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A method for developing multicultural education programs: an example using Cahuilla Indian oral narratives

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A method for developing multicultural education programs:

An example using Cahuilla Indian oral narratives

by

Nancy Tucker Morris

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
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INTRODUCTION: MULTICULTURAL EDUCATION

Every classroom in America contains students who reflect, in their physical appearance, language and other behavioral skills, the diverse origins of the American people. In education this diversity has been viewed as both a negative and positive challenge. Teachers, administrators, school districts and educational planners have been hard pressed to provide quality education for all. How such diversity has been handled has changed dramatically over the past two decades. Previously similarities were stressed and education was concerned with providing immigrant children with skills needed for assimilation - language training and citizenship courses. Recently some interest has been directed to the contributions which cultural differences have made to the development of the nation.

Historically the United States has been composed of diverse groups who emigrated from many of the other nations of the world. Modern American society is a "unique mosaic of [these] cultures" (Hunter 1974: 11). The tacit assumption has been that these diverse cultures have been melded into a single cultural identity formed by the immigrant experience.

The goal of a single American culture, or the "melting pot theory" was first popularized by Zangwill (1909) in his play of that name. His idea was that all the groups immigrating to America would exchange ideas and cultural practices and meld into a unique "American" pattern which all would share freely. Zangwill based his ideas on observations of

what had happened to groups which had come to America from Northern Europe and the British Isles. However, when his play was written there were numerous immigrants from southern Europe, the Slavic countries, Asia and Africa who had not been assimilated. Zangwill thought that these groups with physical evidence of their ancestry, such as skin color or eye form, would certainly take longer to assimilate and would possibly be incorporated differently. He believed that eventually they too would join the Irish and others in melting into the American mainstream.

Cultural Pluralism

During the past two decades there has been an increased awareness throughout the United States that ethnic minorities still exist despite the melting pot theory. Recent studies (Krug 1976; Spradley and Rynkiewicz 1975; Arens and Montague 1976) have shown that despite predictions that migrants would be fully assimilated into a single American tradition, this is not the case. In fact, even the European groups, which Zangwill considered the epitome of his ideas, have maintained their European heritage in the New World.

The existence of ethnic social clubs, ethnic language newspapers, work cooperatives, churches with ethnic affiliations, geographic clustering, marriage patterns and social relations have tended to perpetuate cultural traditions not readily visible at the individual level. Today American society and culture is as pluralistic as it was during its formation, although this heterogeneity is expressed in different

forms.

As early as 1916, when John Dewey spoke of cultural pluralism (Dewey 1916), there was a recognition that ethnic groups were maintaining their individual integrity. With the start of desegregation, during and after World War Two, there has been a growing awareness that there is cultural and ethnic diversity within this country. The Civil Rights movement of the late 1950's and 1960's expressed the growing frustrations with the disparities in life style caused by differences in race, sex, religious preference or cultural heritage.

The social and economic unrest of the 1960's clearly pointed out that a fairly large segment of American society did not accept the efficacy of the melting pot--not its presumption of "one American culture" nor its suggestion of superiority for this unitary way of life (Kopan and Walberg 1974: vii). Members of militant organizations, at first primarily Blacks and later Chicanos, Native Americans, Asians, Puerto Ricans and other ethnic groups, demanded recognition as spokesmen for groups of culturally different Americans. Education was a prime target of such public indignation. The 1954 court decision in Brown v Board of Education of Topeka summarizes these concerns. "In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education" (Brown v Board 1954: 483). Importantly this decision lays out the legal obligation of the "state" to provide education; "Such an opportunity...is a right which must be made available to all on equal terms" (Brown v Board 1954: 483).

Multicultural Education

Hunter (1974: 11) emphasizes the obligation of education to society; "To maintain and perpetuate itself a society and nation must set forth education as one of their essential institutions and systems to reflect and administer to the diverse needs of their people." American education today must recognize that the society it serves is culturally pluralistic. Several national education organizations, The Association of American Colleges of Teacher Education (hereafter referred to as AACTE) and the National Education Association, (hereafter referred to as NEA), have issued statements calling for multicultural education, that is, education "oriented toward cultural enrichment of all children and youth through programs rooted to the preservation and extension of cultural alternatives" (AACTE 1972: 1). Within this framework a commitment to cultural pluralism means going beyond awareness or understanding of cultural differences to develop "an effective educational program that makes cultural equality real and meaningful" (AACTE 1972: 3).

The AACTE clearly states that being culturally different is not equivalent to being disadvantaged. Multicultural education is not a euphemism for "disadvantaged," a concept put forward during the 1960's to "explain" the poor educational attainment of the nation's minority students (Grambs 1968; Walberg & Kopan 1972). This deficit model concept (Ianni and Storey 1973) should be discarded as it neither defines the issues nor promotes solutions (Forbes 1969; Epps 1974;

Young 1970; Banks 1975; Rose 1974; Kopan and Walberg 1974).

Multicultural education requires teachers and school personnel who are professionally trained to work within, and for, ethnic diversity (Hunter 1974; Forbes 1968, 1969). This requires a personal and professional commitment to the positive values of cultural diversity. To achieve this there must be a commitment to develop curricular materials which accurately portray the diversity which exists and which afford all individuals the quality education which is their legal right.

The concern of this research is to show how specific cultural materials can be incorporated into multicultural education. Native American oral literature is used to derive information about cultural values and indigenous pedagogical techniques for application in a formal educational setting. The case presented here involves the Cahuilla, a tribal group living in southern California.

Multiculturalism and education

Probably the most difficult part of writing an overview of the literature in multicultural education is that it is a relatively new academic approach to important educational issues. Multicultural education can best be defined as an attitude, a basic philosophy held by many educators and social scientists who perceive the importance of cultural factors in education and who are cognizant of the importance of America's cultural pluralism.

There are few well-known leaders in the field; instead there is a developing literature associated with participating academicians,

institutes and departments that have created their own distinct approaches to the issues raised by the multicultural perspective. Within education some of the individuals include Tomas Arciniega at San Diego State University, Nancy Arnez at Howard University, Gwen Baker at the University of Michigan, Harry Bowes at University of Southern Colorado, Arthur Coladarci at Stanford University, Richard James at Morgan State University, Consuelo R. de Otero, at the University of Puerto Rico and Paul Mohr at Florida A&M, all of whom served on the AACTE Commission on Multicultural Education. To this list must be added Frank Klassen and Joost Yff of the Ethnic Heritage Center for Teacher Education (Washington, D.C.), William A. Hunter, past director of the AACTE Project on Competency Based Teacher Education (hereafter referred to as CBTE) and now at Iowa State University, Susanne Shafter at Arizona State University, Jack Forbes and James Banks.

Numerous institutions have made a commitment to multicultural education including San Diego State University, Stanford University and University of Houston. Morgan State University was involved in writing the grant to finance the first book on multicultural education and teacher preparation (Hunter 1974). The Ball State University program to prepare teachers for multiculturalized secondary schools, called MULTICUL, received an award for distinguished achievement from the AACTE in 1976. Arizona State has a program in Indian education which incorporates many of the basic concepts of multicultural education. The Ethnic Heritage Center in Washington, D.C. and the Far West Laboratory for Educational Research and Development in Berkeley have completed

several studies of multicultural education (Forbes 1968). The American Association of Colleges of Teacher Education (AACTE) and the National Education Association (NEA) have been outspoken in their support for multicultural education (Hunter 1974: 19) and the Comparative and International Education Society meetings in 1976 were devoted to the theme: "The Comparative Study of Education in Multicultural Settings."

Banks (1975: 19), in his overview of the discipline, identifies two general objectives for multicultural education: (1) to help individuals clarify their ethnic identity and function effectively within their own ethnic community and (2) to learn to function effectively within other ethnic groups. In addition to providing an educational climate beneficial to the ethnic child, multicultural education must promote the development of a positive attitude toward cultural pluralism throughout the society. Multicultural education "encourages people to accept and respect both their own cultural heritage and that of people of different cultural backgrounds" (Gollnick et al. 1976: 10).

Gollnick et al. (1976: 12-22) discuss the impact of multiculturalism on education as the recognition by educators: (1) that there are unique emotional and learning needs of children from different cultural backgrounds; (2) that there are distortions and omissions in curricula because of unrecognized bias; (3) that to be culturally different is not to be culturally inferior; (4) that a single set of educational goals and values may not be acceptable for all students; (5) that teachers must be professionally trained

in a multicultural model; and (6) that a commitment to cultural pluralism must "permeate all areas of the educational experience" (AACTE 1972: 2).

If it is to fulfill the goals which its proponents have articulated, multicultural education requires an interdisciplinary approach. This is reflected in the use of social scientists (an anthropologist, a sociologist, a psychologist and a political scientist), as consultants for the CBTE project in addition to teacher educators and a curriculum specialist (Hunter 1974: 5). Banks (1975) also insists that multicultural education be interdisciplinary and adds an economist and an historian to the disciplines listed above.

Because this study draws heavily on anthropology, the following section will discuss some of the anthropologists who have become interested in multicultural education and their contributions to the field and the kinds of information and conceptions which anthropology can bring to multicultural education.

Multiculturalism and anthropology

The commitment of anthropology to multicultural education can be seen in the growing number of sessions and papers on education presented at national and regional professional meetings. For example at the 1974 American Anthropological Association meetings in Mexico City over 50 papers were devoted to education programs. Educational anthropology has its own journal (Newsletter of Anthropology and Education) and undergraduate and graduate degrees are granted with a

specialization in anthropology and education.

Some of the anthropologists who have made a commitment to multicultural education are Jacquetta Burnett (1974), Courtney Cazden (Cazden et al. 1972), Estelle Fuchs (1967), Solon Kimball (1974), Robert Redfield (1973), George Spindler (1955), Maurry Wax (Wax, Wax & Dumont 1964), Roaslie Wax (1972), Fred Gearing (1973), Vera John (1972) and others (Ianni and Storey 1973). The principal contribution that anthropology can make to multiculturalism is the concept of culture. It is important that educators understand the distinction between "culture" as a theoretical concept or construct and the manifestation of that abstraction as "a culture."

