by each other and contribute variously to the problem.

Lujan, Kennan, Hill, and Long (1979), Kennan, Cummings, and Lujan (1980), and Kennan, Lujan, and Dobkins (1981) build on the notion

of cultural conflict advanced by Bryde (1969), Bayne and Bayne (1969), Dumont (1972), and Philips (1972). They argue that neither the institutional or person deficiency perspectives offer adequate explanations. They suggest that contradictions exist which can not be fully explained by either. The difficulty lies in the fact that research results produced from these perspectives are contradictory in puzzling ways. For example, although grade point averages are low and dropout rates high, mean ACT scores do not exhibit the kind of variation (when compared to non-Indian populations) required to predict the high degree of educational failure experienced by Indians (Carney, 1979, 1978). In addition, Lujan, et. al., compared PRCA scores (McCroskey, 1977, 1970)[1] and classroom behavior[2] and found that although students exhibited many of the behavioral characteristics of communication apprehension the PRCA instrument did not reveal scores significantly different from previously established norms.

These findings suggest that Native American behaviors may represent an intercultural communication strategy devised as a response to the environment rather than serving as an indication of communication apprehension. Carroll (1978) makes a key observation by noting that even presumably good students may exhibit disruptive

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[1]Communication apprehension is a psychological construct which refers to an "anxiety syndrome associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 28). McCrosky's twenty item instrument was employed in this investigation.

[2]This study identified five Native American behavior categories which are characteristic of communication apprehension: complete physical withdrawal from the learning environment, non-participation in classroom discussions, refusal to respond to direct questions, time spent communicating, and eye contact.

behaviors and may seek to achieve at a reduced level in order to maintain their Indianness. Lujan, et. al., and Carroll raise the possibility that educational failure may be due only in part to the institution and cultural differences, and that the communication interaction between members of Indian and non-Indian cultures and the meanings drawn from such situations lead to the behaviors observed in the literature.

In offering this tentative hypothesis, Lujan, et. al., argue that two key points must be kept in mind. First, the educational environment is one in which assimilation occurs; that is, where Indian students learn non-Indian culture. Second, college students and Native Americans in particular are seeking a sense of self-identity. For Indian students, however, personal identity is drawn from outside the university environment.

Indian students, thus, must deal with serious conflicts between their quest for self-identity and education. The institution is dis tinctly non-Indian while the orientation of the student is tribal. This conflict creates a dilemma for the student: Active participation implies assimilation into non-Indian culture, but to become non-Indian is to alienate those who define Indianness. However, non-participation leads to educational failure, and thus a paradox for Indians in cultural interface situations.

The conflict between education and Indianness results in a particular communication response. Lujan, et. al., describe this response as a strategy of interactional avoidance. Its purpose is to maintain a balance between education and Indianness. By avoiding interaction, Indian students assume that they are thwarting

protecting their Indianness. If the strategy functions well, this dilemma need not be directly confronted. Unfortunately, in a significant number of cases this strategy leads to educational failure.

Current research interpreted along these lines suggests that there exists a complex repertoire of communication behaviors collectively serving as an intercultural communication strategy. A communication perspective which illuminates the functioning of communication in the educational environment may clarify the notion of a strategy of interactional avoidance and may help to integrate the institutional and person deficiency models into a more comprehensive explanation.

This section has identified three perspectives on Native American students, their communication, and their educational experience. It concludes that the behavior observed in educational settings results from the meanings derived by individual communicators rather than solely from any shortcomings inherent in the culture of students or in the educational institution. The next section identifies two research questions.

Research Focus and Questions

This study proposes to consider the communication interaction between American Indian and Anglo-American college students. Specifically, it will focus on the patterns of communication employed by Native Americans and how they differ from those of Anglo-Americans.

Carroll (1978) and Lujan, et. al., (1979) identify some useful features of Native American communication behaviors. These studies are, however, only preliminary in nature. Although they offer useful

insight, neither directly analyzes communication and neither specifically addresses the issues discussed above.

Although researchers have yet to explore communication analysis as a means of discovering the basis for educational failure among Native Americans two general research questions can be derived:

1. How do Native American college students differ in their patterns of communication behavior from Anglo-Americans?

2. How do Native Americans and Anglo-Americans adapt or fail to adapt to each other's patterns of communication behavior when placed in an intercultural interface situation?

Answers to these research questions require careful observation and description of the situations which ought to show such differences. They are intended to reflect a concern for communication as a means of assigning meaning to events and objects, and they also recognize that through communication individuals develop patterns of behavior based on those meanings. These questions are designed to produce answers which shed light on how meanings and patterns of behavior evolve through intercultural communication.

Summary

This chapter outlined three perspectives taken by researchers to explain the high degree of failure among American Indian college students. The third perspective argues that high dropout rates are related to the conflict which exists between the cultural assimilation implied by education, and the need to retain a self-identity rooted in the tribe. Further, this chapter suggested that such conflict results in a communication strategy of interactional avoidance through which Indian students attempt to remain in the educational environment while

maintaining their Indianness. The final section advanced two exploratory research questions.

Placing those research issues in the larger context of intercultural communication research is important. The recent increased efforts in communication study justify the need for a careful rationale founded on the significance of culture to the understanding of the communication act. As Saral (1977) points out, "How one defines and conceptualizes intercultural communication has a great bearing on how he approaches research in the area" (p. 393). Fundamental, therefore, is an elaboration of the theory and significance of intercultural communication study; the next chapter provides this framework.

CHAPTER II

A THEORETIC RATIONALE FOR INTERCULTURAL COMMUNICATION STUDY

One of the most difficult problems confronting intercultural communication research is the confusing relationship between communication, culture, and the process of intercultural communication. The current conceptual needs of this area are formidable. Although several scholars have attempted to conceptualize it (Casmir, 1973; Condon and Yousef, 1975; Condon, 1973a, 1973b), researchers continue to choose among these perspectives and a variety of others. Because they have yet to establish generally accepted purposes or goals for the area, any research project must establish its own boundaries and direction, so that it does not proceed without focus and so that others of similar interests may maximize its use (Saral, 1977).

This chapter advances a conceptual framework for intercultural communication study. The framework will provide direction for this study and other similar research efforts by establishing purposes and goals. This chapter is divided into three sections: The first advances a definition of culture relevant for intercultural communication study, section two builds on section one to define communication and intercultural communication, and section three suggests two foci for intercultural communication research.

The Culture Concept

Intercultural communication is a complex phenomenon. Its definition hinges on how culture is characterized and how it is related to the broader issues of human communication study. This section advances a definition of culture and defines its interrelationship with human communication.

Culture Defined

Most definitions of culture date from Tylor's (1871) conceptualization. According to Tylor culture is the "complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habitsacquired by man as a member of society" (p.1). Theorists generally accept this guidepost as a useful starting point and concentrate on various facets of culture through a number of methods, theories, and perspectives.

This diversity has led several scholars to attempt a synthesis of definitions of culture into broad thematic categories. For example, Krober and Kluchkohn's (1952) effort resulted in fourteen definitional categories. Other scholars (Cafagna, 1960; Singer, 1968; Boon, 1973; Vermeersch, 1977) suggest varied yet similar conceptual schemes.

Singer's analysis is particularly interesting. It owes much to the previous work of Kroeber and Kluckhohn. It identifies two major organizing perspectives that represent the two major rival theories (pattern theory and structuralism) of anthropology. Pattern theory, according to Singer, is an attempt to study culture comparatively or historically. The pattern theorist attempts to discover cultural patterns,

to compare and classify them and to distinguish fundamental patterns from secondary ones. The notion of pattern is broadly conceived. The phenomena analyzed include kinship systems, religion, legal systems, philosophies, language, and marriage. In contrast, social structure theorists (Radcliffe-Brown, 1952) are concerned with networks of social classes, and social relations, including persistent social groups, social classes, and social roles. The social structure theorist seeks to classify different types of social structure and to determine how they function.

Although these perspectives identify important issues and suggest useful directions, in practice, any definition is likely to violate these conceptual boundaries. The definition offered in this study draws from both perspectives to advance a position particularly relevant for intercultural communication study. For the purpose of this study, culture can be defined as, "...the patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiments in artifacts." (Kroeber and Kluckhohn, 1952,p. 181). This definition argues with pattern theorists that culture consists of organized patterns of regularly occuring activity which may be reflected as artifact. The specific application of this definition, however, departs in several ways from the original position taken by Kroeber and Kluckhohn. The following four assumptions clarify this definition.

First, culture is often manifested as artifact, but it is fundamentally rooted in the knowledge that is shared symbolically among cultural members. Goodenough (1964a, 1964b, 1956), Schwartz (1978), and

Wallace (1968) argue that culture is an entirely cognitive phenomenon; that it consists of knowing how to successfully perform certain activities. As Goodenough (1964b) notes, "culture does not consist of things, people, behavior, or emotions. . . .It is the form of things that people have in their mind, their models for perceiving, relating, and otherwise interpreting them" (p. 36). Culture is rooted cognitively, but is also manifested as patterns of activity. What can be observed artifactually as culture represents the application of knowledge on the part of individuals or collectivities.

Second, culture is created by individuals or groups who actively define and transmit reality, solve problems, resolve controversies, and modify the behavior of others through some symbol system (Cummings, Long, and Lewis, 1981). Boas (1955) notes that culture is present in persons shaping their perceptions of events, other persons, and the situation in ways not wholly determined by biology and environment. Individuals are active participants in the creation of culture rather than passive learners of it (Ong, 1973, 1967, 1962), whose activities are accomplished through the use of symbols.

Third, patterns exist at several levels. Patterns occur at such macroscopic levels as nations, religions, and legal systems as well as at more microscopic levels such as phonology, syntax, semantics, and grammar. Thus, symbolic activity can also be expected to exhibit patterns. In one respect individual symbols may be organized taxonomically; for example, kinship and food terminology exhibit organized relations within those classes of terms. Accordingly, strings of symbols are organized, transmitted, and adjusted in ways that are

patterned. Thus, various patterns emerge within a culture, they operate at various levels, they endure for various periods of time, and they may be consciously or unconsciously maintained. Ultimately, however, patterns are rooted in the knowledge available to cultural members.

Dimensions of Culture

The definition of culture proposed here can be further refined by identifying five dimensions (Bernardi, 1975; Hill, 1978). Each dimension represents a significant component of culture. The five dimensions are physicality, personality, sociality, politicality, and symbolicity (Hill, 1978). Each of these dimensions represents cultural patterning. In addition, these categories are not discrete; each is influenced by and influences all others, thus constituting a kind of cultural system (Parsons, 1965).

Physicality points to the significant relationship between biologic, neurologic, and genetic factors, on the one hand, and culture on the other. Humans are endowed with sensory and gestalt (cognitive) systems which receive and process information from the external environment. Accordingly, humans exhibit symbolic mechanisms--verbal and non-verbal--which produce unique ways of defining reality, solving problems, resolving conflicts, and influencing behavior. The physical system influences the evolution of large cultural patterns and in doing so affects the potential for cultural development.

More specifically, physicality suggests that in addition to the basic physical characteristics shared at the most general level of nomenclature (hominid), there are also differences in physicality at more refined levels (species). Such genetically based differences

produce various characteristics, patterns of behavior, and, presumably, communication varieties. For example, Kuttner (1967) discusses a number of bio-chemical differences that characterize the human species (see, also, Roberts, 1973; Crawford, 1973; Livingston, 1973). At more observable levels, Fisher (1952) and Baker (1973) argue that base genetic differences most likely affect such observables as personality and behavior. Lenneberg (1964, 1967) holds a similar position.

Personality is the "dynamic organization within the individual of those psychological systems that determines his unique adjustments to his environment" (Allport, 1937, p. 48). This definition emphasizes that personality includes the organization of a set of characteristics and their interaction with an active and aware "self" (Hall and Lindzey, 1970).

Four assumptions clarify this definition. First, this definition considers man and personality holistically. Personality characteristics (traits or dispositions) exist as an integrated system of components (Parsons and Shils, 1951) that organizes and influences behavior. Second, this definition suggests that personality is dynamic, that is, constantly changing, although certain components are relatively stable. Third, personality is neither exclusively neural or exclusivly mental. Both elements exhibit ordered structures and both contribute variously to behavior. Finally, personality is a product of an active and aware "self." Individuals act and react as beings aware of and sensitive to their surroundings, rather than as entities motivated soley by the organization of traits and dispositions. The systematic organization of personality components is a significant aspect of personality, but that

significance is mediated by the presence of the "self."

Sociality refers to a group of human beings "sharing a self-sufficient system of action which is capable of existing longer than the life span of an individual" (Aberle, 1950, p. 101). Sociality refers to the tendency of individuals to organize themselves in ways designed to provide for sexual reproduction, adequate relationships with the environment, role differentiation and assignment of members to roles, communication, shared definitions of the world and of the goals of society, normative regulation of means and of emotional expression, socialization, and the control of disruptive behavior (Aberle, 1950).

The tendency to organize is reflected in social institutions which act as regulative mechanisms (Eisenstadt, 1968). Institutions exhibit three characteristics: They regulate individual behavior, they do so in accordance with some established, continuous, and organized guidelines, and the modes of regulation take the form of norms which are enforced by accepted sanctions. Thus, sociality represents the tendency toward the organization of individuals to meet internal and external contingencies.

Politicality refers to "that behavior or set of interactions through which authoritative allocations (or binding decisions) are made and implemented" (Easton, 1968, p. 282). Politics can be defined in several ways, for example, by emphasizing power (Classen, 1979), decision-making, or personality (Verba, 1965). Easton's (1953, 1965a, 1965b) definition integrates these perspectives by subordinating them to a broader conceptual scheme. Easton's definition focuses on the patterns of action which allocate scarce resources. In a broader sense

this definition recognizes that politicality represents the general tendency of all societies to develop strategies for making allocations (Leites, 1951, 1953; Pye, 1973; Balandier, 1970).

Differences in opinion and conflicts over those things in scarce supply are inevitable. In many cases societies are capable of resolving these differences without the intervention of any special agency. However, in all societies there are those things which cannot be easily allocated. In those cases special institutions or processes emerge as mechanisms for settlement.

