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**ETHNOSCIENCE AS A METHODOLOGY IN INDIAN
EDUCATION: A SIOUX AND APACHE EXAMPLE**

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ABSTRACT: The utility of ethno-science as a methodology to improve American Indian education programs is discussed. Data from two native American communities is presented, focusing on the cultural conflict prevalent in their schools. The San Carlos Apache, a reservation-tribe of Western Apache in Arizona and an off-reservation community of Oglala Sioux from North-western Nebraska, are compared, emphasis being placed on the linguistic and cultural problems prohibiting effective education. Specific ethno-semantic studies are cited for their illumination of cognitive dissonance between native Americans and non-Indian teachers.

The necessity of designing culture-specific ethnic education programs has become apparent to teachers, anthropologists, and members of minority groups. Research among various native American populations has demonstrated that schools serving Indian communities have generally failed to enlist parental participation and therefore lack community support.

Because education had long been equated with acculturation, cultural differences were an obstacle; children were encouraged, often forced, to abandon their languages and traditions and replace them with those of the dominant society. During the last decade it has become clear that the philosophy regarding inevitable assimilation has changed and correspondingly, the goals of ethnic education. Incompatibilities regarding values, cognitive processes and goals have been illuminated rather than suppressed; this realization, in turn, has generated a desire for curriculum reform and revision, and the replacement of standardized materials with those that are culturally relative. The demand for teachers skilled in bi-lingual/bi-cultural education has subsequently increased. The task of educating Indian children has become necessarily complex, i.e. how to teach them the skills needed to function in the off-reservation urban world, while preserving the traditional language and culture of the particular tribe.

Decisions concerning teaching methods, sensitivity training, classroom unit content, parent and community involvement and textbook needs are often made by administrators and teachers whose knowledge of ethnography is, at best, superficial. Some anthropologists interested in directed culture change are presently using ethno-science or cognitive anthropology as a methodology in discerning, analyzing and fulfilling community needs. Programs are currently being implemented which express cultural values and reflect native cognitive systems.

This study will focus on the utility of ethno-science as a methodology which can assist in the creation of practical educational alternatives. An ethnographic method for discovering native perceptions, ethno-science has

revealed important differences among conceptual classification systems which should be considered in the design of ethnic education programs. Equally significant are ethnosemantic statements regarding the uses of speech or non-speech, situational constraints on behavior, cultural determinants of the use of space, and typologies demonstrating differential criterial attributes for category assignment.

Data from two American Indian cultures are examined in this study – one reservation community and one off-reservation community. The two represent differing degrees of acculturation demonstrated by: a) the desire to maintain the use of native languages; b) the expressed need to leave the reservation and seek employment in urban centers; c) the adjustment of Indian adults to the existing educational systems and their degree of participation in it and d) self-identity, or a cognitive assessment of “Indianness” or degree of Indian blood. The two societies are the San Carlos Apache, a reservation-tribe of Western Apache located in east-central Arizona, and a large community of off-reservation Teton Dakota, specifically Oglala Sioux, located in towns of Northwestern Nebraska. Fewer than 5000 residents inhabit San Carlos (Parmee, 1968). Although they are largely unacculturated in terms of the criteria established, they depend on public and mission schools which use English as the *lingua franca*.

Many of the Sioux also rely on their tribal language, Lakota, as their first language yet their children attend public schools where English language proficiency is assumed. Although no longer residents of the Pine Ridge Reservation in South Dakota, their ties to it are evident in terms of kinship affiliations, political business, public health care, and land ownership. The Oglala are considered more acculturated to the dominant society than the Apache on the basis of the four criteria delineated. A brief ethnographic summary of the Apache and Sioux groups will provide a contextual background against which the educational process may be viewed.