Culture has been defined as "that complex whole which includes artifacts, beliefs, art, all the other habits acquired by man as a member of society" (Kroeber and Kluckhohn 1952: 82). Such a definition treats culture as nearly everything that has been learned or produced by a group of people. More recently the concept of culture has been restricted to mean, "the knowledge people use to generate and interpret social behavior" (Spradley and McCurdy 1972: 8); "the knowledge that members of their society have found useful in coping with their life situation" (Spradley and McCurdy 1972: 9).

These definitions emphasize the integrative aspects of culture. However, all members of a society share that culture in different degrees; there are specialists who are especially knowledgeable about specific areas. In another sense some of the parts of a culture are not unanimously held or are internally inconsistent so that the culture

does not function as a unit. Yet there is an integrative aspect to the whole fabric which is somehow greater than its diverse parts. This the anthropologist sees as the holistic perspective of their discipline.

Because a culture is a somewhat bounded set of meanings each culture sees itself as correct and is unaccepting of alternatives. This perspective is termed "ethnocentrism" by anthropologists. Each culture sees itself as "superior" to all others.

There are several important aspects to ethnocentrism. First, it is common to find that members of one culture frequently think of neighboring cultures in negative, even nonhuman, terms devising names which indicate this status. Kraut, Limey, Frog and other terms have been used to connote hostility and fear.

This tendency to denigrate what is different is one side of the coin. The second side is the "glorification" of one's own culture as providing the correct solutions to the problems of housing, food, politics, sex, religion, and security which men must solve to survive. This belief that "our" way, "our" religion, "our" laws or "our" form of marriage, is the only correct way to act gives each individual the confidence to continue living as he has been taught, free from the necessity of analyzing each situation anew. Culture provides the general range of accepted reactions for most occurrences thereby reducing the anxiety created by uncertainty.

Anthropologists can assist educators in understanding and accepting a cultural approach to education. As a science of human alternatives...anthropology explores the human capacity to be different"

(Ianni and Storey 1973: x). Anthropologists can work with educators to develop an awareness of the positive value in human differences and the validity of cultural alternatives. This awareness would result in the development of multicultural education programs whose form, content and implementation would reflect the goals and needs of its recipients. In effecting change educators could also use anthropological assistance in mapping out the areas most and least receptive to change, describing methods for achieving desired ends, and assisting in the development and implementation of such programs (Ianni and Storey 1973; Spindler 1955; Wax, Diamond and Gearing 1971). Using such assistance, educators could more effectively develop, implement and evaluate new programs for the multicultural school.

The awareness of the validity of human differences is basic to any program in multicultural education. Anthropologists call this cultural relativism, the belief that each culture be judged solely in terms of itself and its own expectations. Cultural practices can not be understood in isolation. Rather they must be seen within the larger context of the culture of which they are a part. Judgements as to the worth of specific practices must rest on an initial understanding of the culture.

Multiculturalism and psychology

One of the critical questions which American education must address is whether there are different modes of learning and whether these reflect cultural factors. If so, then the existence of substantial and

real cultural differences within American society has had, and will continue to have, an unrecognized and unevaluated effect on the ability of these children to perform in the formal education setting. The development of multicultural education rests on an assessment of the interface between psychological and cultural factors affecting learning. Most of the research on these issues is based on Piaget's model of cognitive development (Dasen 1972).

Piaget, a Swiss developmental psychologist, has been investigating cognitive development in children for over three decades (Piaget and Inhelder 1969). There are a number of books which review and interpret Piaget's theory (Issacs 1974; Phillips 1972; Turner 1973; Gardner 1974; Beard 1969) and others which outline its application and implication for education (Brearily 1969; Copeland 1970; Furth 1970). Today Piaget stands as a dominant figure in current research on cognitive development. Piaget views cognitive development as an orderly progression of the organism through a series of increasingly complex cognitive stages, each of which has a well-defined character. For the Swiss children Piaget used as subjects, and for European and American children in general, age ranges have been assigned to these stages. Piaget sees four major divisions or stages: (1) sensori-motor, age birth to 2 years; (2) pre-operational, age 2 to 7; (3) concrete operations, age 7 to 11; and (4) formal operations, age 11 to 15 and through adulthood.

Piaget asserts that a child must progress through each state before being capable of the "logic" or cognitive processes found in the

next, although a child can be in a transition stage between two stages, exhibiting some behaviors from each stage. There is nothing to be gained from attempting to teach a child something which requires a cognitive function he has yet to master. The implication of Piaget's theory for the classroom is obvious. To be successful, the child must be taught within his capacities, using methods which fit his cognitive development. This is known as readiness. For example, the child in the concrete stage learns numbers best when allowed to manipulate objects, thereby linking the abstract concept "number" with a concrete "object".

The cross-cultural Piagetian research indicates that non-Western people do not move through all of the developmental levels described for European and American children and that there are distinct differences in the way information is processed.

Cole and various collaborating researchers (Cole, Gay, Glick and Sharp 1971; Cole and Scribner 1974) have worked with the Kpelle of Liberia, originally to assist the Liberian government in developing a new mathematics curriculum for the schools (Gay and Cole 1967). These investigations showed that the Kpelle children and adults being tested seemed incapable of performing certain Piagetian tests which their age-mates in America and Europe were capable of. These "failures" were originally attributed to testing procedures such as poor instructions and lack of familiarity with the types of tasks being requested. However, standard types of revisions which had been successful for American

and European subjects did not lead to improvements in Kpelle performance. The only change in the experiments which significantly improved recall involved imbedding familiar objects into stories similar to traditional myths (Gay and Cole 1967; Gay 1971). When subjects were questioned about how they had solved the Piagetian tasks their responses showed culturally bounded patterns in problem solving (Cole and Scribner 1974: 160-167; Scribner 1973: 1). Pressed to explain their solutions further they often reverted to the answer "that's the way it is" (Cole and Scribner 1974: 163).

The researchers examined everyday Kpelle life to see if the test results accurately reflected Kpelle abilities as exemplified by cultural performance. The answer seemed to be negative. Anthropological observations showed that the Piagetian tests indicated that the Kpelle are egocentric and unable to take the listener's point of view. However, Cole and Scribner (1974) noted several specific practices which contradicted this; among them was sazna, an elaborate, two-edged way of speaking which was a common method of criticizing people without directly confronting them. It required a careful assessment of the personality, motivation and experience of the person spoken about. From these observations Cole and Scribner (1974) suggest that accurate assessments of cognitive skill are possible only by using experimentation and observations of naturally occurring situations.

A key factor in the assessment of these results is that within the non-Western samples there seems to be a correlation between Western style education and attainment of Piagetian stages 3 and 4 (Cole,

Gay, Glick and Sharp 1971; Cole and Scribner 1974; Gladwin 1970; and Scribner and Cole 1973). These data show that Piaget's stages occur in the same sequence as for the Western samples. The only difference is that there is a time lag in moving between stages. This probably reflects the fact that formal education begins later than in Western countries. These data on educated non-Western students show that there is no innate, biological basis for the differences in performance on the Piagetian tests, that is, that they are cultural. Somehow the cognitive processes demanded by Western or Western style education are sufficient to equip students with the tools to perform successfully on the Piagetian tasks.

Learning Styles

Gladwin (1970), who has studied cognition among indigenous people in the Pacific, postulates that the cognitive differences which become visible on intelligence tests or Piagetian tasks, reflect the way information is processed and manipulated rather than the way it is categorized. Gladwin draws upon recent ethnosemantic studies which examine the organization and attributes of "folk" concepts to understand the meaning of culture (Spradley and McCurdy 1972). These have shown that complex cognitive maps, taxonomic structures of folk concepts, exist for all groups and that their complexity is independent of the level of economic development of the culture (Goodenough 1956; Spradley 1969, 1970). These studies have shown that such cognitive maps are frequently very different even for individuals living within

the same culture, as occupations have developed elaborate, specialized "maps." In the Puluwat navigation system, the input and output of information and decisions is prepackaged; there is no need for innovation because there are no unprecedented problems. Therefore, Gladwin (1970) suggests that the researcher needs to examine the information processing system as well as the classifying hierarchies of information. Gladwin notes that non-European people without Western schooling tend to perform on tests in much the same way as do poor people in the United States. He suggests that this "style" of thinking is poorly adapted to the demands of intelligence tests.

Within education there was an awareness of styles of learning as early as 1965 (Berman 1965) with the publication of an assessment of education for indigenous groups in the Southwest written by Systems Development Corporation (Santa Monica, Ca.). This independent consulting firm refers to "styles of learning" as being of sufficient importance to impede the educational progress of the Indian student (Berman 1965). Recent studies (Sizemore 1972; Wax, Wax and Dumont 1964; Young 1970; and Spindler 1955) indicate that there are different conceptual models of schools, schooling, education, profession, survival and success. These are alternatives the educational community and the general American society have been unwilling to accept.

Studies by sociologists, anthropologists and linguists have been instrumental in establishing the legitimacy of cultural differences as factors effecting educational performance. For example in Language and Cultural Diversity in American Education, Abrahams and Troike (1972)

demonstrate the inadequacy of the "deficit model" of the culturally different child by showing that given the correct educational setting such "deficit" children could equal or surpass their classmates in achievement. Nimicht and Johnson (1973) report similar results. Therefore differences in learning styles have a cultural not a biological basis (Bruner et al. 1966).

Data also exist on the different learning styles of Native American children. Dumont (1969) notes that for Cherokee children, difficulties in school are not a function of the content of curricula, but of styles and methods of teaching. John (1972), Berman (1965) and Cazden et al. (1972) suggest that Indian students are unprepared to accept information orally, that they have been taught by observing, not by being given directions, that they prefer work which is self-directed and projects which are self-initiated. This suggests that a program with a minimum of interaction between student and teacher is the most likely to succeed because it follows the culturally accepted pattern.