Allocations are made so that purposive action in the society may occur. This activity involves more than just the maintenance of order. What emerges and thus characterizes politics is regular and stable methods for allocating resources. This implies both the evolution of structural methods for making allocations and a guarantee of some sort that the allocations will be accepted as authoritative.

Symbolicity refers to the tendency of humans to make sense of and to order their experiences through the use of symbols. Such writers as Whorf (1956), Sapir (1912), Bernstein (1964), Labov (1972), etc., recognize a twofold impact of symbolic action on culture. First, the ability to symbolize allows individuals and groups to make sense of objects and events and to order them in some meaningful fashion. Second, symbolic activity allows adjustments in previously derived meanings and organizations of meanings in order to take account of developments in environment, culture, social institutions, etc. Symbolicity, thus, is central for the establishment of meaning, the maintenance or modification of it, and its "transmission" metaphorically

speaking, to others.

Meaning is a central aspect of any statement regarding culture and symbolic activity. A widely used concept, (Kretzman, 1967), it always requires qualification. Meaning refers to the ability of individuals to symbolically attach significance to those things encountered. By attaching significance individuals come to see that certain assignments are more functional than others. Meanings are based on previous experience and current situational demands. Accordingly, individuals and groups come to hold some meanings in common through the exchange and evaluation of meanings. Ultimately, meaning becomes a culture's knowledge about things and events and the ability of individuals to operate successfully in the culture.

The precise means through which symbols acquire meaning are variously explained (Alston, 1964, 1967; Sternberg and Jakobovits, 1971). A specific discussion of these processes is beyond the scope of this study; however, it is relevant to emphasize that meaning involves individual assignations mediated by group interaction, that meanings are exchanged verbally and non-verbally as symbols, and that meaning -- conceived as cultural knowledge--affects the actions of individuals and collectivities. Thus, significant contributions to culture are made though symbolic activity.

These dimensions of culture are analytic. They attempt to demonstrate some conceptual aspects of culture. These dimensions are not intended as theoretic constructs for the analysis of culture. Rather, they highlight the complexity of culture and the several ways in which culture impacts on communication.

Intercultural Communication Defined

The definition of culture proposed above points to the integral relation between culture and symbolic activity. In doing so it suggests useful definitions of communication and intercultural communication.

The central position afforded symbolic activity by Krober and Kluckhohn, Goodenough, Laine (1973), and Deutsch (1966) suggests that culture is in part the result of symbolic patterns achieved by individuals or collectivities. Communication can be integrated into this perspective by recognizing that it involves the creation of verbal and non-verbal symbols, their exchange between participants, and the adjustments made in relation to them (Dance and Larson, 1976). Thus, the study of communication can be seen as an analysis of one of the fundamental components of culture.

Conceived in this manner communication study offers perspectives which are useful for the analysis of culture and symbolic activity. However, an additional refinement is necessary in order to properly identify intercultural communication. A definition of intercultural communication must not only recognize the symbiotic relationship between culture and communication, but it must also acknowledge the symbolic processes which occur between individuals representing divergent cultures in intercultural interface situations. This additional consideration shifts the emphasis from the relation between culture and communication to a focus on how symbols are used by individuals confronted with the opportunity or necessity of symbolically interacting with culturally diverse individuals or groups.

These issues lead to the following definition. Intercultural

communication represents the processes whereby participants from divergent cultures symbolically negotiate functional understandings of their interactive settings. This definition requires clarification both in regard to some of the terms employed and in relation to its assumptions and implications.

The phrase "negotiation of functional understandings" suggests that communicators establish information about correct modes of behavior through a variety of communication techniques. That is, based on what individuals understand to be acceptable or "functional" intracultural behavior they seek to negotiate some basis on which symbols may be satisfactorily transmitted and interpreted. Individuals who attempt to communicate interculturally do more than resort exclusively to knowledge applicable in their own culture. They also seek to a greater or lesser extent to establish knowledge about how communication should proceed.

This definition recognizes that communication is affected by context and that in part the symbolic exchange between participants defines it. Situations reflect the combination of elements, implicit or explicit, at a given moment which contribute to the assignation of meaning by participants. Situations are accomplished through the creation, negotiation, and functional application of meanings. The process of deriving knowledge about the situation allows participants to actively make sense of the actions representative of culturally distinctive individuals. Thus, communication between individuals of diverse cultures is situational. Lenard and Bernstein (1969) note that "a social context could be defined as consisting of configurations and sequences of interaction obtaining in a social system" (p. 20). The negotiation of how

situations ought to proceed creates individual understanding of them.

Intercultural communication takes as its purpose a consideration of the mutually negotiated meanings produced through communication interaction and among participants of differing cultures. This definition suggests that through communication meanings are produced which may not be reflections of any particular cultural perspective, but rather are the results of intercultural interaction. This definition suggests that the particular mix of cultures involved produces unique meanings which are not necessarily generalizable to other situations involving mixes of still other cultures. Thus, because cultures differ the functional understandings extracted by participants are also likely to differ.

Foci for Intercultural Communication Research

The first two sections of this paper have established conceptual boundaries for intercultural communication study. This section draws upon that discussion to establish research purposes and goals.

Hill and Kennan (1979) note that intercultural communication study "seeks to discover the antecedent constraints understood by the participants to circumscribe their situation, discover the patterns employed to facilitate the interaction, and discover the means by which the participants adapt the patterns to negotiate their understanding of the situation and subsequent behavior" (p. 3). This definition suggests two research foci for intercultural communication study.

Reciprocity of Communication and Culture

The first focus for intercultural communication research is an examination of the reciprocal relation between communication and

culture.

Although intercultural communication involves the negotiation of functional understandings one must remember that attempts to communicate begin exclusively with the application of cultural knowledge familiar to the participants. Only when participants recognize the inapplicability of cultural knowledge does negotiation begin. An analysis of the final product of communication may be of questionable importance unless it is accompanied by an understanding of the knowledge which is applied to a situation. Intercultural communication study focuses on the processes whereby understanding is negotiated. Without a proper understanding of the basis for communication the negotiation process may not be clearly understood.

The student of interpersonal communication, for example, may assume that participants operate from a fairly common store of knowledge. At least the commonality of that knowledge is not normally judged to be problematic. Unfortunately, the student of intercultural communication can not make that assumption. When the presumption of common understandings can not be made, communicators begin by applying functional understandings which are employed in their own culture or those employed in prior situations which appear to be similar or relevant in some way. Focus one represents an activity akin to interpersonal communication study because the researcher is seeking basic knowledge about communication processes, but with the added influence of culture. Cross-cultural psychologists (Berry, 1980) have for sometime pursued some of these concerns although their interests have focused primarily on personality and its influence on a variety of behavior

categories including, but not limited to, verbal and non-verbal actions. Focus one suggests that the study of cultural approaches to communication is a relevant and necessary aspect of intercultural communication study. Cultural diversity adds a confusing dimension for analysis, but it is one which can not be easily ignored.

Intercultural Negotiation of Situations

The second focus for intercultural communication is a consideration of the particular situations negotiated by individuals or groups communicating interculturally. The transmission of and adjustment to symbols produces functional understandings that are unique attempts to communicate effectively and to respond satisfactorily to cultural diversity. Those understandings are implicitly and explicitly expressed, they are accurate to greater or lesser degrees, and they are continually renegotiated as communication proceeds. Focus two argues that something more than the goodness-of-fit between cultures and communication is involved. That is, the negotiated understandings and their potential influence on future communication become central issues.

Focus two can be clarified through an example provided by episodic research (Hare and Secord, 1973; Pearce, 1976; Pearce and Conklin, 1979; Cronen, Pearce, and Harris, 1979). An episode is "any sequence of happenings in which humans engage which has some principle of unity" (Hare and Secord, 1973, p. 145). To view communication as episodic is to recognize that individuals make their experiences meaningful. Episodes include events as common as the emergence of a

leader, the formation of a group, a speech, a play, a conversation, etc. A description of an episode involves the discovery of the ways in which participants assign functional meanings. Intercultural communication, as its second focus, considers the episodes negotiated by culturally diverse participants.

Pearce's (1976) three-episode schema extends this discussion. Episodes^1 consist of patterns of meaning which are culturally sanctioned and which exist independently of an individual or group. Episodes^1, for example, include social and political understandings, social norms, conventions, etc. Episodes^1 represent particular aspects of culture. Episodes^2 integrate aspects of Episodes^1 with individual interpretation. Individuals combine aspects of culture with application to particular situations to generate a basis for individual actions. Finally, Episodes^3 are interpretations (from the perspective of Episodes^1 and Episodes^2) of acts which are observed or those in which an individual participates. Episodes^3 are products of communication among participants and represent the processes whereby functional understandings are produced.

The notion of communication as being episodic helps to place focus one and two into perspective. Focus one considers the presuppositions available to participants. Focus two assumes focus one as the foundation for intercultural communication and then considers how Episodes^3 are negotiated.

Intercultural communication, then, involves the interaction between culturally rooted Episodes^1 and Episodes^2. Thus, to the extent that the Episodes^1 and Episodes^2 of culturally diverse

individuals are compatible, Episodes^{3} will progress smoothly. To put it differently, to the extent that the culture and communication of culturally diverse individuals mesh, less negotiation will be required and communication will proceed smoothly. In considering intracultural communication Pearce notes, "To the extent that a person's Episodes^{2} resembles a society's Episodes^{1} the person will be able to converse easily" (p. 22). Accordingly, to the extent that Episodes^{1} and Episodes^{2} are compatible in an intercultural context communication will proceed smoothly.

By approaching intercultural communication in this manner patterns of communication may be studied in two ways. First, the symbolic activity, based on cultural knowledge, becomes problematic; second, the patterning of communication which occurs in intercultural interface situations also becomes of interest. Thus, if culture is patterning, and if one significant feature of culture is symbolic activity, then intercultural communication research becomes the study of symbolic patterns, established within cultures, and as they are used by representatives of once culture to interact with persons from a different culture.

Summary

This chapter offered a conceptual framework for the study of intercultural communication. It defined culture as patterns of activity, and it identified symbolicity as a significant feature of culture. Communication was defined as consisting of the exchange and adjustment to symbols, and intercultural communication as the negotiation of functional understandings. Finally, this chapter argued for two research

foci. First, that the relation between culture and communication requires exploration, and second, that researchers must also consider the functional understandings negotiated in intercultural contexts. Chapter III advances a methodological perspective for this study.

CHAPTER III

METHODOLOGICAL CONSIDERATIONS

The purpose of this chapter is to select a methodology compatible with the research questions and theoretic rationale discussed above. Several methodologies are available for the study of intercultural phenomena (Jahoda, 1980; Berry, 1980; Brislin, Lonner, and Thorndike, 1973). The difficulty lies in selecting an approach which is well suited to the issues raised in this study and which provides a refined descriptive analysis, the results of which are of theoretic interest. In the development of any theoretic perspective, there is a time for description, a time for careful observation, and a time for rigorous hypothesis testing and assessment of generalizability. The development of the perspective for this study is based on the need, at this time, for careful observation. Such an activity is necessary before hypothesis testing and generalizations can be attempted. These latter concerns are reserved for subsequent research.

This chapter proceeds in the following manner: Section one identifies the methodological requirements for this study, section two discusses four potential methodological alternatives, and section three selects and describes the method chosen for this study.

Methodological Criteria

The selection of a method for this study involves a consideration of the requirements imposed by the research questions and the

theoretic perspective which provides the fremework for inquiry. In this case the method must initially produce a careful description of communication interaction, the results of which are either theoretically significant in their own right or which indicate areas for future, more rigorous investigation. In addition to these general considerations, three specific criteria are relevant.

First, this study requires a method that focuses on symbols. Symbolic activity, as Kroeber and Kluckhohn (1952) note, is a distinctive aspect of culture. Consequently, it is central to definitions of communication and intercultural communication. Because this study proposes an analysis of communication the methodology must draw its categories and procedures from symbolic activity rather than from constructs or processes which are peripheral to it.

Second, the method must be capable of considering symbolic exchange. Symbolic analysis need not consider how individual symbols "mean" or how they are strung together to form meaningful utterances, but it must observe their use in interface situations. The emphasis should be placed on how individuals exchange and adjust to symbolic activity, rather than on individual symbolic units.

Third, this study requires a method which is capable of analyzing symbolic interaction across time. The negotiation of functional understandings continues as long as symbols are exchanged. The method chosen for this study must reflect the ebb and flow of this process if it is to reveal the functional understandings negotiated by communicators. This criterion entails something quite different from the analysis of a text for the presence or absence of some variable. This

criterion argues for a diachronic analysis in which meanings are established through the process of interaction rather than as the result of previously established understandings.

These criteria suggest that the analytic procedures chosen for this study must be especially sensitive to the processes whereby individuals negotiate functional understandings of their interactive situation. The method must emphasize the process of symbolizing rather than merely its synchronic features.

Alternative Methodologies

Although numerous methodologies and analytic systems present themselves, four very general approaches are relevant to this study. The four are rules analysis, interaction analysis, semantic analysis, and analysis of traits or dispositions. Each perspective will be described and analyzed according to the criteria discussed in the previous section.

Rules Analysis

A rules perspective attempts to analyze human symbolic activity by deriving a set of statements to which individuals might be said to refer in selecting certain actions (Hare and Secord, 1973; Cushman, 1977; Sanders and Martin, 1975). Rules theorists attempt to discover the basis for human actions by looking for a refined set of statements which, if acted upon, would allow the individual to behave in the observed manner. It rests on the assumption that human behavior is best understood as "grammatical" or "non-grammatical" expressions of those rules.

A rules perspective focuses directly on symbolic activity, and it considers rules as products of the interaction between communicators. However, a rules analysis generally considers generated during a rather limited time period assuming that the observed rules were established somewhere in the past and will continue largely unchanged for some time into the future. This perspective is largely synchronic in its outlook, and thus it has difficulty in coping with the constantly changing nature of meanings. The static assumption inherent to a rules analysis is contrary to the views expressed in the previous chapter.