The elementary schools at San Carlos are operated by the state of Arizona; there are no longer any federal BIA schools. Grades one through eight may be attended at San Carlos, while high school students must travel 30 miles to nearby Globe to attend grades nine through twelve. Mission schools are still present and active although they too must comply with state regulations regarding achievement levels. Virtually no children speak English when they first attend school. At age six, they are introduced to all-English classrooms taught by non-Indians none of whom speak Apache and few of whom have more than a superficial acquaintance with Apachean cultural traditions. At the time this study was conducted, from January to June, 1970, only three teachers of the Rice Elementary School District had even a remote understanding of Apache world view and history. During the last decade, some of the teachers have been trained to teach English as a second

or foreign language using the S.W.C.E.L. method¹, but the majority of teachers conduct classes monolingually in English. A child's linguistic facility may be inadequate for comprehension or performance, as exemplified by this seemingly amusing remark. A teacher stated:

"When we were reading about 'under-cover' agents, the kids thought that there was an Indian agent under the covers, and I had a heck of a time explaining what the book really meant! Also, how do you explain to an Apache kid what it means to 'pump' someone for information? The kids laughed their heads off, envisioning someone literally pumping up another person, like a tire!"

If home conditions are maximal, children may have little difficulty in adapting to the school environment, but in situations where parents are unemployed or suffer from acute alcoholism, or where housing is simply inadequate, children come to school hungry, tired and often emotionally upset. Academic competence is expected, although measures are taken to provide children with proper food and medication to ensure healthy participation. Teachers have had no exposure to bi-cultural or cross-cultural techniques and have little knowledge of materials written on Apache ethnography or language. Only highly motivated teachers take time to understand Apache language structure, rules for behavior in Apache culture, and ideological principles underlying Apachean cultural values. Little credence is given to the religious and supernatural beliefs held by children, and knowledge or practice of witchcraft is regarded as superstitious nonsense by some teachers. One instance was noted in which an entire class failed a test because of the teacher administering it in a room which the children believed was inhabited by death spirits. Clearly, an understanding of the Apache attitude toward death could have prevented this unnecessary failure.

Native religious practices are in actuality both a basis for cognitive development of children as well as a mechanism for social control. Students desiring to become medicine-men are instead restricted to regular classroom learning, since teachers do not regard these life-goals as viable economic alternatives. The psychological confusion of identity results in increased alienation of teacher from student and subsequently teacher from parent, manifest by a complete lack of communication between the community and the school. Parmee states: "The primary problems of teen-age Apache students . . . grew out of the many conflicts between the school system and the various social, cultural and economic forces . . . producing an environment so unstable that it actually inhibited the learning process." (Parmee, 1968: 6-7). The cultural dissonance in the school situation is reflected in the mutual inability to predict behavior, a lack of knowledge about culturally-patterned responses, and ignorance of constraints on situational behavior.

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The economic alternatives available to San Carlos residents range from local construction, community maintenance jobs to cattle production, ranching and the saw mill industry. As Parmee (1968) has noted, many adults have succumbed to the paternal care of agencies which provide welfare checks for subsistence. Few adults are employed in the educational complex and no Apache teachers have been hired (with the exception of teacher aides). Bernardoni's (1963) study of parental guidance and vocational choice at Cibecue on the adjacent Fort Apache Reservation is applicable to the situation at San Carlos: few Apache parents give their children advice or guidance concerning their futures and selected vocations, as this was aboriginally unnecessary. Changes in economy necessitate career choice; however, due to the continual estrangement of Apache parents from the school, few parents involve themselves in this process. Adult education programs which potentially provide family stability and a deeper understanding of students' work, are unlikely to meet with success unless changes in the school curriculum follow in accordance with the needs of particular reservations. Parents, after all, who have not lived in the off-reservation world nor sought employment in it, would be ill-equipped to help their children to make such vocational selections.