Wax and Thomas (1972) attempted to clarify some educational problems of Native American students by informing teachers of cultural reasons for the apparent apathy of students. In reality what the teacher perceived was an extension of the basic doctrine of non-interference in the affairs of others which is central to many Native Americans. For example, this ideal is so deeply woven into Navajo and Hopi culture that it extends even to the relations between parents and fairly young children. Direct orders, rules, or requirements for specific behavior are not given by parents as authority figures to subordinate children. It is

assumed that the child can and will decide what, where and when things are to be done (Dennis 1940; Leighton and Kluckhohn 1947). Children are allowed, in fact expected, to decide where they will go, when they will eat, and with whom they will live as early as age 4 or 5, without direction or control by parents. Adults exhibit this noninterference by refusing to speculate about the opinions of others, even in situations where it is obvious that they know these preferences.

The result in the classroom is that children are not prepared to accept the teacher's word simply because she is the authority figure. They resent being told what to do and how to do it. Teachers misinterpret certain aspects of behavior; for instance, the refusal of students to speculate on the motivation of a character in a play, the writer of a poem, or an artist. This refusal is viewed as apathy or defiance by the teacher, whereas in reality it is the height of good manners not to speculate, as defined by the student's culture.

Vera John and Susan Philips (Cazden et al. 1972) have also explored perceptions which hamper the smooth flow of education for Native American students and their teachers. The findings indicate the simplicity of some of the solutions implemented with positive results. Allowing Native American students to do group work and to cooperate on projects leads to significant improvements in achievement.

Summary

Multicultural education promotes the recognition that cultural diversity is a reality and a positive aspect of American life. The goal of multicultural education is to achieve the equality of opportunity stated in the Declaration of Independence and guaranteed under the U.S. Constitution. Numerous court cases have clearly shown that an equal education is measured in terms of educational attainment, not in the existence of identical facilities or opportunity. A commitment to multiculturalism requires that schools acquaint students with the rich heritage of all groups, and also that educators understand that not all children are receptive to the same educational environments. For these children education needs to be refocused to enhance their expectations, ambitions and unique capabilities for school.

Multicultural education draws upon many fields including anthropology and psychology. Anthropology brings to education its research tools and the basic concepts of culture, ethnocentricity, and cultural relativism. From crosscultural psychology comes a body of data that indicates that without formal education, the cognitive functions of illiterate non-Westerners can not be adequately measured by any currently used cognitive tests. There are suggestions that the ability to perform on these tests rests with the way information is processed, a skill which can be acquired by formal education. Within indigenous systems information processing involves a reliance on culturally

prescribed solutions which are not equivalent to the cognitive models assumed by any of these tests.

STATEMENT OF THE PROBLEM

Today one of the major challenges facing education is the development of curricula for bilingual and culturally different students. Although such students have always been a part of the American educational system, they have not been a significant factor in the development of educational programs. The present social, political and legal climate mandates that educational programs must reflect the various ways in which Americans define themselves if equality of educational attainment is ever to occur.

It is assumed here that the effectiveness of any teaching medium is an outgrowth of its belonging to a mutually reinforcing meaning-value system; it restates and reinforces existing cultural values. The greater the overlap between the educational medium and content and the basic values espoused by the community the more effective is the learning process. The more congruence between the systems, the easier it is for students to internalize the material being taught. It is also assumed that the specific meaning systems important to a culture are transmitted to children in various forms, one of which is traditional forms of oral literature.

The purpose of this study is to examine the feasibility of identifying traditional meaning systems as the first step in developing effective new curricula for schools in multicultural communities. One of the hypotheses to be examined is that the congruency between traditional educational material (various forms of oral literature) and

worldview (meaning system) can be evaluated by doing a content analysis of the stories and validating the results by referring to independently collected ethnographic material. The second hypothesis to be examined is that an analysis of traditional educational forms will yield data which can be used in multicultural education programs. The specific objectives of the study are (1) to search for and describe important pedagogical characters and themes in Cahuilla mythology and (2) to evaluate the effectiveness of using a computer program to implement such an analysis.

Myths have been chosen for analysis because traditional songs and stories have been shown to reflect the characteristics of an entire culture (Boas 1916, 1935; Cole 1915; Spencer 1947, 1957; Ehrlich 1937; Colby 1966a, 1966b; Kluckhohn 1942, and others). As Stone et al. (1966: 6) remark "such material, as suggested by their repetition over many generations, may depict focal concerns and problems within the social life of a culture." The data consist of a body of oral narrative which have been identified in the published literature. These myths generally give information on the cultural history, action-actor role models, values, norms and meanings important to a group. They provide the rationale for the makeup of the present world, its physical appearance and the natural actions and purposes of its inhabitants. In this sense it is a "natural" meaning system. Such traditional oral literature functions as a synchronized cultural model. It teaches explicit and implicit cultural meanings, deep and surface structure. Without great care such meanings are lost to the

nonmember.

The decision to focus on Native Americans in this work stems from a historical assessment of Indian education and an analysis of contemporary Indian education programs which suggests that educational planners have often neglected to determine, or accurately consider, traditional Indian norms and values.

The material to be analyzed is part of the oral tradition of the Cahuilla, a group of Shoshonean speaking Indians who live in Southern California in the mountain basins between Palm Springs and the Pacific coast. The Cahuilla have been chosen for study for several reasons.

(1) A set of original and translated texts has recently been published (Seiler 1970). Included in this collection are origin myths, tales and historical narratives, which is a cross section of all oral genre. In addition, future researchers can check the results of this analysis with the phonemic transcriptions in Seiler. The phonemic transcriptions themselves may be used in language training. (2) There are several published ethnographic studies of the Cahuilla which provide background data on traditional cultural practices. Two of these were published early in this century when much of the culture was still intact. This material provides independent validation for the analysis of the texts. (3) Although not a large tribe, the Cahuilla are a viable entity and do retain many of their traditional ways. Current ethnographic materials will allow for comparisons with earlier observations. (4) In addition, contacts have been made with tribal members on several Cahuilla reservations and with Ruperto Costo, a Cahuilla, publisher of Wassaja

and an active proponent of Indian rights. Therefore, this work can be of assistance in the actual implementation of multicultural programs.

The rationale for examining the effectiveness of the computer assistance is time; if such meaning systems do prove useful in designing bicultural curricula it will be necessary to abstract them quickly and accurately. If they are discernible only after years of study then their appearance will come too late to be of immediate value to the American indian.

Certain limitations have been placed on this work. In no sense will an attempt be made to define the entire meaning system of the Cahuilla. The goal is to identify pedagogical characters and themes present in the tales. No attempt will be made to design curricula based on the semantic fields which emerge from the analysis, although suggestions will be offered as to the general direction for such developmental work.

The research presented here relates specifically to the Cahuilla Indians of California, but more broadly to American Indian education and to learning in any crosscultural environment. The principles being explored have relevance for other minority groups as well. The methodology used should allow or assist the development of various materials important to implementing multicultural education--curriculum materials for schools with minority members, guides for teachers in these classrooms, basic data for teacher preparation courses to build awareness of the impact of cultural differences in the classroom and to prepare teachers to work more effectively with the culturally difference child,

and material to acquaint nonminority children with these different cultures.

The key to understanding different cultures is the study of the meanings conveyed by their language. Each culture has its own epistemology, its own theory of knowledge that reflects the unique reality constructed by, and within, the system of meanings called culture. How each culture defines its own world is a fundamental question that needs to be understood before successful multicultural educational programs can be designed.

METHODS

When describing the methods used in this analysis it is important to remember the goal of this research: the creation of a tool to extract information from myths which can be used to improve education for Native Americans, in this case specifically the Cahuilla. The general types of educational material envisioned include curriculum materials such as stories for beginning readers, environmental or oral historical projects for older students, data on learning and instructional styles for teachers and school planners who are not Indian themselves, and additional support for the concept of multicultural education to compel teacher education institutions to inaugurate programs to prepare teachers for a commitment to multiculturalism.

Prior to describing the methods used in this analysis, two areas of methodology will be reviewed, first myth analysis and second content analysis.

Myth Analysis

During the 19th century and early 20th century the European intellectual community began to digest the remarkable reports that flowed in from explorers, missionaries, and amateur observers who scattered to remote lands in search of souls, wealth or prosperity. Besides bizarre sexual and social practices, most of these early accounts included at least some mention of a tribal mythology which was invariably compared with Northern European or Greek models. Aboriginal

cultures often portrayed a world creation or epic hero similar enough to a Western European one that theories of lost tribes, or remote biblical ancestors emerged (Gray 1916-1932). Behind this intellectual facade, however, was some substantial scholarship that resulted in the discovery of grammatical laws and the reconstruction of European tribal ancestry (Lyons 1969).

Early in the 20th century mythology became a resource for the emerging sciences of psychology and anthropology. In Europe, Freud (1950) and other psychologists began to fashion a psychological theory based on the symbolic analysis of myth as "mental fact." Oedipus, Electra, and the other mythic characters became the cornerstones for the archtypical psychological patterns of the family and by extension, the mythology of the group. Freud posited a direct connection between individual "emotional reality" and the reality portrayed in myth; wish fulfillment, dreams and myth were all "projections" resulting from psychological dispositions.

In America, Franz Boas, an immigrant scholar who founded American anthropology, began to collect and analyze the tribal mythologies of Native North Americans (Boas 1896, 1916, 1935), as did his students (cf. Benedict 1935). Boas saw myth and culture as being closely intertwined and anthropologists have generally followed this idea. Malinowski (1926) saw myth as the charter of a society, outlining all the basic social arrangements and their historical precedents. Bascom (1954: 336-8) says that all folklore, including myths are "like language...a mirror of culture [incorporating] descriptions of the

details of ceremonies, institutions and technology as well as beliefs and attitudes." Raymond Firth (1961) and Edmund Leach (1964), British social anthropologists, have argued that myth can be seen as related to specific social forms, namely social status and social change. Clyde Kluckhohn (1942) sought psychological explanations for the kinds of symbolic systems present in myth. Recently Fischer (1963: 265) stated that myths "have a determinate relation to social reality even if they are not always a direct reflection."