A rules analysis, however, does have an important advantage. It has the potential for an intensive, complex analysis of the data although, unfortunately, procedures and key concepts often vary widely in their level of refinement. Where such issues are carefully explicated, a rules analysis can provide a highly sophisticatd and complex analysis. Under other less rigorous conditions, an analysis of rules tends to yield vague and often anecdotal results.

Interaction Analysis

The second alternative, interaction analysis, focuses on the performance of certain units of behavior to explain human actions. By concentrating on the activities or functions performed by certain behaviors, one may observe the structure and dynamics of communication under various conditions. The behaviors, of course, may be conceived and categorized variously. For example, Bales' (1970, 1950) schema considers behavior related to group-problem solving, Simon and Stedry (1969) have identified behaviors associated with economic activity, and Getzels (1969), Flanders (1970), Stubbs and Delamont (1976), and Simon and Boyer

(1970) have all focused on educational behavior. Lewis, Cummings, and Long (1979) consider what they call communication behaviors.

Interaction analysis is well-suited to the research questions and theoretic perspective presented in this study. Given the proper set of categories, interaction analysis can illuminate the significant aspects of symbolic activity. This approach examines both the interactions between communicators and the dynamics of those transactions across time; that is, it is both diachronic and synchronic in strategy for theory development.

Interaction analysis has an additional advantage. Its results may be quantified and their reliability and validity determined. Unlike other descriptive techniques whose products are difficult to objectify interaction analysis generates careful descriptive results that can be correlated or compared with other social, psychological, and social-psychological constructs and processes.

This approach, however, shares one potential weakness with an analysis of rules. The rigor with which categories are defined impacts on the precision of results. If the categories are loosely constructed or too broadly conceived, the results may be of little value. This issues involves the goodness-of-fit between categories and data, and the discreteness and clarity of categories with regard to coding decisions.

Semantic Analysis

A third alternative, semantic analysis, is primarily structural in its outlook. It is concerned with how symbolic units acquire meaning and how they are ordered and used with regard to their meaning. As with rules analysis and interaction analysis, there are various perspectives

within this category. For example, componential analysis (Burling, 1970; Goodenough, 1970) seeks to determine categories or classes of meanings by looking for hierarchies of meaning association among classes of symbols. One might, for example, consider kinship terms and seek to determine how they are ordered and consequently how they "mean." There are, of course, other quite diverse approaches to semantic analysis, but they are all concerned with the meanings of symbols and the ordered relationships that exist between them.

A semantic analysis produces a refined and sophisticated study of symbols. One may develop categories and structures of meaning relevant to a particular setting as a descriptive device. However, it is difficult to capture the exchange of symbolic meaning between communicators and the means whereby they are negotiated across time. Semantic analyses tend to see meanings as being fairly stable across time, studying those aspects of meanings which tend to remain constant. Thus, for example, an analysis of kinship terminology reveals the stable features of that category of symbols, but it says little about how that hierarchy was negotiated or how changes in it could be accomplished.

Trait and Disposition Analysis

The fourth alternative is to consider the traits or dispositions which affect human actions. This approach has been applied extensively by cross-cultural psychologists (Berry, 1980), and it has been the primary approach used with regard to Native Americans. An analysis of traits or dispositions seeks to identify relatively stable characteristics that distinguish cultures and which are related to the presence or absence of certain observable behaviors. In the case of Native

Americans researchers have sought to discover the psychological dimensions along which Indian people differ from other cultural groups. Those differences are then employed as a basis for explaining their behavior; for example, academic performance.

This perspective does not focus directly on symbols. Rather, it considers the traits and dispositions which are believed to form the basis for symbolic activity. In addition, this perspective can account for time, but only in terms of the traits or dispositions under consideration. It does, however, have the advantage of easy quantification and statistical analysis. This perspective although advantageous in many respects, is ill-suited to a consideration of the issues most relevant to this study, because it does not directly analyze symbolic usage.

This discussion should make it clear that the methodological criteria discussed in this chapter are problematic. All four perspectives exhibit strengths and weaknesses with regard to these requirements. These particular methods only partially meet the requirements established by the research questions and theoretic perspective. It is the complexity of the phenomenon to be studied, plus the limited scope of the methodologies in general, that necessitates a decision as to which approach is most appropriate. The point is that all four approaches, to greater or lesser degrees, address the issues discussed in this study. The choice is not which perspective meets the criteria, but rather which one most closely meets them.

Finally, it should be noted that these four approaches have been broadly defined and analyzed. The purpose of this discussion is not to

intensively study these perspectives, but to establish some basis for the selection of a particular approach for this study.

The Methodology for Study

Interaction analysis will be employed as the primary methodological framework for this study. It focuses most directly on symbols, symbolic interaction, and time as key elements for study. In addition, the results of this approach can be quantified and compared to other processes and constructs. Each of the other alternatives exhibit particular strengths. For example, symbolic analysis provides a rigorous analysis of symbols, rules analysis is particularly sensitive to symbolic exchange, and the analysis of traits and dispositions has associated with it a highly formalized and easily quantifiable set of procedures and constructs. Interaction analysis is most appropriate because it satisfactorily addresses all these issues, and it dovetails most closely with the research questions and theoretic framework.

Although numerous interaction analysis schemas are available, the Cummings, Long, and Lewis (1981) position will provide the framework for this study. This perspective is particularly relevant, because it draws categories and procedures directly from communication research rather than from disciplines not specifically concerned with communication interaction. The remainder of this chapter describes the central features of this approach. The discussion will also clarify the applicability of the Cummings, et. al., position to the methodological criteria discussed above as well as to the research questions and theoretic framework. The major features of this approach are contained

in four assumptions.

Symbols are Tools

First, Cummings, et. al., define communication as the use of symbols as "tools." The manner in which symbols are employed indicates higher mental processes. Thus, the study of human communication ought to focus on those aspects of symbolic activity which distinguish human symbol using from non-human systems. The features of special interest are the ways in which symbols accomplish particular activities or functions.

Symbols Indicate Psychological and Social Experiences

Second, this position assumes that the ways in which symbols operate provides information about the psychological experience of individuals and social groups. The manipulation of symbols serves to organize significant aspects of personalities, social groups, and organizations. The manner in which such entities use symbols or features of them indicates something about their internal structure and experience.

Symbols Have Four Functions

Third, symbols performs four functions. It functions to: 1) represent and share experience, 2) identify problems and solutions, 3) manage conflicts, and 4) regulate behaviors. Long, Cummings, and Lewis (1979) note that "our acts of communication serve to provide information about what we believe exists, existed at one time or will exist in the future. Listening to someone tells us much about how they structure their world" (p. 8). Thus, symbols function to define our experience and

to transmit our understanding of it to others.

An inevitable aspect of human communication is the need to identify solutions and problems. Symbols allow individuals to problems alone or in groups. Because our experience is often limited or confusing we employ communication to identify our problems, determine their scope, identify criteria for solutions, create and evaluate solutions, and select appropriate solutions.

Communication also functions to negotiate differences. The existence of differences or conflict between individuals or collectivities are inevitable features of human interaction. Discrepant information, definitions of reality, culture, etc., and the difficulties they entail require negotiation. That is, individuals exchange symbols in ways designed to determine the scope of the disagreement or conflict, and establish the basis for resolving or managing it. The ability to manipulate symbols allows individuals or groups to respond to these conditions.

The behavior or experiences of individuals can be changed through symbolic exchange. Of concern here is the persuasion of individuals or groups. Included are strategies for dealing with deviant behavior, coalition formation, isolation, etc. The persuasion process allows groups or individuals to change behavior or experiences through symbolic activity.

These four functions, although they overlap, identify the kinds of symbolic functions that can be accomplished. These functions are relevant for individuals and groups of them in various combinations and conditions.

Symbols are Observable Behavior Patterns

Fourth, these four functions may be directly observed by looking at the specific role behaviors which communicators perform. Roles are simply identifiable symbolic behavior patterns which accomplish some specific activity or function. By observing the symbolic role behavior of individuals one may gain insight into the functional properties of symbols. Cummings, et. al., (1981) identify six categories of communication roles. They are: 1) source-receiver roles, 2) task-socio-emotional roles, 3) information exchange roles, 4) problem-solution-identification roles, 5) negotiation roles, and 6) behavior change roles. These roles are briefly discussed below.

A source role occurs when an individual produces symbols, oral or written and a receiver role occurs when an individual or group receives symbols. A task role occurs when an individual is a source or receiver of symbols, the content of which concerns work. Socio-emotional roles occur when an individual is a source or receiver of symbols, the content of which is about person-related needs. Information sharing roles occur when communicators symbolize their experience for others or consume the symbolized experience of others. Specifically, information is requested or offered--two basic roles in information exchange. Problem solving roles occur when individuals employ symbols to define some difficulty or suggest possible solutions. Negotiation roles occur when communicators select ways of resolving differences or conflict. Behavior change roles occur when individuals use symbols to change the behavior or experience of others.

The specific communication role behaviors can be derived from

these six general categories. Those specific behaviors are identified and defined in Appendix A. Because this particular approach to interaction analysis is rooted in communication research it is most capable of providing a refined focus for the research issues discussed in this study.

Summary

This chapter identified criteria for the selection of a method for this study. It presented four alternatives and analyzed them in terms of those criteria. Finally, it selected the Cummings, et. al., schema as the most appropriate for this investigation. Chapter IV identifies the design and data analysis procedures.

CHAPTER IV

RESEARCH DESIGN AND ANALYSIS

The opening chapter of this study focused on the need to determine how Native American and Anglo-American college students differ in their patterns of communication behavior, and how these two groups adapt or fail to adapt to each other's behavior when placed in an intercultural communication condition. This chapter builds on the previous discussion through the description of an appropriate research design and method for analysis.

Procedure

Participants

Subjects for this study were thirty male college students at the University of Oklahoma and West Texas State University. Group V (see page 44) was composed entirely of students from West Texas State University, and it was the only group involving students from that institution. All were enrolled in the fundamentals course (1113 Principles of Communication and 101 Basic Speech Communication) and each held freshman or sophomore status. All subjects were selected on a voluntary basis.

The results of sociolinguistic research indicate a variety of social influences that are capable of causing varitions in communicative performance. Because of the existence of such factors every attempt was

made to select a subject population that would be homogeneous in its use of symbols.

Consequently, all subjects in this study were male. There is reason to believe that important differences exist between the communication of male and female Native American students (Baird, 1976; Cummings and Renshaw, 1979). The interaction between males and females injects a variable which is difficult to control. Although sex differences may be of interest at a later date, control requirements made it necessary to limit the study to male students.

In addition, all subjects were selected from Southern Plains tribes (Kiowa, Comanche, Arapahoe, etc.), and all Native American subjects were from non-urban communities.

Anglo-American subjects were selected on a voluntary basis from the classes mentioned above. All were freshmen or sophomores, and were from non-urban environments.

Setting

The small group served as the context for study. Educational failure is most often studied in the classroom. However, proponents of the institutional deficiency, person deficiency, and cultural conflict perspectives all agree that the behavior which leads to failure is observable in a variety of situations within the educational institution. Such situations most certainly include, but need not be limited to, the classroom.

The small group, thus, becomes a particularly useful vehicle for the study of intercultural communication of this sort. The small groups employed in this study were easily recognizable as part of the educa-

tional system. In each group the activity and its task were common assignments for the interpersonal communication course. The groups began and ended within the physical environment of the educational institution.

In addition, the educational environment focuses on the special problems outlined in Chapter I. If education can be conceived of as the communication and shaping of values, then it is not difficult to see that education involves an intensified version of intercultural communication problems. A large number of institutions and agencies deal with Native Americans. All attempt to socialize Native Americans at various ages, and in a variety of contexts, and with varying degrees of success. Whenever contact occurs some socialization occurs or is attempted. Thus, the study of intercultural communication in an educational context illuminates the specific problems associated with education, and it also points to broader issues of culture, communication, and intercultural communication.

The composition of the six groups to be analyzed is as follows:

Group I: Five Native Americans.

Group II: Four Native Americans and one Anglo-American.

Group III: Three Native Americans and three Anglo-Americans.

Group IV: Two Native Americans and three Anglo-Americans.

Group V: One Native American and four Anglo-Americans.

Group VI: Five Anglo-Americans.

The selection of these particular groupings allowed a detailed analysis of Native Amereican communication behavior in a number of intercultural

small group contexts. It also allowed a comparison of Indian and Anglo-American behaviors in similar conditions.

Task

Each group was asked to participate in a problem solving discussion. The task was a small group problem-solving exercise frequently employed in the fundamentals course (1113 Principles of Communication) at the University of Oklahoma and at West Texas State University. The group project took the form of a puzzle in which each individual was presented with certain information required to solve the problem. That information was not available to other group members. The nature of the project was such that the correct solution could be determined only through a free exchange of information and ideas (see Appendix B).

This particular task was self-contained and did not require participants to have knowledge of any particular content area. The task armed each participant with information required for the successful completion of the task. It did not require knowledge or information to be drawn from outside the group context. Thus, each group began with a complex task which could only be accomplished within the context of the group and with the cooperation of group members.

The task was pretested on several occasions to insure that it posed no inherent limitations to the behavior of participants; that is, the task was checked to insure that the very nature of the task did not predispose group members to one particular style of activity. Pretested groups exhibited a diversity of behaviors and all role categories (Cummings, Long, and Lewis, 1980) were observed in the pretested groups.

Data Collection

Subjects in all groups were asked to complete the task by working cooperatively and verbally within their group. Each discussion group was video-taped and audio-taped. The use of both video and audio tapes ensured that there would be no gaps in the recorded data due to either human or mechanical error.

Data Classification

The interactive data were coded according to the functional assessment model discussed by Long (1979) and Cummings, Long, and Lewis (1980). The general features of the system were discussed in Chapter III. A copy of the coding instrument is in Appendix C.

The entire discussion for each group was analyzed. Data were classified by two coders working from the video-taped interaction. The coders were graduate teaching assistants. The coders were thoroughly trained before viewing the actual data. Each coder received an instruction packet which described the categories and behaviors which count as examples of them (see Appendix A). Coders discussed their understanding of the category system with the researcher and the other coder (Cartwright, 1953).