In northwest Nebraska, off-reservation Oglala Sioux are faced with many of the same difficulties, although they have chosen to leave the reservation. While they do not want to be assimilated, many do believe that maintaining old cultural traditions and language serve only to inhibit them from obtaining the benefits, education and employment that brought them to the towns. A 1970 population census indicated that approximately 700 self-identified Indians lived in the cities of Alliance, Scottsbluff, Chadron and Gordon. Indian informants, however, claim that this figure is below the accurate one, 1500 or 2000 being more realistic. Due to seasonal migration required by agricultural labor, the Indian population is in a continual state of fluctuation and censuses merely reflect the time of year during which they were conducted. The Sioux in these cities divide themselves into progressive and conservative factions, each having a distinct philosophy about acculturation. The conservative or traditional faction feels that, while they have given up reservation life (at least on a part-time basis), they should continue to teach their children the old ways and give them a distinct identity which will separate them from the larger population of the city. Their continued use of Lakota is the foundation for retention of traditional kin classification and family structure; the continuing belief in Siouan religious systems serves as an ordering principle and as a means of behavioral control. Children raised in traditional families attend public schools and must therefore adjust to the non-Indian classroom milieu. Often, it is these children whose parents take little interest in school functions and whose scholastic failure is imminent.

Until this year, no tutoring was provided to assist them with studies, and language difficulties insured that Indian students never reached the level of education that was common to their non-Indian peers. While data indicated that there had not been an Indian high school graduate in the Alliance High School since 1945, study of the records revealed that no individuals claiming Indian descent or tribal identification had graduated. However, some mixed bloods *had indeed* completed high school, but would not admit to being Indian. As Wax had clearly demonstrated, the distinction made between full-bloods and mixed-bloods is not strictly a biological classification, rather a cultural one based on degree of acculturation and geographic location.

The more progressive faction subscribes to the philosophy of rugged individualism: that they must 'make it' in the white world in order to prove their equality; and that they must discard their native language due to its lack of utility. They uphold the doctrine of individual competition as a means for determining success, as opposed to the group orientation of the more traditional Sioux. Belief in native religion, while often denied, still affects their behavior, as the manipulation of power is basic to financial and social gain.

Regardless of faction affiliation, there are many difficulties which many Sioux children face in public schools. Since young children have been raised to think as well as speak in Lakota rather than English, the use of strictly English school materials presents a hardship and disadvantage which is seldom overcome. School remains an alien institution which conveys only information, not attitudes or values or meaningful learning experiences. Similar to the situation at San Carlos, the learning process is inhibited by fear, prejudice, and language difficulty. Few students admit they have a working knowledge of Lakota much less speak it. Only after a relationship of friendship and trust has been established will young people feel unashamed to use their native language. As teachers seldom fall into this category, students remain distant from classroom participation.

One of the greatest struggles for off-reservation Sioux is the continual search for funding to alleviate social and educational problems. While Johnson-O'Malley funds are theoretically available to children attending schools on or adjacent to reservations, funds are not provided to assist Indian children who were former Pine Ridge residents. A recent grant from the federal government under Title III made to the Alliance City Schools permitted the creation of an Indian Counseling service to help both elementary and high school students with guidance in scholastic and non-academic areas. Students needing psychological help and vocational guidance can consult an Indian counselor who shares their native language and understands their conflicts, home situations and frustrations. Seeing that

an Indian occupies a position of guidance is reassuring to Sioux students who can see a tribal member fitting into the administrative system.

Second to linguistic problems is the conflict in role expectations between non-Indian teachers and their Indian pupils. Traditionally, Sioux children are expected to make personal decisions at a much earlier age than do non-Indian children. Thirteen and fourteen year olds constitute a peer group of new adults in Sioux society and their authority or ability to care for themselves is undermined by teachers who have little knowledge of this period. Other classroom situations cited by teachers include impatience in eliciting verbal responses and a lack of knowledge of the social uses of speech which affect a student's willingness to express himself. Verbal attack is often met with further student withdrawal and eventual disinterest in subject matter. The trauma of attending school often negates any learning which is taking place. Sex roles which differ in the Sioux and the white society also create an added stress to classroom performance; Oglala men traditionally regard women as unimportant in authoritative capacities, and female teachers are continually frustrated by the inability to elicit verbal responses from male pupils.