Myths are part of a larger body of narrative variously referred to as oral traditions, folk tales, folk narratives or oral narratives, the term used here. There are numerous types, or genre, of oral literature including myth, folktales, stories, songs and other types. There is no complete agreement on the definitions of these genre and an extended discussion of the related arguments will not be given here (cf. Ben-Amos 1972: 4-5). It seems reasonable to follow the most widely used definition of myth as sacred texts related to the basic postulates of a society (cf. Ben-Amos 1972), or as Jacobs (1959: 178) says myths are "cultural heirlooms".

Myth and learning

Because nonliterate people do not write down their history, their oral traditions play a large role in the recording and transmitting of their culture. Accuracy, as in all histories, is shaped by necessity and imagination. Each group fashions for itself a coherent and comprehensive world view that can then be transmitted orally from generation

to generation thereby insuring a continuity of beliefs, values, and the reality with which they articulate. Materials incorporated into oral narratives are drawn from daily life although "not all social life is reflected with equal clarity in folktales" (Fischer 1963: 238).

Since not everything can be collected or remembered certain essentials are retained to ensure an accurate portrayal of each group's heritage.

There are many ethnographic examples supporting the thesis that myths are pedagogical tools; Aesop's fables are clear examples from European history. The Tlingit warn their children, "do not be like Raven who..." and proceed with the story. They are myths and legends used directly in training children (Swanton 1909: 19).

There are numerous citations to suggest that the juvenile audience has had an important influence on the nature of myths and folktales, in both style and content. The material has been molded through the "unconscious efforts of the raconteur to hold the attention of the juvenile audience and to please the elders by telling tales which are 'good for' the children" (Pettit 1946). Pettit suggests that myths serve an important educational purpose and may in fact have been formed primarily for teaching.

Havelock (1963) maintains that "an oral tradition produces special mnemonic devices such as an epic poem, which functions as an 'oral encyclopedia' of the social material and other aspects of the culture." This idea has been popularized by Marshal McLuhan (1962) and David Riesman (1956) who suggest that the nonliterate must devote full attention to the spoken word because they cannot store their experience

in print. Riesman adduced that New Guinea and Zuni nonliterate had developed similar mnemonic habits for the organization of cultural material.

Cole, Gay, Glick and Sharp (1971), in their extensive study of the Kpelle of Liberia, Africa, cite an example of the use of traditional folk tales in improved learning performance. Cole's work on the cultural context of learning included a set of experiments designed to study the relation between various cultural factors and memory (Cole et al. 1971: 111). A section of their study involved defining the conditions which affect a subject's ability to remember a list of things presented earlier. The results of these experiments showed that the Kpelle did very poorly on standardized tests involving the recall of a series of objects. Even the use of familiar objects, careful translation of instructions and a series of alterations in the research design did not improve Kpelle performance (Cole et al. 1971: 93-142). The only change which did improve recall was when the items were embedded in stories derived from Kpelle oral literature (Cole et al. 1971: 139). They believe that this is experimental evidence that a story context provides a rule-governed retrieval process routinely used by the Kpelle (Cole et al. 1971: 139).

Myths as data

Why do myths form a good data resource on traditional educational methods and content? First, as pedagogical tools myths contain all the elements of a good instructional model. They use imagination to attract

attention; they incorporate important information into situations to keep the interest of the listener; there are attempts to resolve issues and to show the consequences for actions; and the methods of problem solving are not in conflict with basic cultural tenets. Second, myths are the best source for cultural values set in an instructional medium. The contents of the stories both reflect and stand as a model for culturally ascribed methods of performance. The stories, therefore, illustrate culturally determined possible problems and appropriate acceptable solutions. Thus the learner-listener is presented with a finite set of patterns to learn rather than learning how to learn, which is the model assumed by Western education. The pedagogical purpose of myths is to perpetuate, not change, culture. This is in contrast to the Western model of learning where change is a culturally valued end product.

Third, myths offer an instructional/learning model applicable to the culture's world view. Hoijer's (1964) work on Navajo language and numerous other observations on Navajo job training sessions illustrate this. Among the Navajo the dominant pattern for learning is passive in character. The learner watches until confident (s)he has understood, "learned," the task, and is confident he can perform without error. At this point the learner attempts to complete the task alone without error. Trial and error learning is not a culturally acceptable technique, as mistakes make the learner appear foolish and childlike (Wax 1972).

Similar models can be seen in the myths (Spencer 1947, 1957).

Learning "styles" are defined by the actions of characters in the stories and by the linguistic flow of the story (Hoijer 1964). Characters do not ask for assistance in fulfilling difficult or novel tasks; they learn by observing. In another sense learning is an action process; the learner does not talk about how to shoot an arrow. He watches hunters shooting and then shoots an arrow himself. Verbal instruction is not given except indirectly, through the myths. It is in the myth that the learner is exposed to behavioral alternatives, told where to find important natural resources, how to process them and why the world is as it is.

Myth and language

There are numerous definitions of language but one of the simplest and most current will be used here. According to Greenberg (1967: 13) language is the system of cultural knowledge used to generate and interpret speech. Myths are composed from language and provide access to nuances of linguistic performance. In addition, myths are cultural artifacts shared by constituents and can be both private and public in their meaning. They are also symbolic codes which convey meanings beyond their explicit reference as language.

The relationship between language and myth is difficult to assess. Each culture utilizes the machinery of its language to enhance, refine, hide and generally explore the potentialities of its own mythology. Each language uses its own syntactic, phonemic and semantic tools to construct and restructure ancient tales to give life enduring memories.

The key question here is to what extent knowledge of the indigenous language is necessary for heuristic analysis. The grammatical analysis by the linguist does not exhaust what is generally meant by language. However, grammatical analysis does make one aware of the linguistic tools a language provides for communication.

The goal of the analysis must be kept in mind when addressing the language-myth issue. If the analysis is a structural one then language, and particularly syntax, may not have a crucial place in the outcome (Levi Strauss 1966). Other styles of analysis consider this to be misleading advice and suggest that the relationship of language form and myth meaning can have varying importance to the final analysis (cf. Georges 1968; Fischer 1963).

To minimize the possible impact of language on the final outcome, it has been suggested that only texts written in the indigenous language with English translations be used in the analysis. The difficulty with this enterprise is the time involved in learning several languages or in training speakers in the analysis procedures. The decision made here was to use translated texts which have parallel phonemic transcriptions (Seiler 1970). The publication of these texts includes a lengthy discussion of translation procedures, thereby satisfying some of the requirements on each side of the language issue.

Content Analysis

Social scientists who analyze text material of any kind are faced with an unusual problem in their research. They must analyze subjective phenomena (words, phrases, and sentences), which may have innumerable nuances of meaning, in an objective manner. As Stone et al. (1966: 4) say, "while impressionistic conclusions may satisfy the needs of day-to-day living, they do not usually form the reliable resource needed for testing research questions." Such impressionistic conclusions are unsatisfactory because they derive from such unrecognized, unspecified parameters as the individual's own frame of reference, his biases, the way he feels at a particular moment, or his desire to prove specific results. To overcome these weaknesses social scientists have developed a research technique called content analysis "to explicate such judgemental processes more clearly and to make them more objective" (Stone et al. 1966: 4).

Defining content analysis

Probably the most widely accepted definition of content analysis was developed by Stone and Holsti (Stone et al. 1966: 5). Stone (1966) and Holsti (1969) define content analysis as "any research technique for making inferences by systematically and objectively identifying specified characteristics within text." An examination of this definition will illustrate the issues involved and the implications of some of the assumptions made when doing content analysis.

Probably the most important part in this definition is that the desired results of any content analysis are inferences which, as Stone et al. (1966: 5) say, are the "raison d'être of content analysis." The words analyzed have meaning as semantic units; as a unit, a phrase, sentence, paragraph, or utterance. They also reflect the "nature, disposition and interests of the speaker" (Stone et al. 1966: 5). The nature of the speaker, his personality and style of expression and the events which have shaped him are reflected in the text. The verbal record is a "piece of evidence that may be used to make inferences about any and all of these factors" (Stone et al. 1966: 6). Holsti (1969), Carney (1972), Sebeok (1960) and others doing content analysis agree.

The second part of the definition, identifying specified characteristics, involves two aspects of the analysis, the specification of the characteristic to be measured and the application of rules for identifying and recording their occurrence in the data. At this point the analyst must specify exactly the elements which will fall into the categories of interpretive assessment. For instance if the analysis were concerned with assessing the relative conservatism of editorials in two newspapers there would have to be an explicit construction of categories which typify a conservative approach to various issues, for example, reducing big government, free market economic, and decreasing welfare. Potentially, each category would contain words, phrases or sentences as alternative forms of expression reflecting these positions. The construction of the categories would

be the basis for drawing inferences and the analysis stands or falls on their quality (Berelson 1952; Stone et al. 1966; Carney 1972; Pool 1959).

One difficulty with constructing effective and objective categories is the lack of understanding of the nature of language. As Lasswell, Lerner and Pool noted (1952: 49) "there is no good theory of symbolic communication by which to predict how given values, attitudes, or ideologies will be expressed in manifest symbols." An examination of any single word makes this clear. A word carries a denotation, which refers to the specific properties of an object. For example, the term "cot" denotes a bed with a canvas cover stretched within a wooden or metal frame which can be easily folded up. All these elements are open to definition. But words also carry a connotation. For instance the word "cot" connotes impermanence; it is used in a tent while camping or in a temporary field hospital, etc., the total list depending on individual experience and context. Even a linguistic theory as sophisticated as Chomsky's Transformational generative grammar has not provided a framework for predicting connotative meanings (Chomsky 1968).