During the training sessions, coders were asked to view sample data. Interrater agreement was calculated by correlating the rank (based on the frequency of occurence of each category) ordered categories. Spearman's Rho provided the estimate of coder agreement. Coefficients for the entire study ranged between $r=.80$ and $r=1.00$ ($p \geq .001$).

In order to increase coder agreement and in order to insure that the categories were rigorously analyzed, coders were asked to analyze the data by focusing on only one category of behaviors at a time. For example, coders began by coding information exchange roles, and then they in turn analyzed problem solution-identification roles, conflict management roles, and behavior regulation roles.

Finally, data were coded according to ten equal segments. The selection of these particular time segments was arbitrary, but they were designed to allow an analysis of the interaction across time. No previous research indicates what time segments are appropriate.

Data Analysis

The coded data were transformed into rank order data and were submitted to multiple discriminant analysis along with simple graphing techniques.

Multiple discriminant analysis (Cooley and Lohnes, 1971; Klecka, 1975) is a multivariate technique that allows the user to statistically distinguish between two or more groups. The groups in this study included, for example, culture (Native American or Anglo-American) and group membership (Groups I-VI). Multiple discriminant analysis operates by attempting to linearly combine some set of discriminating variables (in this case the functional communication variables discussed above) so that the groups are as distinct as possible. In other words, multiple discriminant analysis allows the user to distinguish between groups in the sense of being able to tell them apart based on the discriminating variables.

All analyses in this study were conducted in the following in part on an inspection of the data. The selections were designed to produce useful descriptions and to isolate variables and processes for future more systematic study.

The use of multiple discriminant analysis in this study violates two key assumptions regarding the application of this technique. First, the sample size employed in this study is not sufficient to allow generalizations from the results. The general rule of thumb suggests at least ten subjects per discriminating variable; with N=30 that criterion is obviously not met. Second, multiple discriminant analysis assumes that the discriminating variables in this study represent at least interval level data; the discriminating variables were in fact ordinal. These assumptions were consciously violated bacause a descriptive approach was deemed most useful at this time rather than a test of generalizability. Thus, description is possible and the framework for later more exacting research may be established.

Summary

The purpose of this chapter was to detail the various procedures that provided a framework for an exploratory analysis of Native American communication behavior in an intercultural context. The chapter included descriptions of data gathering, classification, and analysis. This chapter established six small group intercultural communication contexts with each group differing according to the number of Native Americans present. That is, Group I consisted of five Native Americans and no Anglo-Americans while Group VI consisted of five Anglo-Americans

and no Native Americans. All other possible combinations were observed in the other four groups. The dependent variable that served as the basis for exploring the six groups was the communication role. Data analysis was accomplished through the use of multiple discriminant analysis (MDA). Chapter V will present the results generated by this design.

CHAPTER V

RESULTS

The purpose of this chapter is to present the results of the data analysis as clearly and concisely as possible, and to set the stage for an interpretation of them in Chapter VI. The results of the analysis are reported in two sections corresponding to the research questions presented in Chapter I. Accordingly, section one presents results that identify the dimensions along which Native American and Anglo-American college students differ in their communication behavior. Section two describes the manner in which Native American and Anglo-American college students adapt or fail to adapt to their interactive situations.

Differences in Communication

Identifying Cultural Membership

Using SPSS (Statistical Package for the Social Sciences) a stepwise discriminant analysis (MDA) (Klecka, 1970) was performed to identify a linear combination of variables capable of predicting the cultural membership of the subjects. There were 15 Native Americans and 15 Anglo-Americans represented (N=30).

The results of that analysis indicate that a linear combination of fourteen communication variables successfully predict cultural membership. One hundred percent of the cases in both groups were correctly classified and the canonical correlation r_c=.96 ($p \geq .0002$) indicates the strength of the relationship. One discriminant function

consisting of fourteen variables accounted for 100% of the variance. The Chi Square value was 52.350 ($p \geq .000$, df=14). The group centroids were -0.94167 (Native American) and 0.94167 (Anglo-American). Complete information regarding this analysis can be found in Appendix D. In this sample, at least, Native American college students exhibited different functional communication behaviors than did their Anglo-American counterparts. Collectively, this combination of variables indicates the specific points at which Indian and Anglo-American college students differed in terms of their communication behavior.

Adjustments to Intercultural Situations

One of the objectives of this study was to determine whether the communication behavior of participants changes according to situational requirements. Sarbaugh (1980), for example, argues that communication ranges along a continuum from intracultural to intercultural. That is, the nature of the interactive setting (physical setting, cultural composition of groups, individual differences, etc.) ought to require changes or adjustments in communication behavior. Thus, one would expect a group composed entirely of Native American students to show adjustments in symbolic activity that would distinguish it from a group composed entirely of Anglo-American students, and so on.

This issue was analyzed by submitting the dependent variables to a second multiple discriminant analysis to determine if they could be combined in some way to reflect group process and cultural membership. In this case the independent variables (culture and group membership) were combined into a single variable. Thus, multiple discriminant

analysis was used to predict the culture of the members and the group to which they belonged. Again, fifteen subjects composed the Native American group and fifteen composed the Anglo-American group (N=30). The means, standard deviations, discriminant functions, and standardized discriminant coefficients are to be found in Appendix E.

The the communication variables employed in this study worked remarkably well in predicting culture and group membership (100% in both groups). Twenty variables across seven discriminating functions were identified as significant discriminators ($p \geq .000$). The canonical correlation for each discriminant function (r_c=.394-1.00) indicates the strength of the relation between the discriminating variables and the nominal categories culture and group membership.

Collectively, these variables suggest dimensions along which the process of intercultural communication occurs (most notably, problem solution-identification, negotiation, and behavior change). In addition, the extent to which the combination of variables derived in this analysis do not overlap with the variables employed to predict cultural membership indicates the truly unique processes involved in intercultural communication. Table I compares the data from these two analyses and indicates those variables which appear to indicate situational processes.

A careful inspection of Table I provides considerable insight into the communication processes operating in these six groups. The first MDA indicates the dimensions along which the subjects in this study differ in their approach to this particular intercultural situation. The second analysis suggests that there is more at work here

Table I
(Variables unique to intercultural negotiation)

Cultural Predictors	Culture X Group Predictors	Unique Variables
Receiver Socio-Emotional Information Asking	Source Task Solution-Trial	Source Task Solution-Trial
Receiver Socio-Emotional Solution Trial	Source Socio-Emotional Problem Identification	Receiver Socio-Emotional Problem Identification
Receiver Task Problem Identification	Receiver Task Problem Identification	Receiver Task Lose-Lose
Source Socio-Emotional Information Asking	Receiver Socio-Emotional Problem Identification	Receiver Task Win-Win
Source Socio-Emotional Information Giving	Source Socio-Emotional Information Giving	Receiver Task Identification
Source Socio-Emotional Win-Win	Receiver Task Lose-Lose	Receiver Socio-Emotional Compliance
Source Socio-Emotional Problem-Identification	Receiver Task Win-Win	Receiver Socio-Emotional Identification
Receiver Socio-Emotional Internalization	Receiver Socio-Emotional Lose-Lose	
Source Socio-Emotional Identification	Source Socio-Emotional Identification	
Receiver Socio-Emotional Win-Win	Receiver Task Identification	
Source Socio-Emotional Solution-Trial	Receiver Socio-Emotional Compliance	
Receiver Task Information Giving	Receiver Socio-Emotional Identification	
Source Task Information Giving	Receiver Socio-Emotional Internalization	
Receiver Socio-Emotional Information Giving		

than just the cultural communication approach of these subjects. It suggests that intercultural groups negotiate the basis for communication. The second analysis indicates, in a general way, the variables involved in that process. Finally, the third column in Table I (Chapter V) identifies the variables that are truly unique features of communication process in this setting.

The Process of Intercultural Communication

The results of the discriminant function analysis indicate that in addition to cultural differences the situational nature of communication requires intercultural adjustments. The dimensions of communication behavior identified in the previous section point to the important features of this process. Accordingly, it is those variables that ought to indicate the pattern of intercultural communication across time.

Of considerable interest to this study is the ebb and flow of communication over time. The description of pertinent aspects of that process required two steps: First, the overall activity levels of each group was plotted against time, and second, the levels of activity in terms of each of the four functional categories were plotted against time for each group. In both cases the set of variables defined by the multiple discriminant analysis were linearly combined (additively) to provide the data for analysis.

General Activity Levels

The graph representing the overall activity levels of the six groups was constructed through a linear combination (additive) of

variables identified by multiple discriminant analysis. This particular set of variables was selected simply because the discriminating structures explained such large amounts of variance with regard to cultural and group membership. Thus, they should best represent the general levels of activity exhibited by the groups. The graph is presented in Figure I.

This graph suggests some resolution to two issues: First, the density of interaction in all groups remains generally consistent across all time periods. That is, groups in which Anglo-American students comprise a majority (groups 4, 5, & 6) do not exhibit activity levels that are significantly higher than groups in which Native Americans comprise the majority (groups 1, 2, & 3). This finding will be discussed in more detail in the following chapter. Second, the results indicate that a description of the intercultural communication process must be achieved by considering the patterning of the individual functional communication categories rather than in fluctuations of any composite score.

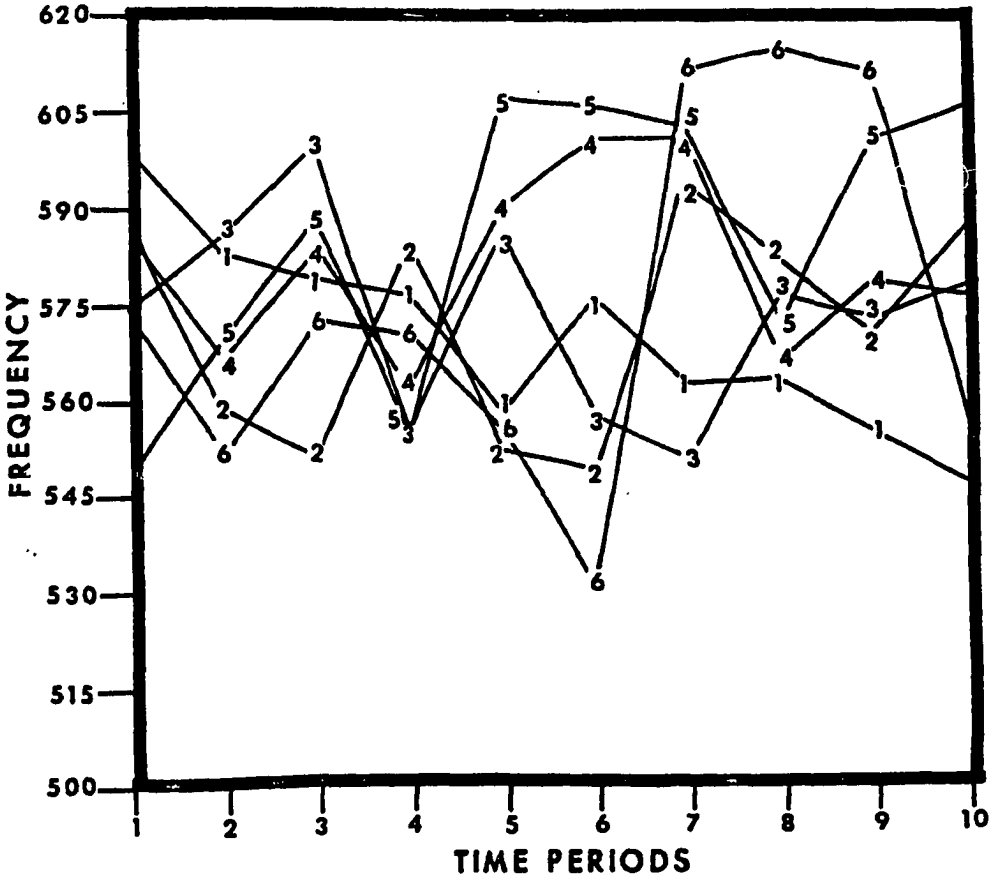
Communication Patterns

The second area of concern, in terms of intercultural communication process, is to examine the arrangement of the functional communication categories within individual groups with regard to time. Figures II-VII graph those processes. The graphs suggest the following results.