Anthropologists who are interested in applying their data toward correction of some of these difficulties are well aware that the success of change is dependent upon the community's interest or participation in the proposed solutions. Thus, the anthropologist serves mainly as a catalyst in change or as a tool in informing people of resources and avenues of development. The basic principle underlying even this minimal contribution is ethnography — discovering motivations which are psychologically real and processes of change which are compatible with cultural principles. Ethnosemantics can be applied to the investigation of educational problems caused by differing cultural backgrounds between the teacher and the institution he represents and the student and the community he represents. Many of the problems discussed here are articulated in what Wallace (1961:32) termed "equivalence structure" or the ability to predict behavior, and ethnoscience is a useful methodology for doing just that. Resolving the gap in mutual expectation could minimize ineffective teaching and thereby reduce academic failure. Cognitive anthropology as a methodology for ethnic education is most suitable in that ethnosemantic analyses can reveal points of cultural dissonance brought to light in systems of classification of both material and cognitive phenomena. Situational analyses such as Basso's study of the uses of silence among the Western Apache are ultimately useful in revealing domains which ideologically contrast in the Apache and white cultures and which are apparent in the behavior of school children (Basso, 1970).

In the above study, six situations have been clearly isolated in which it is appropriate "to give up on words" where not only is speech behavior

considered inappropriate, but verbal communication is actually abandoned. Certain situations dictate an accompanying “suspension of established role expectations” and replacement with contextually-specific action. Teachers who are not acquainted with these periods of cultural rule revision perform inappropriately. A knowledge if not an internalization of these situations by school teachers would prohibit violations of Apache behavioral expectations.

Two situations in which silent behavior is exhibited and which directly affect students’ classroom participation are 1) “meeting strangers”² and 2) “getting cussed out.”³ In the first situation, Basso notes that “strangers who are quick to launch into conversation are frequently eyed with suspicion”; therefore children who are faced with a nearly annual turnover of school teachers continually shy away from gregarious Anglo teachers. Although after extended contact students and teachers are expected to become acquainted, the child continues to view skeptically the motives and methods of forceful elicitation used by non-Indians. Interviews with grade school teachers indicate that children’s non-responsiveness remained a continual source of frustration during the entire year.

The second situation which continually affects classroom performance is, as previously mentioned, “getting cussed out”, meaning any situation in which an “individual, angered and enraged, shouts insults and criticisms at another.” Basso states, although without reference to school behavior, that “this may involve large numbers of people who are totally innocent of the charges being hurled against them. But whether they are innocent or not, their response to the situation is the same. They refrain from speech.” Apaches believe that “getting cussed out” is indicative of temporary irrationality or “craziness” of the angered party. Basso explains that people in this state take no responsibility for their actions and therefore may be assumed “dangerous”:

“The Western Apache operate on the assumption that enraged persons – because they are temporarily ‘crazy’ – are difficult to reason with. Indeed, there is a widely held belief that attempts at mollification will serve only to intensify anger, thus increasing the chances of physical violence. The appropriate strategy when ‘getting cussed out’ is to do nothing, to avoid any action that will attract attention to oneself. Since speaking accomplishes just the opposite, the use of silence is strongly advised.” (Basso, 1970:222)

The implications for classroom interaction are evident, and, as Wax has noted, teachers who get little response without understanding the silence tend to become angry and hostile, scolding and eventually alienating students. The reality of this insight became clear to me upon listening to a tape recording of a conference between a school official and an Apache mother: her child was accused of tearing another child’s dress, and the mother of the accused

attempted to explain that the child's silence upon "getting cussed out" by the teacher was not indication of guilt, rather the child had tried to reduce the anger of the teacher by remaining silent and eliminate the chance that violence might occur as a result of this temporary "craziness." An understanding of the uses of silence in these instances would have justified the child's behavior and provided a new framework for interpretation by the teacher and school official.