Carnap (1937) and other linguists have discussed denotative meaning extensively and have distinguished between a word's "extension" to a class of referent objects and its "intension" to a list of properties. These can be inferred by examining a sample of how the word is used. Often, however, there are remnants of past extensions and intentions intruding which are not readily detectable. It is

usually assumed that the individual words are "most relevant to his own associations as well as acceptable and relevant to his listeners" (Stone et al. 1966: 10). However, Carroll (1964) has suggested that word choice is not a series of independent decisions, but fits a hierarchical structure with the word most central to the expression of the idea chosen first.

This inadequate understanding of the process of language performance places the single greatest limitation on content analysis. As Stone et al. (1966: 1) remind us, "Lacking an adequate theory of the relationship between social scientific variables and how they are expressed in language, the social scientist falls back on his intuitive understanding, which is subject to error."

The third segment of the definition of content analysis is that it be systematic and objective, requirements necessary for any scientific inquiry. To be systematic means that "all the relevant content is to be analyzed in terms of all the relevant categories" (Berelson 1952: 489). To be objective means that the procedure is explicit so that it can be replicated by other analysts. Every article and book written about content analysis stresses this.

The fourth segment of the definition is that content analysis is concerned with texts. The use of texts offers information not available in other kinds of data especially since the analyst need not be present during the event.

Measurement and analyses

There are three general methods of measurement possible in a content analysis. The first is quantitative, involving frequency counts of categories as the basis from which conclusions or inferences are drawn. For example, studies of the authenticity of manuscripts are often done this way, where the occurrence of a high percentage of minor stylistic habits supports the claims of specific authorship.

Recently, it has become apparent that more complex forms of counting are necessary to "explore mental states or activities, as these are reflected in language" (Carney 1972: 177). Lawton (1968) and Gerbner (1970) are two of the many writers who discuss such special counting procedures.

The second general method of content analysis is qualitative assessment which often involves nonfrequency content analysis (Carney 1972: 178). This means deciding if there is bias in, or intensity of, an expression. The measurement involves determination of the presence or absence of a specific category in the text. For instance, students of modern Soviet politics are aware that the failure to mention Stalin in a major anniversary speech may carry a specific policy message worthy of further investigation.

The third type of measurement involves looking at contingencies "to see what goes with what and how" (Carney 1972: 176). This means evaluating the attitudes associated with particular objects or issues or examining the context of statements (Carney 1972: 183-84). It may

also mean examining the context of specific words, described by Carney (1972: 184) as the "associational field in which the word occurs."

Once such measurement has occurred, the researcher moves to the final step in the analysis, thinking about the overall implications of the study. This involves reflection and time to absorb the intricacies of the measurement. The analyst must "look for the basic implications in underlying trends" (Carney 1972: 191). Care must be taken that "latent patternings, subtle emphasis and significant tacit omissions" do not pass unnoticed (Carney 1972: 192).

Unfortunately, as Carney says "there is no technique for drawing conclusions or making inferences and this inferring process is not part of the content analysis. But some form of backchecking on conclusions or inferences or of generating converging data so as to validate them, is nowadays regularly included in content analysis" (Carney 1972: 200).

Reliability and validity

It must be recognized that there are several limiting factors in any content analysis: first, the nature of the data, its size, its completeness, its authenticity and the suitability of questions asked, and second, the kinds of inferences which can be drawn from the analysis. As Carney (1972: 196) notes, by example, it is one thing to assess a writer's view of a period or subject from his writing and "quite another to psychoanalyze someone by using [this] tool.... More may be demanded from the tool than it can possibly give." A third limitation is that content analysis bears only on the content. To make inferences

as to intent or effect will require additional approaches.

It is important to state again that content analysis is not free of subjectivity; rather it is more explicit and aware of that subjectivity. Categories are defined with a rigor that forces the analyst to examine his underlying assumptions (Carney 1972: 198), to make explicit decisions which the reader can assess and in this way determine the validity of the results. One way to check the validity of inferences is to use a combination of measures and assess their correspondence. An alternative way is to test a related body of documents by some other technique than content analysis.

The reliability of the data from which inferences are drawn may be assessed by a panel test (Carney 1972: 200) where several individuals independently code the same materials. The similarity of their results is a measure of the rigor of defining categories and their usefulness in drawing inferences. Alternatively, computers can be used to ensure that there is no subjectivity in allocating the units of analysis into categories. Using a computer for coding "requires absolute clarity as to the logic behind inferences" (Carney 1972: 200).

However, there is a cost to using computers. People are not as fast as computers nor as infallible but they are much more sensitive to "meaning-in-context" (Carney 1972: 201). Words with identical spellings but different meanings cause computers, but not people, much trouble. It is often extremely difficult to write a program to do some of the kinds of unremarkable things which a human coder can do easily. Computer

technology for the analysis of language lags far behind what the content analyst needs.

There are numerous programs which have been written to assist in content analysis. Borko (1962) gives a review of some of these programs. Specific aspects of these programs have been described by Colby et al. (1973), Smith (1964) and Stone et al. (1966). The programs are basically similar in that they manipulate pieces of linguistic data to form patterns. This can be illustrated by examining the General Inquirer, one of the more sophisticated programs developed in the last decade (Stone et al. 1966).

Briefly, the General Inquirer works as follows. Given a specific set of procedures the computer performs systematic and objective measurements on texts by identifying occurrences of specified characteristics (called categories). These measures serve as references for drawing inferences as to the meaning systems in the texts. Such inferences allow for the interpretation of "latent" as well as "manifest" meanings (Stone et al. 1966: 17). The types of inferences that can be made include the orientation and concerns of a speaker, subculture or culture, based on the record of what is said.

The General Inquirer is actually a series of computer programs designed to perform five different types of operations:

- (1) to identify systematically within texts instances of words and phrases that belong to categories specified by the investigator:
- (2) to count occurrences of these categories:

- (3) to print and graph tabulations of these occurrences:
- (4) to perform statistical tests on the counts; and
- (5) to sort and regroup sentences according to whether they contain instances of a particular category or combination of categories.

By providing the investigator with a variety of different procedures with which to look at the data, he can reformulate and retest his ideas until he understands them thoroughly. Stone et al. (1966: 70) feel this is one of the most important features of the system.

The analysis is begun with the selection of texts and the development of a hypothesis to be tested by the content analysis. Once the content analysis is begun the investigator must develop a dictionary, code the texts, edit them if necessary, determine the type of measurements needed for his analysis, run the proper computer program and analyze the output. There is considerable movement back and forth between setting up programs and analyzing data, making inferences, reprogramming and reanalyzing. From this process should emerge a listing of the themes, values and meanings imbedded in the myths (Stone et al. 1966).

One of the most crucial aspects of the analysis is the construction of categories into which the content is coded for measurement. The investigator needs to carefully consider different aspects of a concept and write explicit sets of scoring directions for the computer to follow to identify the concept. The computer does this by looking

up each word of the text in a "dictionary" stored inside the computer. The dictionary is ultimately concerned with assigning categories to a word. As such it is a collection of content analysis categories that the investigator wants to process together (Stone et al. 1966: 85).

The format for the dictionary would be as follows:

<u>Word in text</u>		<u>Category Number</u>	<u>Category</u>
Judge	=	21, 64	Job, legal
Magician	=	21, 71, 34	Job, mystic, performer

Part of the General Inquirer package is a series of programs to aid the investigator in the compilation of this dictionary. The first "run" of text through the computer results in a printout of all the text words that have categories, called tags (Stone et al. 1966: 87). In addition to words, the system can also be set up to test for sentences and also idioms (Stone et al. 1966: 87-88). Some of the complexity of the dictionary is eliminated through a series of suffix and prefix editing steps. That is, the computer first attempts to look up the word in the dictionary exactly as it appears in the text. If the exact word is not in the dictionary, the computer attempts to remove regular prefixes or suffixes.

The computer also keeps track of all cases where it can not find a word or word root in the dictionary in a Leftover List. This allows the investigator to check to make sure that no important words have been omitted from the dictionary. The dictionary also includes a series of

words with the tag "N" which indicates that they are not to be tagged nor are they to appear on the Leftover List. Such words include "a," "the," "and," etc., which occur frequently but are not important to the content.

The basic measurement technique is a frequency count of the number of times a word in a particular category occurs. The assumption is that "the frequency with which an item appears...may be used as a measure of its importance" (Baldwin 1942: 168). Or as Stone et al. (1966: 32) express it: "frequency counts measure the intensity of an attitude or the amount of concern or attention devoted to a topic." There are also various techniques to weight the number of occurrences of a word and to assess the distribution of individual words within a category. Again such refinements depend on the needs of the individual project.

Although this program is elaborate and sophisticated in its approach to content analysis it has complicating limitations that have prevented it from attaining the prominence that had been anticipated by its creators. Two specific limitations are its cost and the difficulty of getting the program to run successfully. At present only Phillip Stone at Harvard University is still using General Inquirer with any regularity.

There are several other programs which perform some of the basic functions found in General Inquirer. These include KWIC and KWOC (Key Word In/Out of Context) and TRIAL (Borman and Dillaman 1971) which

will sort and group sentences under key words selected by the analyst. TRIAL will also group sentences according to combinations of words. This gives the reader a basic, although crude, inventory of the word contexts.

Summary

In context analysis the analyst must create explicit rules for assessing the presence or absence of the characteristic being measured, or as Carney (1972) says, "asking a fixed set of questions unfalteringly." Thus, content analysis emphasizes "procedures for transforming intuitive judgements into explicit rules" (Stone et al. 1966: 5). Computers have been used in this explication process as they expand the scope of material that can be processed and ensure the reliability and speed of analysis while reducing its tedium. However, computers do place limitations on the analysis.