First, information exchange activity remains fairly constant across time. That is, communication conducted interculturally requires a fairly stable level of information exchange. Second, in general,

Figure I

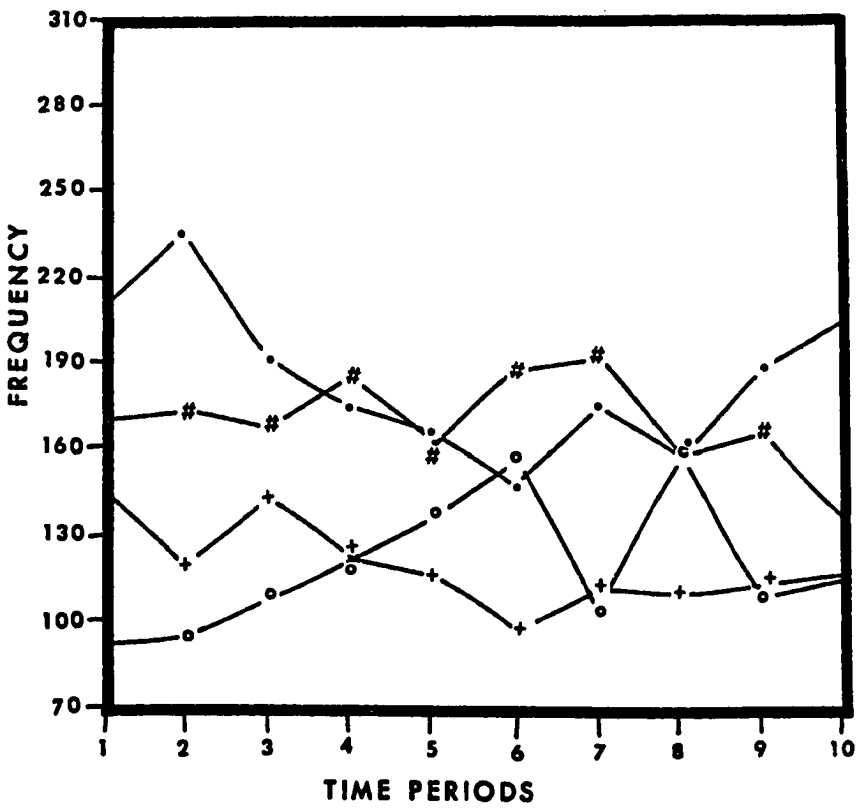
(Activity Levels Across Groups)



1 = Group I (Five Native Americans)
2 = Group II (Four Native Americans, One Anglo-American)
3 = Group III (Three Native Americans, Two Anglo-Americans)
4 = Group IV (Two Native Americans, Three Anglo-Americans)
5 = Group V (One Native American, Four Anglo-Americans)
6 = Group VI (Five Native Americans)

Figure II

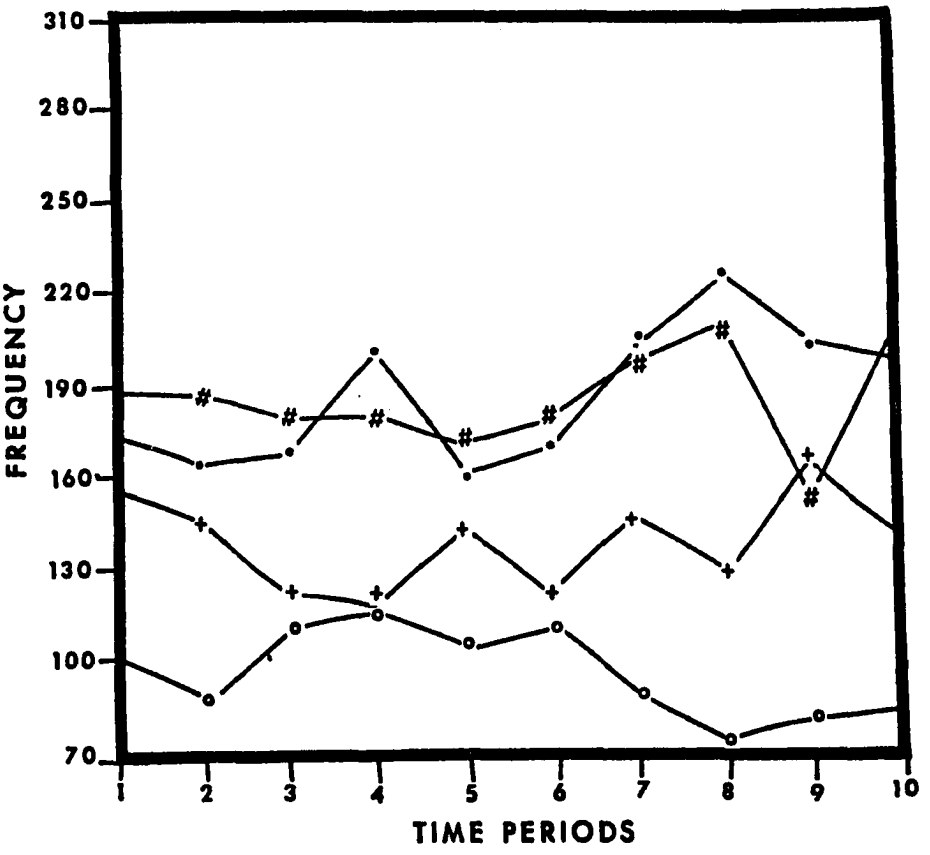
(Levels of Interaction Across Time)
Group I-Five Native Americans



* = Frequency of Information Exchange Roles
\+ = Frequency of Problem Identification-Solution Roles
\# = Frequency of Behavior Change Roles
0 = Frequency of Negotiation Roles

Figure III

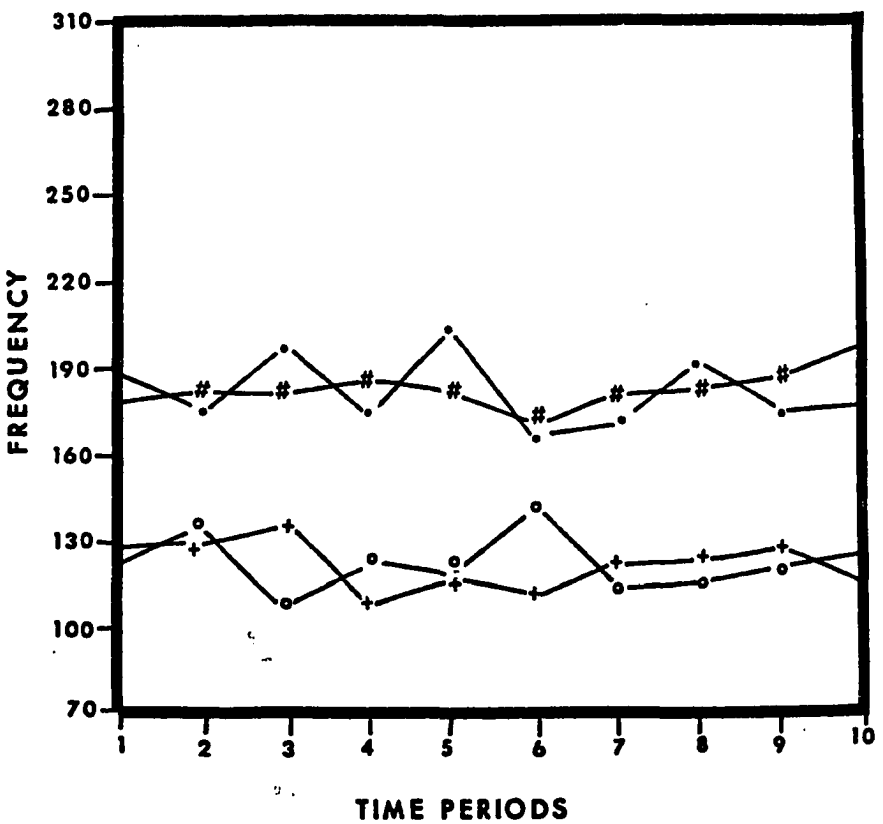
(Levels of Interaction Across Time)
Group II-One Anglo-American & Four Native Americans



* = Frequency of Information Exchange Roles
\+ = Frequency of Problem Identification-Solution Roles
\# = Frequency of Behavior Change Roles
0 = Frequency of Negotiation Roles

Figure IV

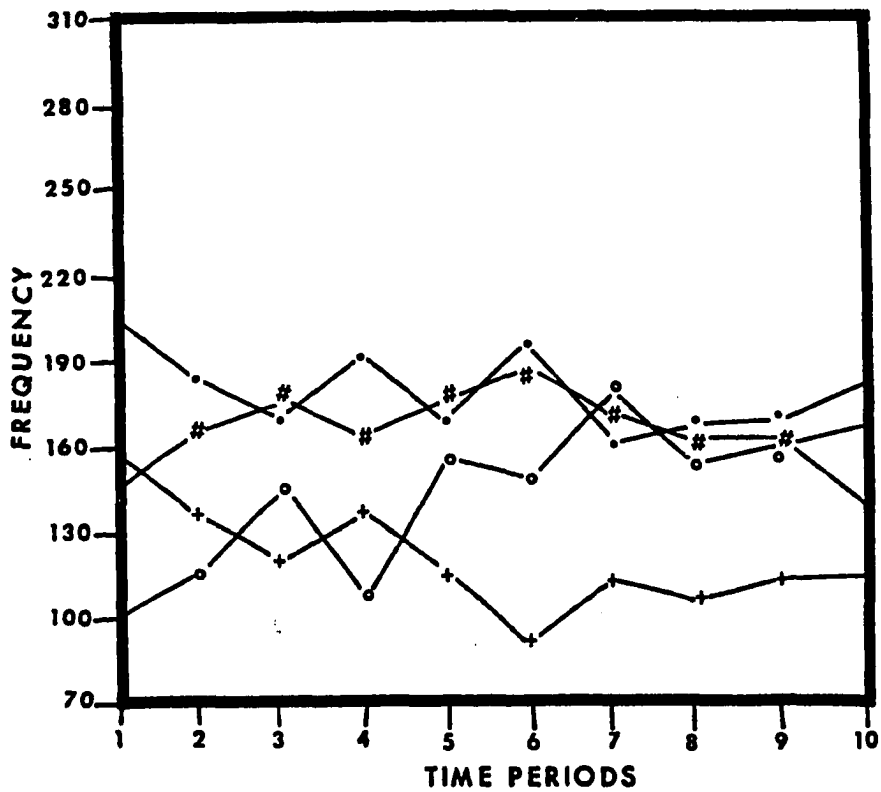
(Levels of Interaction Across Time)
Group III-Two Anglo-Americans & Three Native Americans



* = Frequency of Information Exchange Roles
\+ = Frequency of Problem Identification-Solution Roles
\# = Frequency of Behavior Change Roles
0 = Frequency of Negotiation Roles

Figure V

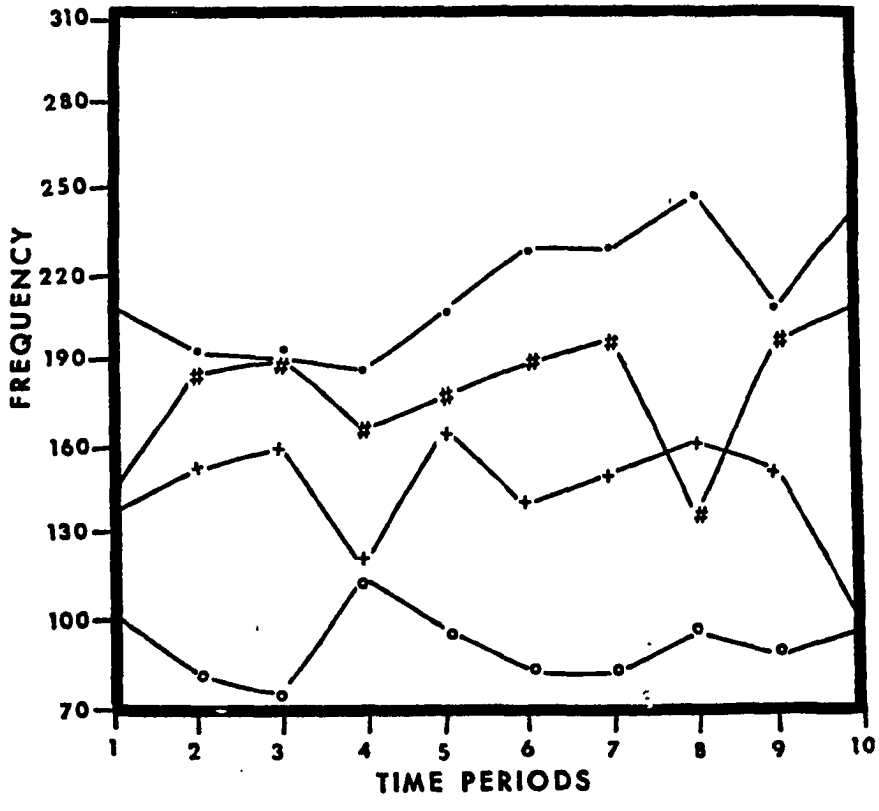
(Levels of Interaction Across Time)
Group IV-Three Anglo-Americans & Two Native Americans



* = Frequency of Information Exchange Roles
\+ = Frequency of Problem Identification-Solution Roles
\# = Frequency of Behavior Change Roles
0 = Frequency of Negotiation Roles

Figure VI

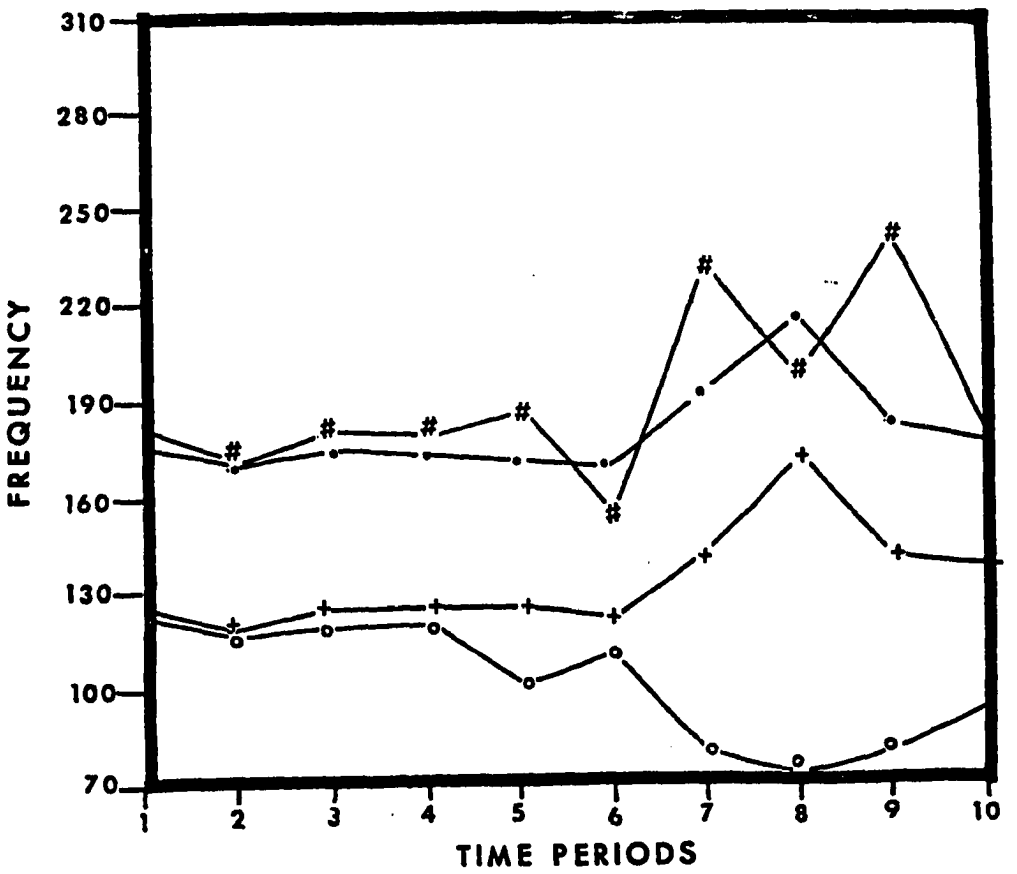
(Levels of Interaction Across Time)
Group V-Four Anglo-Americans & One Native American



* = Frequency of Information Exchange Roles
\+ = Frequency of Problem Identification-Solution Roles
\# = Frequency of Behavior Change Roles
0 = Frequency of Negotiation Roles

Figure VII

(Levels of Interaction Across Time)
Group VI-Five Anglo-Americans



* = Frequency of Information Exchange Roles
\+ = Frequency of Problem Identification-Solution Roles
\# = Frequency of Behavior Change Roles
0 = Frequency of Negotiation Roles

groups containing Native Americans exhibit lower levels of problem solving activity than the group composed entirely of Anglo-Americans. In addition, problem solving activity appears to increase or peak when levels of negotiation level off or decrease. Third, the groups containing Native Americans tend to exhibit higher levels of negotiation activity than the group containing Anglo-Americans. Fourth, behavior change roles increase across time in all groups as negotiation activity levels off or decreases. As one might suspect these results support the centrality of negotiation as a key process in intercultural communication. That is, until negotiation is completed or until negotiation of specific issues, problems and solutions is completed, other functional roles must generally remain secondary.