Basso's summary hypothesis is that "keeping silent in Western Apache culture is associated with social situations in which participants perceive their relationships *vis a vis* one another to be ambiguous and/or unpredictable." Clearly, the impact of this ethnosemantic study on student-teacher interaction is significant.

Sioux children, like Apache children, have reasons for non-participation and have made use of their traditional metacommunication system, sign language, for excluding the teacher from their non-verbal exchange. The code used by students has been described by LaBrack in his study of Teton Dakota sign language (LaBrack, Ms.). Use of signs is interpreted as a mechanism of group solidarity which excludes the teacher and reinforces peer group decisions. Situations in which sign language is used include evaluation of the teacher and his/her performance (usually inadequacy), and silent decisions to leave class for various purposes such as smoking. It is not my suggestion that teachers should learn the sign language code in order to outsmart the students, or to become aware of the system so as to prohibit its use. Rather, we can infer that the situation of stress, in this case poorly perceived by the teacher, has evoked a student response which reinforces non-communication. Understanding the conditions which precipitate the uses of sign languages, teachers can correct methods and behavior which cause anxiety in Indian classrooms. As LaBrack has stated, the phenomenon of the silent classroom which Wax (1964) discovered in his study must now be re-interpreted, for classrooms which appeared verbally silent were visually active and counter-productive to the goals of the teacher.

Other ethnosemantic studies attempting to decipher conceptual categories and beliefs reveal that religious domains equally affect motivations and goal-orientations. Basso's study of Apache witchcraft (1969) is critical in its explanations of behavioral constraints and motivations which affect decision-making processes, acquisition of wealth, power, prestige and economic and social stability. Clearly the goals and means to achieve them cannot be interpreted by school administrators and officials as parallel with those of the non-Indian community.

CONCLUSION

In conclusion, verbal elicitation in areas of social uses of speech or non-speech, situational constraints in behavior, religious beliefs as behavioral controls, and goal alternatives all reflect the native's perception of his world and, subsequently, points of disagreement with non-Indians' perceptions. As seen in ethnographic examples of the Western Apache and Oglala Sioux, the application of these studies to the formulation of teaching style and curriculum content is maximal. Ethnoscience, which claims to view culture from the "inside out rather than from the outside in" (Tyler, 1969:20), provides a logical framework for the study and interpretation of culture-specific behavioral rules and culturally-patterned responses. Viewing culture as a cognitive organization of phenomena rather than as material phenomena, (i.e. thoughts rather than things), educators can rely on natives' explanations of behavioral principles by which they operate rather than by allowing teachers to continually impose their own perceptions and take for granted the applicability of their personal systems of classification. Three specific contributions, then, can be made to ethnic educational theory: that ethnoscience can illustrate points of conceptual dissonance which can thereby be reduced or eliminated; that native cognitive processes and attitudes can be adopted and utilized by teachers to more effectively teach Indian pupils; and finally, that an examination of situations in culture-specific contexts can enhance a learning environment characterized by trust, participation, and mutual respect.

NOTES

- 1 S.W.C.E.L.
Southwest Co-Operative Educational Laboratory, Albuquerque, New Mexico
A method of oral language instruction used in the Southwest, specifically on the San Carlos Apache Reservation, Rice Elementary School. As with TEFL, (Teaching English as a Foreign Language), the target language is English, rather than bilingual instruction using native languages.
- 2 "meeting strangers"
Basso's gloss for the Apache phrase, *nda dohwaa'iltseeda*. The term applies to "any person – Apache or non-Apache – who, prior to an initial meeting, has never been seen and therefore cannot be identified" – or to "Apaches who, though previously seen and known by some external criteria such as clan affiliation or personal name, have never been engaged in face-to-face interaction."
- 3 "getting cussed out"
Basso's gloss for the Apache lexeme *silditee*. "This lexeme is used to describe any situation in which one individual, angered and enraged, shouts insults and criticism at another."

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