Plan of Study

The original plan for this study was to process the texts using the General Inquirer (Stone et al. 1966). This proved to be more difficult than originally anticipated. The program was located at Iowa City, the University of Iowa, but the users there had abandoned it because they could not get it to perform reliably despite considerable time and effort. The production of output was expensive and the program frequently terminated without reason. None of these individuals were willing to put more time or effort into debugging the

program (Louis St. Peter, Department of Sociology, Iowa State University Personal Communication, 1976).

Personal phone calls to Benjamin Colby (University of California, Irvine, Personal Communication 1975), and Oli Holsti (Johns Hopkins, Baltimore, Maryland; Personal Communication 1975) who contributed to the volume on General Inquirer (Stone et al. 1966) indicated that they have moved away from General Inquirer to programs which more specifically answered their own needs, neither of which was yet available for general use.

In a discussion with Philip Stone (Harvard University, Cambridge Mass., Personal Communication 1975) it was determined that their facility was the only one still regularly using General Inquirer. While Stone had several assistants doing contract work for outsiders, they were committed through the coming six or eight months with two outside projects and their own research. They estimated that if one could be present at Cambridge to develop the needed dictionary, code for the text and do the rework required for successive, rerun improvements in the analysis the project would require a minimum of two months. For these reasons it was decided to seek alternative programs which would be easier, cheaper and quicker to use while producing data of value in the analysis.

Any use of computers in natural language processing requires the researcher to assess the relative costs and benefits of the system used and the expected output. Text materials present unusual problems

for machine analyses. They need to be edited prior to analysis to avoid ambiguity and ensure clarity. The editing can vary from the insertion of names into the text to identify personal pronouns (he, she, it, etc.) to the elaborate coding of information in the text on comparative scales (i.e., subject of text has a strong/weak attitude about sex). The more coding done to the text the more input comes from the researcher.

Since the purpose of this study was to examine Cahuilla beliefs it was felt that editing should be kept to a minimum. Therefore the first program selected for initial analysis of the data was KWOC (Key Word Out of Context). This gave a listing of every word in the text and listed the sentences in which each occurred. It furnished an inventory of the characters, objects and action involved in the stories. The KWOC program printed only the card on which the key word occurred, not the entire sentence (see Appendix B).

Since it was felt that entire sentences were necessary for the creation of meaningful inferences, a second program, TRIAL, was examined. Essentially TRIAL (Borman and Dillaman 1971) builds on KWOC to offer a wider variety of sorting techniques.

Both KWOC and TRIAL follow similar coding formats: sixty columns of text, not ending in a hyphenation, followed by a reference code. Although the TRIAL manual indicated that any KWOC reference code would be acceptable, it was determined that a different reference format was actually required (see Appendix A for both programs).

Aside from the time spent deciphering the TRIAL manual, most of

which was done by Dr. L. St. Peter, the Department of Sociology, Iowa State University, the greatest expenditure of time was involved in coding the material for key punching. The only alternations made to the text were the addition of reference names to identify pronouns or absent speakers. A standard stopword list of articles, conjunctions, prepositions and auxiliary verbs (such as is, was, have, etc.) was used to decrease the initial bulk of output.

Copies of the TRIAL and KWOC programs are given in Appendix A. The first TRIAL program creates the file to be examined (in this case on tape) and the second program sorts, regroups and prints the sentences under key words. The format of output for both KWOC and TRIAL are shown in Appendix B. In this case the keywords include anything in the text not found in the stop word list.

One disadvantage to using the TRIAL or KWOC programs is that they were devised for bibliographic use, alphabetizing by author and indexing titles by key words.

It was necessary to modify these programs for use of straight texts which were designated level 2. The programs would not run without author cards, level 1, so dummy cards were gang punched. This meant that additional time and money is involved in creating and processing dummy data. The resulting output is a concordance, a list of occurrences for each keyword in the text.

Use of computer output

The actual manipulation of the data from the computer program involved the following. First, myth characters (coyote and Mukat) were isolated and a catalogue of their behavior and associated objects was constructed. This was done to determine if there were any commonalities suggesting a particular range of behaviors associated with any characters. Then the ethnographic material was examined to see if these activities were reflective of everyday Cahuilla life, i.e., values, choices, activities, or objects. The hypothesis being examined was that a relationship exists between the species (i.e., coyote, man, etc.), and particular behavior patterns and objects. A corollary of this was that characters and associated behaviors are culturally relevant as models; that is, the myth corresponds with patterns of daily life described in the ethnography. This seemed a reasonable first step in insuring relevance of the texts and in validating the analysis.

The next step in the analysis was to show that as a basic cultural model, mythology incorporates all the elements necessary to make it a successful educational curriculum; it has data to be conveyed, incorporates consistent theories of instruction and learning and provides a technique for assessing materials learned.

The data being conveyed were determined by the actions of the characters. Sometimes the narrator specifically says "do it this way." Again the data in the myth was checked against the ethnographic data to assess their validity.

An assessment of the instructional theory was made by examining how characters in the myths teach one another needed skills. Here the omission of specific types of behaviors is also important. Learning styles were determined by examining the set of behaviors associating characters and objects to see how problems are solved. Several questions were posed, by what processes are solutions reached and what is the nature of the explanations or solutions described in the stories?

The third general part of the analysis was the determination of the themes and values contained within the myths, with the focus on values and attitudes which have bearing on school performance. This required that inferences be drawn from patterns of behaviors developed from the key word sort.

At this point it is important to note that two types of sorting occurred within the analysis. The first type was done by the computer and resulted in Keyword Lists (See Appendix B). These were really inventories of the characters, objects and actions in the stories. The lists were used as indexes to locate, for example, all the sentences containing the word "coyote." The printout of story and sentence reference numbers allowed for a cross-checking sort, i.e. to determine which sentences contained "coyote" and "food" or any other desired combinations.

The second type of sorting was done by hand because there was no computer capacity to make associations beyond the word level. The TRIAL

program is set up to make such sortings but the data analyzed here were not coded for such sorting. This "lack" of coding was an important feature of the design of this research where the focus was on determining the patterns in the stories and not on testing to see if specific, preconceived patterns are present.

After the keyword list was produced by the computer the analysis moved back and forth from hand sorting of the text to the inventory in the list. The Keyword list acted as the starting point for many sorts, but full understanding of the text occurred only after considering the context of the keywords, i.e. the story surrounding the isolated sentences in the printout. The development of inferences grew out of this movement between keyword list and hand sorting, as can be illustrated using the patterns associated with Coyote in Story 5, "Coyote Goes Visiting" (Seiler 1970: 92-98). The name "coyote" appeared in, or was referred to, in about half the 101 sentences in the story and the keyword list printed out the numbers of the sentences involved. An examination of these sentences in the original text showed that in many food was also mentioned. A check of the keywords "food" and "eat" showed that they were associated with Coyote and not with any other character.

When examined in the hand sort it was clear that the surrounding text spoke of Coyote eating too much food, or eating it incorrectly. The story makes it clear that this is not acceptable behavior. This led to an expanded hand examination of Coyote's behavior to see if he were

violating any other cultural norms besides those associated with food. Each new term uncovered in the hand analysis was referred back to the keyword list to check its associations. In this way it was possible to determine that Coyote was the only character in the story who broke the rules of etiquette.

With this knowledge the analysis moved back into the story to determine the consequences of this "antisocial" behavior. This made it possible to draw inferences about Coyote's role in the story. These inferences were strengthened by finding similar patterns in several other stories. It is important to note that the keyword lists provide an inventory and an index to the stories but that the determination and evaluation of patterns occurred only through movement between the original texts, hand sorting and rechecking the keyword lists.

The nature of proof

This is probably the most difficult segment of the research to articulate. As Carney (1972: 200) has said, "there is no technique for drawing conclusions or making inferences.... But some form of back-checking on conclusions or inferences, or of generating converging data [is included] to validate them."

There is no evidence to unambiguously confirm or deny the total accuracy of any interpretations about the meanings intended by Cahuilla oral literature. Verification occurs through reference to ethnographic data. As assessment of the validity of the interpretations rests on the analyst's ability to convey a sense of confidence that the elements

of the texts have been incorporated into coherent and internally consistent conclusions. To quote Todorov (1973: 73) "exegesis is to be assessed according to its coherence, not according to its truth in an absolute sense."

REVIEW OF INDIAN EDUCATION

The following historical review outlines the major themes and patterns that have shaped the educational experience of the Native American.

The statistics on educational performance of Native Americans are familiar: high dropout rate, rampant absenteeism, low standardized scores in achievement, inadequate reading skills, parental apathy and excessive student vandalism (cf. U. S. Congress 1969). These conditions have not changed over the past forty years (Meriman 1928; Coombs et al., 1958). Many plans and programs have been suggested to explain and/or improve the poor educational performance of Native Americans. The answers offered, such as civil rights legislation, integration of schools, busing, and compensatory funding to mention a few, have generated considerable political and social turmoil but few concrete successes (Kopan and Walberg, 1974; U.S. Congress 1969). The dilemma of Native American education is part of, and yet separate from, the general problems of other minority groups. The unique issues which exist in Indian education can only be understood from an historical context.

The Colonial Period

The policy of the Europeans toward the indigenous people of North America grew out of the philosophical conception of these people. The English tended to view the Indian as heathens and

racial inferiors, products of a separate creation. Later this racist view dominated the formulation of an Indian policy by the emerging United States. Racial categories supported government and church programs inaugurated to "deal with the Indian problem."

The Spanish, in colonies in Florida, the Southwest and California inaugurated a substantial mission program whose primary focus was the indoctrination and re-education of native peoples (Forbes 1969: 26-52, Berry 1969). This education had two purposes, to convert the indigenous people to Catholicism and to turn the people into Spanish peasants. Unlike the English, the Spanish viewed the Indian as a product of Godly creation, although lacking in the benefits of Christian salvation.