Table II

Intercorrelations Among Functional Categories

	Problem Solving	Negotiation	Behavior Change
Problem Solving	1.00 $p \geq .001$	-0.6997 $p \geq .001$	0.0528 $p \geq .344$
Negotiation		1.00 $p \geq .001$	-0.4033 $p \geq .001$
Behavior Change			1.00 $p \geq .001$

These results suggest the possibility of an inverse relationship between problem solving activity and the negotiation and behavior change categories while information exchange values remain

fairly constant. A correlation matrix comparing problem-solving, negotiation, and behavior change roles generally supports that notion (Table II, above).

Table II compares the variables for all groups. The relation between problem solving activity and negotiation activity is negative ($r=-.6997$) and significant ($p \geq .001$). However, the relationship between problem solving activity and negotiation although near zero ($r=.0528$) is nonsignificant ($p \geq .344$). Interestingly, the relation between negotiation and behavior change is also negative ($r=-.4033$) and significant ($p \geq .001$).

Summary

The results presented in this chapter suggest two very general findings. First, differences in Anglo-American and Native American communication behavior can be clearly identified. Second, data analysis reveals that the intercultural communication process can be described according to the four functional communication categories. Chapter VI will place the results in the context of the discussions in Chapters I, II, and III, suggest specific directions for further investigation.

CHAPTER VI

CONCLUSIONS

This chapter has four purposes: The first objective is to evaluate the results of this study and to place them within the context of Chapters I and II. Second, this chapter will determine the degree to which the theoretic perspective presented in Chapter II is confirmed by the results. Third, it will comment on the utility of the method selected for this study. And fourth it will offer recommendations for future research.

Discussion of Results

The Results in Perspective

The results of this study are consistent with the cultural conflict perspective on Native American educational failure. Briefly, that perspective argues that culture, institution, and a variety of other factors combine to create an untenable situation for Indian students. On the one hand, Indian students wish to maintain their cultural identity, but they also realize that education entails acculturation; that is, a loss of Indian values and attitudes, and an internalization of the culture which surrounds them. The result is a strategy of interactional avoidance the general characteristics of which are discussed in Chapter I.

The results outlined in Chapter V suggest at least one potential

modification in the cultural conflict perspective. Native American students do tend to avoid interaction when possible, but when placed in situations which demand some communicative response they do so. However, the ways in which they choose to communicate appear to be different from behavior exhibited by Anglo-Americans, and the presence of Native Americans clearly affects group performance. Rather than stating that Indian communicative behaviors represent a "strategy of silence," it is more accurate to say that the reticent response is employed when situationaly appropriate (that is, it represents one dimension of a possible Native American repetoire of behaviors). However, when verbal responses are required Native Americans exhibit a particular pattern of communicative activity. The central question then becomes: What are the features of that approach to intercultural communication and how does it affect the process of communication itself?

Features of Indian Behavior

One is immediately struck by the differences in pattern of interaction when viewing the results. Differences between groups containing Native Americans and the single group composed entirely of Anglo-Americans are obvious. Although there are aspects of each group which are unique (see Table I, Chapter V; and Appendix D), there appears be some general influence on group performance associated with the presence of Native Americans. Although the groups containing Native Americans operated at activity levels similar to that of the non-Indian group (VI), the intercultural groups required longer periods of time to complete the task. In fact, the more Indian students in the group the

Table III
Times Required for Task Completion

Group I (Five Native Americans)	55:00
Group II (Four Native Americans, One Anglo-American)	46:00
Group III (Three Native Americans, Two Anglo-Americans)	46:30
Group IV (Two Native Americans, Three Anglo-Americans)	34:44
Group V (One Native American, Four Anglo-Americans)	28:30
Group VI (Five Anglo-Americans)	26:15

longer period of time required to reach a solution (Table III). In general the results suggest that the presence of Native Americans involved an impact on group interaction aside from the unique feature of each group. This Native American strategy seemed to impact most directly on the patterns of communication behavior and on the time required to complete tasks.

It ought to be made clear that the term "impact" is not intended to convey any notion of causality, at least in the sense normally associated with the term. The fact that Native Americans are present in these groups does not imply that they "cause" patterns of communication. What can be said is that the co-presence of Native Americans and Anglo-Americans requires intercultural communication, and that one of the initial requirements of it is the negotiation of the basis for future communication as participants determine how task and socio-emotional considerations will be handled. The results of that process provide the basis for the observations discussed in this study.

The basic elements of the Native American style observed in this study can be identified through an examination of Table I (Chapter V), Appendices D and E, and Figures I-VII in Chapter V. By far the most significant feature centers around conflict management roles, especially those conducted in the source mode. The second striking characteristic

is the prominence of behavior change roles. The third feature is the relatively low prominence accorded to information exchange and problem identification-solution roles. Thus, a description of Native American communication strategy must begin with consideration of the importance of negotiation and behavior change roles, and the lack of significance afforded information exchange and problem identification-solution roles.

The significance and patterning of these considerations meshes well with the theoretic perspective discussed in Chapter II. The centrality of conflict management is entirely consistent with that discussion. That is, there exists a natural uncertainty regarding how individuals ought to respond to each other. That uncertainty is reduced through the negotiation of both socio-emotional and task differences. Thus, to the extent that uncertainty exists and must be reduced, conflict management roles will become of greater significance while other roles assume secondary status. The prominence of these roles exceeded the value that was required for task resolution in groups dominated by Anglo-Americans, suggesting why groups dominated by Native Americans required longer periods of time to achieve solutions.

The plots of communication process (Figures II; Chapter V) add to this discussion. One finding of particular interest is that negotiation roles exhibit considerable variation and often dominate in terms of rank. In addition, the level of negotiation in Group VI (Five Anglo-Americans) appeared to operate at a lower level. The implication is that groups composed of Native American and Anglo-American students

must spend more time negotiating the basis for task and socio-emotional activity, and that other communication functions must play secondary roles while negotiation proceeds. Only after negotiation has been completed do other functions increase in terms of rank. When further negotiation is required those roles again tend to increase while the other three categories decrease.

As one would expect Group VI (Five Anglo-Americans) contrasts sharply in terms of these processes in that group negotiation activity decreases across time giving way to other functional activities. The conclusion is simply that in groups that are Anglo dominated less negotiation occurs, allowing the group to move more directly to the solution of the task.

The prominence of behavior change roles is another significant feature of the Native American communication strategy. The significance of this functional category is not surprising when one considers its relation to negotiation (or conflict management) roles. An examination of Table II in Chapter V indicates an inverse relation between negotiation and behavior change roles. That is, as negotiation is completed, behavior change roles become more significant. Very simply, as groups negotiate the basis for future communication, behavior change is employed to insure compliance with those rules.

Of particular interest is the significance of these roles. The question is, why is the result of negotiation an emphasis on behavior change roles? Unfortunately, that question can not be adequately answered given the design of this study, however, it is worthwhile to speculate a bit. One explanation might be that because ne

gotiation requires significant amounts of time and energy throughout a group's history individuals resort to behavior change as a means of expediting the group's work. Thus, behavior change may simply represent an attempt to mediate the negotiation process and turn the attention of the group to the task.

The Discussion in Perspective

Before concluding this discussion it is important to summarize the findings in relation to the two research questions. First, the results suggest that there are differences in the communication behavior of Native Americans and Anglo-Americans. In addition, the Native American strategy seems to impact on the patterns of interaction observed in the groups of which they were members. That influence helps to describe how Native American and Anglo-American students adjust on some levels and fail to adjust on others. In this regard, the findings indicate that participants attempt to adjust to their interactive situations through an emphasis on negotiation. Difficulties in the adjustment process are manifested as longer periods of time required to accomplish tasks, and an emphasis on compliance roles. In general, these finding suggest that differences in communication behavior do exist, that participants attempt to adjust through a process of negotiation, but that the negotiation process must be frequently repeated.

These results do not pretend to completely explain why Native Americans fail as college students. However, it is clear from the results that the intercultural communication processes in these groups are distinct from what one finds in the Anglo-American group. The results clarify some of the basic issues regarding the Native American's

communicative approach to education settings, and thus it adds refinement to our understanding of this communicative behavior and to their educational experience.

The Theoretic Perspective

The theoretic perspective developed in Chapter II has guided this study from its inception to the final interpretation of results. Thus, the products of this research effort must stand to some degree in part as a vindication or condemnation of this perspective. Of course, no study can provide an ultimate test of a theory or philosophic perspective. It can, however, attest to its utility as a guiding force for this study and for future ones. The purpose of this section, then, is to comment on the viability of the perspective employed in this study.

Briefly, the perspective offered in Chapter II argues that culture ought to be defined as regularly occuring patterns of activity, and that of significant concern to the student of human communication is the patterning of symbols exchanged in various cultures. If, however, one wishes to study intercultural communication, the emphasis must shift to a consideration of how individuals negotiate functional understandings of their interactive situations. That is, intercultural communication requires that participants begin by operating from their personal store of cultural knowledge and then negotiating the basis for subsequent interaction.

In seeking to support this perspective two pieces of evidence are necessary. First, the findings should indicate some basis for believing that cultural symbolic differences exist, and second, the

results should point to unique aspects of the interactive setting that support the notion of negotiated patterns of communication. The results to be found in Chapter V provide both kinds of evidence.

First, the results clearly indicate differences in symbolic activity between the two cultural groups observed in this study. The results of multiple discriminant analysis clearly identified those differences. To be frank, one ought to be cautious about arguing that these results represent the cultural or intercultural communication strategies of either cultural group. It is of great importance to remember that communication occurs in situ. Thus, what is revealed in this case study represents elements in the larger repertoire of behaviors available to Native American and Anglo-American college students. The utility of these findings, however, lies in the ability to argue that they represent a significant dimension of the larger whole.

Second, the findings support the notion of a process through which functional understandings of interactive settings are negotiated. The multiple discriminant analysis reported in Chapter V demonstrates that each group possesses unique features which can be used successfully to discriminate among the groups and even among the cultural members of those groups. Those results go even further to suggest the dimensions along which the groups differ. The point is simply that individuals placed in an intercultural context attempt to adjust to each other, and that the adjustment process occurs in ways that lend themselves to description.

Past research has demonstrated that cultures differ in numerous

ways. This study suggests that in addition to general notions of cultural conflict the intercultural communication process centers on the negotiation of functional understandings of interactive settings. One very useful way of approaching that issues is through the study of symbols.

The Method

The methodology employed in this study was selected largely on a goodness-of-fit criterion. That is, the method was chosen because it best represented the fundamental concepts and processes essential to the theoretic perspective. Thus, the utility of the method may be assessed only in a limited sense, because it can not completely correspond with the theory, and because a truly thoughtful analysis would require a comparison with some alternative. However, it is still useful to make some estimation of the value of the method based on the results it produced and the promise it holds for future research.

At face value, the results of this study argue favorably for the method. Yet, one must ask whether the categories and analysis were useful as exploratory techniques. That is, did the method reflect something important or interesting in the data. Although additional research is required in order to refine any answer, the results, at this point, are favorable. Several processes and variables have been identified, they are consistent with previous research, and they have added to the body of knowledge concerning this area.

At another level it is possible to question whether the categories are true symbolic categories or represent something or some

process that is. After all, the notion of symbolicity (Chapter II) suggests that one significant feature of culture is its use of symbols. By imposing a particular set of categories not strictly grounded in the cultures to be examined the results may be questioned as to their validity for the data and for their relation to symbolic activity.

In addition, one might express a concern for the degree to which process has been represented. By imposing ten time segments a glimpse of process is possible, but the researcher must always retain the uneasy feeling that the product is nothing more than ten synchronic measures rather than a diachronic representation. This critique and the one above are not unique to this study, but they do require attention.

When considering the utility of a methodology it is important to remember that any attempt to make sense of the data requires a reduction of it into more manageable units. Thus, the reduction of symbols into more easily managed and interpreted categories is inevitable. The categories employed in this study are attempts to reduce the complexity of symbolic exchange into meaningful units. They center on what people do with the symbols in their repertoires. That is, how do symbols function or what do they accomplish? Ultimately, if one can accept the inevitability of categorization then the concern with this method boils down to validity.

This issue is, of course, one which is difficult to assess given the design of this particular study. The findings and the strength of the results are encouraging; however, additional work is required in order to validate them statistically. Thus, one may conclude that the method was satisfactory in terms of its treatment of symbols and the

initial validity of the categories although additional research is required in order to more firmly establish these assumptions.

The question of process is more difficult to deal with. There is little doubt that this method fails to completely characterize process. A complete characterization seems impossible when one considers that every moment would require analysis (Hewes, 1979). To attempt such an analysis would require an infinite number of time segments or some technique capable of handling such complex data. Given these limitations any analysis (including this one) must be content with a level of refinement which is less than complete, but which should produce results that reasonably describe the data.