Other European nations which established educational policies for Native Americans included the French and Russians. In the Northwest and Alaska, Russian orthodox priests organized the church as an educational center for Indians and Eskimos (Forbes 1969: 36). The French Jesuits established schools among the Canadian and mid-continent tribes during the 16th and 17th centuries (Forbes 1969: 37). The principal concern of these missionary programs was conversion, and to accomplish this the missions taught reading, writing and other basic skills. By the 17th century there existed in colonial society many Indians whose world view was more European than Indian (Gallatin 1836).

Early United States Policy,
1776-1860

The treatment of Native Americans by the United States government which has vacillated between assimilation and isolation began as an unofficial policy of annihilation. Within the first 100 years of contact there was a 90% reduction in the indigenous population (Spicer 1962; Forbes 1969: 58). Indians were killed by disease, were forced from their traditional homelands and died of starvation and neglect. Military expeditions were mounted to control them and make large new tracts of land safe for white settlers. The Indian "problem" was solved by warfare from the middle 1600's to the late 1800's (Forbes 1969: 53-57). The United States government declared war on many tribes. By signing peace treaties when the conflicts ended the federal government recognized many tribes as sovereign nations. An act of congress in 1871 ended the national practice of entering into treaty rights with American Indian tribes (Jones 1972: fn 183). Therefore, historically and legally, Native Americans occupy a unique position among minority groups. Special governmental agencies have handled Indian matters since early in the 1800's, first within the War Department and later, in 1849, within the Interior Department's Bureau of Indian Affairs.

The history of federal involvement in Indian education is enlightening (Berry 1969; Fuchs and Havighurst 1972: 1-22). The

first appropriation for Indian education was made by the Continental Congress in 1780. It provided \$5,000 for Dartmouth College, which at that time was a school primarily for Indians. As early as 1868 there were congressional reports "revealing the deplorable status of the Indian" and "calling for reform" programs including education, "Christianization and civilization" (Berry 1969: 15).

Indian initiative

Despite these reports there were tribes among them such as the Cherokee Nation of Georgia, which had established its own schools and were economically self-sufficient without government assistance. Sequoyah, a Cherokee chief, had developed a syllabary for his language and it was being used in schools and for the tribal newspaper. The literacy rate among the Cherokee was higher than for the local colonies when the Federal government took over the Cherokee schools early in the 1880's and wiped out these gains (Vogel 1972).

Prior to 1849 there was no official unified Indian policy. However, as peace treaties were signed, specific lands were assigned to Indian groups. Out of this grew the reservation system and a policy of isolation.

Isolation

The Indian Removal Act (1830) made isolation an official policy (Forbes 1969: 60-64). With Indian tribes placed on reservations, the land was held in trust by the federal government and the people

became wards of the government. All decisions were made by the federal government through appointed representatives. Food, clothing, materials for shelter, and farming implements were doled out to the individual by the government agent. The system fostered corruption and cheating by officials and a growing dependence on the government by Indians. In addition, many cultural practices, such as religious ceremonies, were specifically prohibited.

The reservation Indian was a ward of the government, but did not share in the due process rights guaranteed to citizens by the constitution. Their position was one of total subordination (see Forbes 1969: 65-68).

Recent United States Policy, 1860-1960

When it became obvious in the 1860's that isolation alone did not solve the Indian problem, policy shifted toward assimilation. It was hoped that Indians could become assimilated by making them practice private ownership of property and by encouraging individual initiative.

Assimilation

The passage of the Dawes Act in 1887, was a clear implementation of the policy of assimilation (Forbes 1969: 68-72). Designed as a program to civilize the Indian it provided for the allotment of small pieces of reservation to individuals so that they could start

their own farms. It was thought that giving land to individuals would encourage them to acquire other "Western" ways.

Under the Bureau policy of assimilation schools were set up in which children were taught to abandon their traditions and become part of the dominate society. These schools often taught Indian children to be ashamed of their Indian heritage.

In 1870 Congress appropriated \$100,000 for federal industrial schools for Indians. The first of these off-reservation boarding schools was established at Carlisle (Pennsylvania) and Haskill (Kansas) followed shortly thereafter. In 1882 legislation was passed to convert unused army forts into Indian schools.

Eventually the organization of formal schools on the reservations was seen by many Indians as necessary to prepare their children to live in the white man's world. In fact, several peace treaties, including that made by the Apache Geronimo, specifically requested such assistance (Berry 1969: 19).

The Dawes Act formally gave the responsibility for the administration of Indian education to Christian missions. Financial responsibility for these programs remained with the federal government (Spicer 1962: 347-349). In 1890, appropriations were made to cover tuition costs of Indians who did not live on reservations and therefore attended public schools.

By 1900 there were several types of schools available to Indians: (1) primary and secondary schools run by missionary

groups located on and off the reservation, usually boarding schools; (2) public schools near Indian reservations or settlements where tuition was paid by the government; and (3) federally run, off-reservation industrial schools such as Carlisle and the Haskell Institute.

In all of these schools the educational model reflected that of the dominant society. There were no specialized programs for Indians. There were no bilingual programs and little awareness of cultural differences in the school. The boarding schools on and off the reservations have been described in investigative reports as more resembling penal workhouses than schools. Children were taken from their families, sent far away and dressed in military cadet uniforms; reveille at 5:30, marching, pledge of allegiance and cadence to classroom were the standard patterns. Students from grades one through twelve were housed in dormitories staffed by one or two adults. Curricula consisted of the rudiments of language training (English) plus some math, science, and history. In secondary schools the emphasis was on vocational skills.

Parents were totally excluded from school; they were not consulted in planning, implementating or evaluating curricula. Children were not allowed to leave school, except during Christian holidays. Discipline was strict. Parents who revolted against the educational system often tried to hide their children. Conditions were so bad that frequently children never returned home or saw their parents

again.

Reform (1920's)

The failure of the educational programs of the mission groups was so apparent in the 1920's that there was a congressional investigation. Made public in 1928, the Meriman report was a stinging indictment of the programs in Indian schools on and off the reservations:

The majority of Indian pupils are either above the general age level...or are below academic norms, and drop out of school more frequently than do their non Indian classmates" (Meriman 1928: 138).

Changes were soon forthcoming as a direct result of the Meriman report and the humanitarian efforts of John Collier, Commissioner of Indian Affairs under Franklin D. Roosevelt. The Indian Reorganization Act, a major piece of reform legislation, was passed in 1934. Specifically it sought to stabilize the economic situation of the reservation and to organize tribes to manage their own affairs, it also assisted in setting up constitutions and tribal business organizations. It ended forced assimilation.

Economic support was transferred from mission schools to local day schools for reservation children with the Johnson-O'Malley Act, 1934 (Szasz 1974: 201). Collier instituted bilingual-bicultural programs and actively recruited Indian teachers for the first time. Collier's enlightened policies grew out of his personal friendship with John Dewey. Collier attempted to implement ideas about education during this period (Szasz 1974). Such New Deal policies were fi-

nancially curtailed by the outbreak of World War Two and were not revived after the war. Pressure against the Indian Reorganization Act was so strong that Collier resigned in protest in 1945 (Fuchs and Havinghurst 1972: 20-23).

Despite such changes in policy there is little evidence that there was much improvement in educational achievement for Native Americans. During World War II the selective service system classified 88% of Navajo males (age 18-35) as illiterate (Berry 1969: 18).

Termination

The major thrust of federal policy after World War II was to disengage the government from Indian Affairs. The Indian Claims Commission Act (1946) and House Concurrent Resolution 108 (1953) were part of a program to end federal aid to, and protection for, Indians (Fuchs and Havinghurst 1972: 13). The House Resolution set up the mechanics for the policy called "termination" which continued through 1958. Under this program Indian tribes were "encouraged" to end their trust relationship with the federal government by dissolving their tribal government and selling tribal lands. The monies would be shared by all former members. Originally praised by Indians as a move toward independence, the policy is now viewed by many groups as a return to the practices of annihilation abandoned one hundred years earlier. Few Indians had any training in handling money. Many lost their homes and jobs because their land was sold.

For the Klamath and Menominee who participated in termination the results have in general been tragic (Fuchs and Havighurst 1972; Aurbach & Fuchs 1970: 14). The Menominee experience was so bad that they have since insisted that their tribe be reconstituted.

The bitterness resulting from this policy is frequently cited as impeding educational innovations (Aurbach and Fuchs 1970: 14). Native Americans fear that innovative programs which at first seem beneficial are actually designed to harm them.

In the 1950's the Bureau of Indian Affairs was attempting to move Native Americans out of the category of government wards and into self sufficiency. This is reflected in their educational programs. In 1951 the Bureau of Indian Affairs began a program to relocate Indians in urban areas and provided them with vocational training in return for a promise not to return to the reservation for a given number of years. In this way it was hoped that economic and population pressures on the reservations would be alleviated and that the urban Indians would be assimilated into the dominant culture more readily. The program was ill conceived, badly managed and had inadequate funding to give real assistance to those relocated (Fuchs and Havinghurst 1972: 13-15).

Between 1953 and 1960 the Bureau of Indian Affairs ended the operation of federal Indian schools in Idaho, Michigan, Washington and Wisconsin by contracting with state and local school districts (Fuchs and Havinghurst 1972: 15). Congress continued to provide funds to support these Indian students because Indians who live on

reservations are not subject to property taxation, the principal method for financing public schools. Two types of assistance were made available: Impact Aid and Johnson-O'Malley funds. These programs are still operative and will be discussed in detail below. Such funding was first proposed because Indian lands were lost through war and the resulting treaties assured that the government would protect and provide for them.

Impact Aid provides money to school districts whose tax support is reduced by the presence of Indians who live on tax-exempt reservations. Such money is to be used to supplement the general operating budget of the district (Twelfth Annual Indian Education Conference 1971: 24). To qualify for such money the school district must include at least 3% Indians. Johnson-O'Malley money is given to districts to provide special services to Indian students which the district could not otherwise afford, (Twelfth Annual Indian Education Conference 1971: 24). By law both programs require that Indian parents participate in deciding how the funds are to be spent. This requirement has been ignored by most of the school districts receiving these funds (Twelfth Annual Indian Education Conference 1971: 36).