As noted in Chapter IV the choice among methods can not be made according to which one meshes directly with the theory. Rather, the selection is much more practical than that. It is predicated on the researcher's estimation of the goodness-of-fit between theory and method. Overall, the choice made for this study was a good one. It produced a useful description of the intercultural communication situations under consideration, and it helped identify areas for additional research.

Recommendations for Future Research

One of the purposes of any descriptive research project is to create a clearer understanding of some phenomenon. In addition, this particular study, because of its exploratory nature, sought to identify variables and processes which could be more rigorously studied at a later time. The purpose of this section is to point to those areas, and to suggest what might be done in regard to them. Three general recom-

mendations will be offered.

Validation of Results

The first and most obvious recommendation is to increase the number of cases available for analysis. The results are striking, but the validity of the beta weights (discriminant function analysis) require cross-validation before any generalizations may be attempted. This procedure would require taking the equations that were generated in this study and observing how effective they might be in predicting the result of other cases.

Emphasis on Negotiation

The primacy of negotiation roles is clear from even a casual examination of the results. The findings are so striking that it may be worthwhile to pause and ask whether these results have tapped a fundamental intercultural communication process that is more complex than the categories employed in this study can reveal. The categories that were observed dealt primarily with the way in which differences are are resolved along the win-lose, win-win, lose-lose dimension. As interesting and useful as these divisions are, it is possible that the negotiation process is more complex than this. This would, of course, require a revision of the current categories and/or the addition of new ones. Thus, a second recommendation is to examine more closely the process of negotiation to determine its dimensions, complexity, and relationship with other functional behaviors.

One particular methodological adjustment would be particularly helpful in this regard. Multiple discriminant analysis revealed that

both cultural groups employed all negotiation categories in both task and socio-emotional modes, and in sender and receiver positions. The fact that negotiation is important and operates in particular ways is useful knowledge in itself. However, any attempt to expand our knowledge of the negotiation process must include an ability to observe the specific negotiation roles employed interculturally and intraculturally. This would require a specification of role direction in addition to the identification of the roles themselves.

Emphasis on Behavior Change

Perhaps the most puzzling result encountered in this study centers on the use of behavior change roles. First, why the strong influence of compliance roles, and what is the relationship between negotiation behavior and behavior change? The discussion in Chapter IV only speculated in regard to these issues. There is little doubt, however, that the relationship between negotiation and behavior change is an instrumental process in intercultural communication. The the third recommendation is to more closely examine behavior change in intercultural communication involving Native Americans and Anglo-Americans and determine its relation to negotiation.

Summary

This chapter discussed the results presented in Chapter V, sought to evaluate the theoretic perspective and methodology employed in this study, and suggested further areas for research.

The discussion of results argued that Native American college students exhibit a particular strategy of intercultural communication,

and that their behavior coupled with that of the Anglo-American participants resulted in negotiated understandings which were not entirely functional. The evaluations of the theoretic perspective and method both concluded that their application was generally successful and recommended both for future research.

Finally, this chapter suggested that several issues require additional research. First, additional data must be gathered in order to attempt generalizations, and second, particular processes were identified which merit additional consideration.

To conclude, this study began by drawing attention to the educational dilemma faced by Native American college students. It argued that one particularly useful approach to the problem lay in the analysis of intercultural communication, and it argued that the analysis ought to focus specifically on the means whereby individuals negotiate functional understandings of their interactive situations. Specifically, the study examined symbolic activity by analyzing functional communication categories. The design was a case study in which multiple discriminant analysis and simple graphing served as analytic tools.

The findings revealed features of a Native American intercultural communication strategy as well as the response of their Anglo-American counterparts. Negotiation and behavior change roles played primary roles while information exchange and problem solution-identification roles played secondary ones. The discussion suggested dimensions and processes through which intercultural communication adjustments occured and areas where the participants failed to adjust.

Finally, the discussion suggested that the theoretic perspective was consistent with the results, and judged the method to be a useful approach.

APPENDIX A

COMMUNICATION ROLES AND DEFINITIONS

Source Roles--A source role is said to occur when an actor produces symbols, oral or written. This definition is limiting in that it does not include nonverbal symbols.

Receiver Roles--A receiver role is said to occur when an actor "consumes" symbols, oral or written, by reading or listening to a message.

Task Roles--A task role is said to occur when an actor is a source or receiver of symbols, the content of which is about work. When actors symbolize their work experience, they often refer to such content information as how to fill out forms, how to hold a two-by-four in place for construction, or how to mix concrete. This is task information, and actors who symbolize in this way are using the communicative role of work.

Socio-emotional Roles--A socio-emotional (or person) role is said to occur when an actor is a source or receiver of symbols, the content of which is about psychological needs and goals. This communicative role involves expressing how we feel about our work, how much we like or dislike others, or how much of a raise we hope to get next year.

Information Asking Roles--An information asking role occurs when one asks questions about other people's experiences. For example, one might ask for information about solutions to problems, differences of opinion, how to perform certain tasks, etc.

Information Giving Roles--An information giving role occurs when one makes assertions, or indicative statements, about one's own experience. For example, one might give information about solutions to problems, differences of opinion, the performance of certain tasks, etc.

Problem Identification Roles--Problem identification roles occur when an actor gives or asks for information about the nature and scope of a problem. For example, individuals discover that some problem or difficulty exists, and then seek to isolate and define the problem.

Solution Identification Roles--Solution identification roles occur when an actor gives or asks for information about possible solutions to a problem. For example, individuals suggests possible solutions, examine them against a list of criteria, and implement the best solution.

Win-Lose Roles--A win-lose negotiation role occurs when actors identify solutions to problems in advance, and advocate one solution over all others. This involves a winner-take-all strategy. In this case one individual seeks to win as much as possible (gain acceptance for their position), and so that the other participants lose as much as possible (do not gain acceptance for their position).

Lose-Lose Roles--A lose-lose negotiation role occurs when actors identify solutions to problems in advance, and employ a strategy of compromise where each person accepts a lower quality solution than they originally desired. In this case, individuals seek to win only part of their advocated position (gain acceptance for only part of their solution) in order that another part may be accepted).

Win-Win Roles--A win-win negotiation role occurs when advocacy of a particular solution is dropped, and individuals seek undetermined solutions to problems. Thus, the objective is to find solutions which satisfies the requirements of all participants without advocacy or "hidden agendas."

Compliance Roles--A compliance role occurs when an actor uses symbols representing rewards and punishments to achieve behavior change. An individual adopts specific behaviors because he/she expects to gain specific rewards or approval and avoid specific punishments or disapproval.

Identification Roles--An identification role occurs when an actor uses symbols representing a mutual liking relationship to achieve behavior change. When an individual accepts influence he wants to establish or maintain a satisfying self-defining relationship to another person or group. He/she adopts the induced behavior because it is associated with the desired relationship.

Internalization Roles--An internalization role occurs when an actor uses symbols representing logic and reason to achieve behavior change. When an individual accepts influence because the content of the induced behavior--the ideas and actions of which it is composed--in intriniscally rewarding. He/she adopts the induced behavior because it is congruent with his/her value system. Behavior adopted in this fashion tends to be integrated with the individual's existing values.

COMMUNICATION ROLE MATRIX

_____ Information-Giving
_____ Information-Asking
_____ Problem-Defining
_____ Solution-Trial
_____ Win-Lose
_____ Lose-Lose
_____ Win-Win
_____ Compliance
_____ Identification
_____ Internalization

_____ Information-Giving
_____ Information-Asking
_____ Problem-Defining
_____ Solution-Trial
_____ Win-Lose
_____ Lose-Lose
_____ Win-Win
_____ Compliance
_____ Identification
_____ Internalization

_____ Information-Giving
_____ Information-Asking
_____ Problem-Defining
_____ Solution-Trial
_____ Win-Lose
_____ Lose-Lose
_____ Win-Win
_____ Compliance
_____ Identification
_____ Internalization

_____ Information-Giving
_____ Information-Asking
_____ Problem-Defining
_____ Solution-Trial
_____ Win-Lose
_____ Lose-Lose
_____ Win-Win
_____ Compliance
_____ Identification
_____ Internalization

APPENDIX B

TASK

This is an exercise in group problem solving. On this page you will find five pieces of information which represent five pieces of a puzzle. Each of the members of your group also has information about this puzzle. Some of that information is the same as yours and some of it is different. The objective of this exercise is to find the solution to the puzzle by answering two questions:

1. Who owns the zebra?

2. Who drinks water?

If you aren't sure how to go about answering these questions don't despair! Remember that all the information that is needed to answer these questions has been given to the group. This means that the members of this group must work together.

Act as if this information represents knowledge that you have. All information sharing must be done verbally! Do not exchange sheets or let others read them.

In answering these questions you must make sure that all group members agree that the answers are correct. Do not adjourn until agreement has been reached. If you don't agree with the answers, please offer your own opinion.

Here is your information:

1. The Spainard owns the dog.
2. The green house is immediately to the right (you're right of the ivory house.
3. The Norwegian lives in the first house on the left.
4. The Ukranian drinks tea.
5. The Lucky Strike smoker drinks orange juice.

This is an exercise in group problem solving. On this page you will find five pieces of information which represent five pieces of a puzzle. Each of the members of your group also has information about this puzzle. Some of that information is the same as yours and some of it is different. The objective of this exercise is to find the solution to the puzzle by answering two questions:

1. Who owns the zebra?

2. Who drinks water?

If you aren't sure how to go about answering these questions don't despair! Remember that all the information that is needed to answer these questions has been given to the group. This means that the members of this group must work together.

Act as if this information represents knowledge that you have. All information sharing must be done verbally! Do not exchange sheets or let others read them.

In answering these questions you must make sure that all group members agree that the answers are correct. Do not adjourn until agreement has been reached. If you don't agree with the answers, please offer your own opinion.

Here is your information:

1. The Ukranian drinks tea.
2. The green house is immediately to the right (you're right of the ivory house.
3. Kools are smoked in the yellow house.
4. Coffee is drunk in the green house.
5. The Englishman lives in the red house.

This is an exercise in group problem solving. On this page you will find five pieces of information which represent five pieces of a puzzle. Each of the members of your group also has information about this puzzle. Some of that information is the same as yours and some of it is different. The objective of this exercise is to find the solution to the puzzle by answering two questions:

1. Who owns the zebra?

2. Who drinks water?

If you aren't sure how to go about answering these questions don't despair! Remember that all the information that is needed to answer these questions has been given to the group. This means that the members of this group must work together.

Act as if this information represents knowledge that you have. All information sharing must be done verbally! Do not exchange sheets or let others read them.

In answering these questions you must make sure that all group members agree that the answers are correct. Do not adjourn until agreement has been reached. If you don't agree with the answers, please offer your own opinion.

Here is your information:

1. The Ukranian drinks tea.
2. The green house is immediately to the right (you're right of the ivory house.
3. The Old Gold smoker owns snails.
4. Kools are smoked in the yellow house.
5. Milk is drunk in the middle house.

This is an exercise in group problem solving. On this page you will find five pieces of information which represent five pieces of a puzzle. Each of the members of your group also has information about this puzzle. Some of that information is the same as yours and some of it is different. The objective of this exercise is to find the solution to the puzzle by answering two questions:

1. Who owns the zebra?

2. Who drinks water?

If you aren't sure how to go about answering these questions don't despair! Remember that all the information that is needed to answer these questions has been given to the group. This means that the members of this group must work together.

Act as if this information represents knowledge that you have. <u>All information sharing must be done verbally</u>! Do not exchange sheets or let others read them.

In answering these questions you must make sure that all group members agree that the answers are correct. Do not adjourn until agreement has been reached. If you don't agree with the answers, please offer your own opinion.

Here is your information:

1. The Ukranian drinks tea.
2. The green house is immediately to the right (you're right of the ivory house.
3. The man who smokes Chersterfields lives in the house next to the man with the fox.
4. The milk drinker owns snails.
5. The man who owns the fox lives next to the man who owns the horse.

This is an exercise in group problem solving. On this page you will find five pieces of information which represent five pieces of a puzzle. Each of the members of your group also has information about this puzzle. Some of that information is the same as yours and some of it is different. The objective of this exercise is to find the solution to the puzzle by answering two questions:

1. Who owns the zebra?

2. Who drinks water?

If you aren't sure how to go about answering these questions don't despair! Remember that all the information that is needed to answer these questions has been given to the group. This means that the members of this group must work together.

Act as if this information represents knowledge that you have. All information sharing must be done verbally! Do not exchange sheets or let others read them.

In answering these questions you must make sure that all group members agree that the answers are correct. Do not adjourn until agreement has been reached. If you don't agree with the answers, please offer your own opinion.

Here is your information:

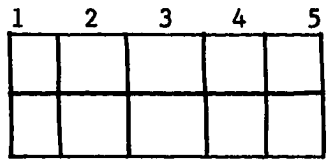
1. The Norwegian does not own the zebra.
2. The Japanese smokes Parliments.
3. The green house is immediately to the right (you're right of the ivory house.)
4. The Norwegian lives next to the blue house.
5. The Ukranian drinks tea.

APPENDIX C

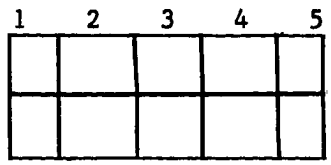
CODING INSTRUMENT

Problem Identification/Solution Coding Form Segment _____

Source Roles/Task



Source Roles/Socio-emotional



Information Exchange Coding Form Segment _____

Source Roles/Task

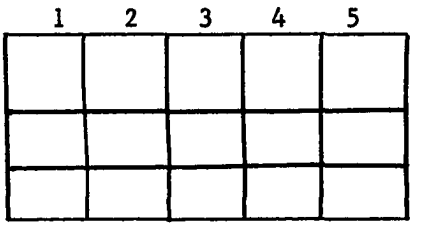
	1	2	3	4	5
Information Asking					
Information Giving					

Source Roles/Socio-emotional

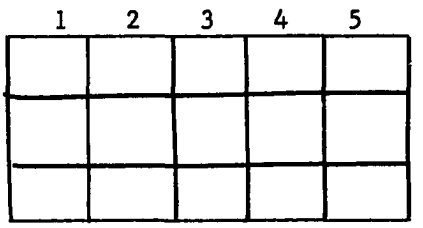
	1	2	3	4	5
Information Asking					
Information Giving					

Behavior Change Coding Form Segment _____

Source Roles/Task



Source Roles/Socio-emotional



Negotiation Coding Form Segment _____

Source Roles/Task

	1	2	3	4	5
Win-Lose					
Lose-Lose					
Win-Win					

Source Roles/Socio-emotional

	1	2	3	4	5
Win-Lose					
Lose-Lose					
Win-Win					

APPENDIX D

Results of Discriminant Analysis Predicting Culture

Summary Table

Step	Variable	Lambda	p≥
1	Receiver Socio-Emotional Information Asking	.54	.001
2	Receiver Socio-Emotional Solution Trial	.41	.000
3	Receiver Task Problem Identification	.38	.000
4	Source Socio-Emotional Information Asking	.31	.000
5	Source Socio-Emotional Information Giving	.26	.000
6	Source Socio-Emotional Win-Win	.24	.000
7	Source Socio-Emotional Problem Identification	.22	.000
8	Receiver Socio-Emotional Internalization	.16	.000
9	Receiver Socio-Emotional Win-Win	.14	.000
10	Source Socio-Emotional Identification	.13	.000
11	Source Socio-Emotional Solution Trial	.12	.000
12	Receiver Task Information Giving	.11	.000
13	Source Task Information Giving	.09	.000
14	Receiver Socio-Emotional Informnation Giving	.08	.000

Discriminant Function

Function	Eigenvalue	% of Var.	Canonical Corr.	Chi Square
1	11.905	100.00	.958	52.350 (p≥.000,df=14)

Standardized Canonical Discriminant Function Coefficients

Source Socio-Emotional Problem Identification	0.201
Source Socio-Emotional Solution Trial	0.574
Receiver Task Problem Identification	0.678
Receiver Socio-Emotional Solution Trial	-2.017
Source Task Information Giving	0.208
Source Socio-Emotional Information Giving	-0.556
Source Socio-Emotional Information Asking	0.973
Receiver Task Information Giving	0.226
Receiver Socio-Emotional Information Giving	-0.310
Receiver Socio-Emotional Information Asking	0.662
Source Socio-Emotional Win-Win	-0.532
Receiver Socio-Emotional Win-Win	-0.452
Source Socio-Emotional Identification	-0.221
Receiver Socio-Emotional Internalization	0.907

APPENDIX D (continued)

Variable Means and Standard Deviations

Variable	Mean		Deviation	
	Indian	Anglo	Indian	Anglo
Receiver Socio-Emotional Information Asking	22.03	26.10	8.60	8.05
Receiver Socio-Emotional Solution Trial	25.03	16.00	10.36	8.09
Receiver Task Problem Identification	6.53	6.77	1.19	2.32
Source Socio-Emotional Information Asking	28.57	29.97	5.25	4.31
Source Socio-Emotional Information Giving	22.87	20.07	6.35	6.75
Source Socio-Emotional Win-Win	29.67	30.57	4.87	4.15
Source Socio-Emotional Problem Identification	28.33	27.63	4.60	4.74
Receiver Socio-Emotional Internalization	21.23	17.47	6.98	5.97
Source Socio-Emotional Identification	29.47	24.47	4.36	6.22
Receiver Socio-Emotional Win-Win	26.17	28.73	7.24	7.06
Source Socio-Emotional Solution Trial	28.77	23.70	5.91	7.51
Receiver Task Information Giving	1.00	1.60	0.00	2.32
Source Task Information Giving	5.07	4.33	1.62	1.50
Receiver Socio-Emotional Information Giving	12.57	12.43	4.98	7.75

Group Centroids

Group I (Native Americans) -0.94167

Group II (Anglo-Americans) 0.94167

APPENDIX E

Results of Discriminant Analysis Predicting Culture & Group

Step Entered	Variable	Wilk's Lambda	Sig.
1	Receiver Socio-Emotional Compliance	0.00952	0.000
2	Receiver Socio-Emotional Win-Win	0.00011	0.000
3	Receiver Socio-Emotional Identification	0.00001	0.000
4	Receiver Socio-Emotional Lose-Lose	0.00000	0.000
5	Receiver Socio-Emotional Inform. Asking	0.00000	0.000
6	Receiver Socio-Emotional Solution Trial	0.00000	0.000
7	Source Socio-Emotional Solution Trial	0.00000	0.000
8	Source Socio-Emotional Inform. Asking	0.00000	0.000
9	Receiver Task Lose-Lose	0.00000	0.000
10	Source Socio-Emotional Compliance	0.00000	0.000
11	Receiver Task Compliance	0.00000	0.000
12	Source Task Compliance	0.00000	0.000
13	Receiver Socio-Emotional Inform. Giving	0.00000	0.000
14	Receiver Task Identification	0.00000	0.000
15	Source Task Information Giving	0.00000	0.000
16	Receiver Task Internalization	0.00000	0.000
17	Receiver Task Problem Identification	0.00000	0.000
18	Receiver Socio-Emotional Prob. Ident.	0.00000	0.000
19	Source Task Lose-Lose	0.00000	0.000
20	Source Task Identification	0.00000	0.000

Discriminant Functions

Function	Eigenvalue	% of Var.	Canonical Corr.
1	19057275.00	98.90	1.000
2	206135.48	1.07	1.000
3	5657.80	0.03	1.000
4	473.67	0.00	0.999
5	89.24	0.00	0.994
6	50.77	0.00	0.990
7	20.38	0.00	0.976
8	0.75	0.00	0.656
9	0.18	0.00	0.394

APPENDIX E (continued)

Standardized Discriminant Function Coefficients

	FUNC1	FUNC2	FUNC3	FUNC4	FUNC5	FUNC6	FUNC7	FUNC8	FUNC9
SOSESTR	-0.00	0.05	-0.21	0.17	0.77	-0.21	-1.31	1.31	-0.03
RCTSKPI	0.00	0.03	-0.14	0.05	0.37	0.22	-0.34	-0.45	1.77
RCSEPI	-0.01	0.00	0.33	-0.24	0.08	-0.16	0.36	1.23	-0.57
RCSESTR	-0.01	-0.08	-0.90	-0.67	-0.26	-0.63	-1.80	-0.78	0.48
SOTSKIG	-0.02	0.10	0.10	-0.06	0.61	-0.10	-0.82	-1.09	-0.83
SOSEIA	0.02	-0.01	-0.35	0.39	0.27	0.03	-0.32	-0.38	0.01
RCSEIG	0.03	-0.08	-0.64	-0.06	-0.50	-0.05	0.03	-0.60	1.53
RCSEIA	0.01	0.02	-0.33	0.66	0.47	-0.02	0.02	-0.11	-1.35
SOTSKLL	0.01	-0.00	-0.06	0.10	-0.11	-0.00	0.10	0.83	-0.57
RCTSKLL	-0.08	0.50	0.01	0.31	-0.55	-1.03	-0.32	1.51	-0.55
RCTSKWW	0.20	0.55	-1.32	-0.23	1.31	1.08	-3.68	-2.14	-0.37
RCSELL	-0.20	-0.08	0.30	-0.14	-0.40	-0.45	1.37	-1.14	0.74
SOTSKCM	0.11	-0.27	0.16	-0.30	0.73	1.30	-0.10	2.55	-4.91
SOTSKID	-0.00	-0.01	-0.16	-0.10	0.14	0.03	-0.15	-0.21	0.51
SOSECM	-0.15	1.52	1.05	1.47	0.28	-4.02	-2.26	-1.42	1.31
RCTSKCM	0.89	-0.96	2.92	-2.02	6.64	6.94	-2.56	17.05	-32.40
RCTSKID	-0.03	-0.01	-0.16	-0.10	0.14	0.03	-0.15	-0.21	0.51
RCTSKIN	-0.00	-0.03	0.10	-0.22	0.31	-0.08	-0.06	-0.20	-0.15
RCSECM	0.21	-0.51	-4.64	1.47	-6.78	-3.75	2.11	-17.50	34.05
RCSEID	0.02	0.07	-0.23	0.92	-0.30	0.94	-2.51	-0.86	-1.57

*Because of space requirements the variable names have been abbreviated.The complete variable names are listed below in order. These same abbreviations and order will be used in the results that follow.

Source Socio-Emotional Solution Trial
Receiver Task Problem Identification
Receiver Socio-Emotional Problem Identification
Receiver Socio-Emotional Solution Trial
Source Task Information Giving
Source Socio-Emotional Information Asking
Receiver Socio-Emotional Information Giving
Receiver Socio-Emotional Information Asking
Source Task Lose-Lose
Receiver Task Lose-Lose
Receiver Task Win-Win
Receiver Socio-Emotional Lose-Lose
Source Task Compliance
Source Task Identification
Source Socio-Emotional Compliance
Receiver Task Compliance
Receiver Task Identification
Receiver Task Internalization
Receiver Socio-Emotional Compliance
Receiver Socio-Emotional Identification

APPENDIX E (continued)

Variable Means

Variable	Group 1	Group 2	Group 3	Group 4	Group 5	Group 8	Group 9	Group 10	Group 11	Group 12
SOSESTR	33.70	20.37	31.67	27.50	31.50	16.00	32.25	32.17	16.25	22.70
RCTSKPI	5.80	7.25	6.67	7.50	5.00	7.00	10.50	6.67	7.37	4.80
RCSEPI	22.10	18.37	24.17	21.75	14.00	20.00	21.00	22.17	18.87	15.50
RCSESTR	33.70	11.25	31.67	25.75	15.50	12.00	32.00	20.83	8.75	13.30
SOTSKIG	4.40	5.00	5.00	5.00	8.00	5.00	4.00	4.00	4.75	4.20
SOSEIA	31.20	22.00	31.67	29.00	31.50	21.00	32.25	32.17	27.12	31.80
RCSEIG	14.10	8.75	13.33	20.25	2.50	8.00	15.75	19.83	3.62	14.60
RCSEIA	22.60	14.87	31.67	28.25	6.50	17.00	32.25	29.00	16.00	31.80
SOTSKLL	21.90	32.37	28.00	25.50	31.50	33.00	26.50	23.50	32.25	31.80
RCTSKLL	12.30	32.37	20.67	9.00	31.50	33.00	18.00	15.83	32.25	31.80
RCTSKWW	16.60	32.37	16.83	4.00	31.50	33.00	18.75	4.00	32.25	31.80
RCSELL	33.70	32.37	31.67	33.00	31.50	33.00	32.25	32.17	32.25	31.80
SOTSKCM	33.70	32.37	25.00	33.00	31.50	33.00	26.75	32.17	32.25	31.80
SOTSKID	13.90	14.87	23.00	25.00)	18.50	14.00	26.75	24.83	20.50	18.70
SOSECM	33.70	32.37	19.00	33.00	31.50	33.00	16.50	32.17	32.25	31.80
RCTSKCM	33.70	32.37	15.67	33.00	31.50	33.00	16.75	32.17	32.25	31.80
RCTSKID	7.30	6.00	13.50	14.50	9.00	6.00	13.25	16.83	10.50	9.00
RCTSKIN	4.00	3.25	4.00	5.50	7.00	3.00	4.50	7.33	7.25	5.20
RCSECM	33.50	32.37	10.83	33.00	31.50	33.00	12.00	32.17	32.25	31.80
RCSEID	19.10	21.00	31.67	33.00	10.00	23.50	32.25	32.17	11.75	9.70

APPENDIX E (continued)

Variable Standard Deviations

Variable	Group 1	Group 2	Group 3	Group 4	Group 5	Group 8	Group 9	Group 10	Group 11	Group 12
SOSESTR	0.97	1.25	0.76	6.36	1.00	1.00	1.06	1.26	4.11	4.70
RCTSKPI	0.84	0.50	1.15	2.12	1.00	1.00	0.71	1.15	2.49	1.10
RCSEPI	3.15	1.65	6.43	6.01	1.00	1.00	1.41	1.61	4.21	3.10
RCSESTR	0.97	0.96	0.76	11.67	1.00	1.00	1.41	0.76	2.40	3.56
SOTSKIG	1.82	0.00	0.00	3.53	1.00	1.00	1.41	2.64	1.26	1.50
SOSEIA	5.51	0.41	0.76	4.24	1.00	1.00	1.06	1.26	5.73	0.97
RCSEIG	3.00	0.50	1.53	3.89	1.00	1.00	0.35	11.83	1.97	1.56
RCSEIA	6.40	0.63	0.76	8.13	1.00	1.00	1.06	4.35	6.09	0.97
SOTSKLL	6.35	0.63	5.63	9.19	1.00	1.00	9.19	6.73	0.50	0.97
RCTSKLL	2.44	0.63	10.25	2.12	1.00	1.00	2.83	1.26	0.50	0.97
RCTSKWW	1.14	0.63	2.75	1.41	1.00	1.00	4.60	1.00	0.50	0.97
RCSELL	0.97	0.63	0.76	0.14	1.00	1.00	1.06	1.26	0.50	0.97
SOTSKCM	0.97	0.63	5.63	1.41	1.00	1.00	6.72	1.26	0.50	0.97
SOTSKID	1.63	3.75	7.36	9.90	1.00	1.00	6.72	6.80	4.02	3.03
SOSECM	0.97	0.63	1.32	1.41	1.00	1.00	0.71	1.26	0.50	0.97
RCTSKCM	0.97	0.63	2.25	1.41	1.00	1.00	1.77	1.26	0.50	0.97
RCTSKID	0.45	0.00	1.32	7.78	1.00	1.00	0.35	6.45	1.73	2.45
RCTSKIN	0.71	0.50	0.00	2.12	1.00	1.00	0.71	1.15	1.32	1.30
RCSECM	1.00	0.63	1.26	1.41	1.00	1.00	0.00	1.26	0.50	0.97
RCSEID	2.65	2.41	0.76	1.41	1.00	1.00	1.06	1.26	2.50	2.17

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