Summary to 1960's

Between 1849 and the early 1970's, Indian Bureau education failed to develop programs geared to the needs of the Indian people. During most of this period education followed directions which were

not consistent with the culture patterns of Indians themselves, Only during the Indian New Deal, under Collier, was there any attempt to prepare students for both reservation and nonreservation life. The influence of Dewey's ideals is visible here in the expansion of community schools and the development of a curriculum that included aspects of Indian culture as well as practical vocational training (Szasz 1974: 188). Szasz (1974: 191) notes that between 1928 and 1973 (when her research was completed), "for only...brief intervals was Bureau education policy oriented to Indians themselves."

Indian policy has been determined by personalities, by money, by Congress, and by societal concepts of solutions. With all of these counter currents there was no way to develop sustained approaches to education. There was never time to assess new programs or to improve them because they were immediately replaced by a new wave of fashionable ideas.

The Current Situation, 1960-Present

The current situation

The Civil Rights movement and the awareness of "disadvantaged" minority people again focused attention on the deplorable conditions of Indian education in the 1960's. This culminated in a senate investigation, chaired by Edward Kennedy (U.S. Congress 1969).

Current statistics

The Kennedy senate report (U.S. Congress 1969) strongly parallels the findings of the Meriman report made 40 years earlier. The statistics accumulated and the recommendations made are very similar. A quick examination of the statistics (U.S. Congress 1969) shows that the attempts to place responsibility for Native American education with local and/or state authorities did not lead to improvements in achievement or attainment.

In 1969 there were 200,000 school age Native American children. Mission schools provided services for 9,000, 51,000 were in BIA schools including 35,000 in boarding schools, and 120,000 were in public schools. It was estimated that there were 20,000 children not attending school, some because of physical and mental handicaps and learning deficiencies and some who were simply not registered or reported (Fuchs and Havighurst 1972: 34).

The average education achieved by Native Americans was eight grades, versus 10.6 for non-Indians. Only 60% of those entering high school graduate, versus 74% for non-Indians. In elementary school 43% of the Native American children are over-age, versus 20% of non-Indian children. The majority of these children are 2 years or more over-age. It is difficult to evaluate the total dropout rate, the percentage of students who begin grade one and do not complete grade 12, but various estimates suggest that a figure of 50% is conservative. In some schools it is sometimes closer to 75%.

An interesting insight into federal policy is clearly seen in

figures outlining appropriations for Indian education. In 1971, (Marland 1971) there were 2300 Native Americans participating in some form of higher education. Congress appropriated 1.8 million dollars in student assistance funds, or about \$780 each. In 1970 Congress appropriated 18 million dollars for Impact Aid to support 100,000 students in public schools; \$18 per student. In the same year one million dollars was expended for adult education. Twenty million dollars for Indian education seems like an enormous amount of money until it is measured against the enormity of the problem.

Self determination

The result of the Kennedy report was the passage of the Indian Education Act in 1972 (Szasz 1974: 200). The major thrust of this legislation was to set a precedent for Indian control of schools by requiring parental participation in decisions concerning the establishment and direction of impact-aid programs. It authorized a series of grant programs to stress culturally relevant and bilingual curriculum projects, and mandated funds for adult education projects. The Office of Indian Education was established, with the U.S. Office of Education Commissioner to be selected from a list of nominees to be suggested. A supportive National Advisory Council on Indian Education was also created. This council, composed of Indian leaders selected from tribal groups from around the nation was to review all applications for grants and to serve in an advisory capacity to the United States Office of Education on matters pertaining to Indian

education. Recognizing the significance of this legislation, H. Sahmaunt (1973) a Kiowa and president of the National Indian Education Association, wrote, "In effect, it is the first piece of legislation enacted into law that gives Indian people on reservations, in rural settings, and in the cities control over their own education" (Sahmaunt 1973: 7).

Unfortunately this optimism was almost immediately undermined when the President ignored the recommendations of the Indian Education planning team when he set up the Advisory Council. H. Scheirbeck, a Lumni and co-director of the planning team observed that "This clearly violates the whole concept of self-determination" (Szasz 1974: 201).

Szasz noted that (1974: 194)

The growing strength of self-determination means that the Kennedy report has a better chance of affecting Indians than the Meriman Report. During the intervening years Indians have become increasingly dissatisfied with their schooling, and by the late 1960's they knew that if they were ever going to acquire the kind of education they wanted they would have to bear the major responsibility themselves.

From this review of the history of Indian Education it can be seen that Native Americans are prime candidates for multicultural education. The statistics on educational performance show that the schools which exist now are not succeeding. In places where new programs are being instituted the change in attitude toward education is dramatic, both for students and the community. The success of these self-determined projects rests on their cultural sensitivity, which is the main tenet of multicultural education.

A brief review of some of these culturally sensitive programs

will give the reader a familiarity with the kinds of things being done today and the Indian perspective on education. An examination of one Indian-run school will illustrate some of the issues still facing Native Americans.

Rough Rock Demonstration School

Rough Rock Demonstration School is an experimental Indian controlled program located on the Navajo reservation in Arizona. This is one of a handful of community-run, reservation schools in the country. Rough Rock is a Bureau of Indian Affairs facility which has been "contracted" to the Rough Rock chapter of the Navajo tribe. This means that the local community is totally responsible for running the school, including hiring teachers and administrators, developing curricula and setting criteria and goals. The Bureau retains financial responsibility but has no veto power over any decisions.

The concept of contracting has been developed from precedents set under the Act of 1834 and the Act of 1910. These provided for the government to "contract" with Indians for services which were required to maintain the reservations (Twelfth Annual American Indian Education Conference 1971: 26). The impetus for contracting came not from the Bureau but from activist Indian lawyers investigating American Law for precedents which could be important for the protection of Indian rights.

Rough Rock is important because it is run entirely according to the wishes of the community. The school board consists of Navajos

elected by the chapter, some of whom speak no English and none of whom have much formal education. The programs which they have instituted are innovative and controversial (Johnson 1968). Two of their primary objectives have been to involve the school more directly in community affairs and to reconstruct the curricula to reflect Navajo culture. In achieving these two goals, or at least in striving for them, new courses have been developed which bring to the classroom Navajos who have special knowledge or skills. Such individuals are not certified teachers. There have been several bilingual texts published for use in teaching English to primary school children. By professional standards the procedures in use are unorthodox at best.

How successful is the Rough Rock experiment? Answers are conflicting. Members of the community seem pleased with the increased interaction between community and school (Bergman et al. 1969). However, a Bureau evaluation team (Erickson and Schwartz 1969) disagreed. Their report suggested that federal financing should be withdrawn from the school because it was not fulfilling its obligations to students. The report contrasted the "untidy" situation at Rough Rock with the orderly and proper functioning of the Bureau run school at Rock Point.

The results of this report were challenged by a rebuttal report by a group of educators and anthropologists who had assisted in the creation of some of the Rough Rock programs (cf. Bergman et al. 1969). While not denying that some of the things tried at Rough Rock had failed and needed revision, Bergman et al. stated that the Bureau

evaluation was inaccurate. They suggested that there were three reasons for the one-sided report of the Bureau Committee: (1) inadequate sampling to get reactions of students, parents and school personnel; (2) lack of adequate translating when interviewing community residents; and (3) culture shock, the inability of the evaluators to recognize that the Rough Rock school must be judged within the limits of the goals which the community has set for itself. It seems that it is this point, the acceptance of educational goals which do not reflect the values of middle class America, which defines the current state of American Indian education. How can the two viewpoints be reconciled?

Explanations for failure

With the increased awareness and interest in the "problems" of Indian education many writers have suggested why, with so much money and planning invested by the BIA, the educational achievements have been so disappointing (Mech 1974). Wax, Wax and Dumont (1964) have suggested that there was a lack of communication between parents, students and teachers. Spang (1970) agrees but adds the caution that irrelevant curricula also lead to dissatisfaction.

Wasson (1970) and Walker (1968) think that a low self-concept and lack of self-respect hamper Indian performance in school. Walker (1968) notes that the present educational system does not prepare individuals to be productive or useful in any context, reservation or Anglo.

Franklyn (1974) suggests that Indian students are alienated from the "achievement value expectation" of school because their value orientations and the expectation of the school are not "congruent". Wasson (1970) also refers to values when he says that Indian culture is against competition, a fact noted in many ethnographic studies of Indians (Leighton and Kluckhohn 1947; Dennis 1940; Wax, Wax and Dumont 1964).

Shumatona (1974) suggests that Indian values can play a positive role in education, a concept echoed by Forbes (1974) especially in the current era of ecological preservation.

Multicultural programs

Within the past 5 years there have been repeated requests from Native Americans for changes in the education being offered to them, both on the reservation in BIA schools and in public schools near the reservations.

There have been numerous publications by scholars, not necessarily of Indian ancestry, which state the need for curricula which show concern for Indian culture (Bayne 1969; Kaltounis 1973; Miller 1968; Antell 1974; Sealy 1972; Fisher and Sellens 1974; Gaffney and Bensler 1974). In 1972 the National Education Association (NEA 1972: 20) published a Resolution on American Indian education in which they stated that schools must preserve Indian culture.

Indians themselves are speaking out on the issues. The concern of Indians has been developed first through Indian teachers, who have

held Conferences and workshops (Forbes 1974: 121) and secondly through an increase in parental involvement in new programs. In California there is an association of Teachers of Indian students, which has put considerable pressure on state and BIA officials for reform of Indian schools, (Cooper 1973).

The culturally sensitive programs are being brought to the attention of the general public in articles in popular magazines (Fuchs 1967). Several states with large Indian populations have done extensive studies of Indian education and have mandated changes (New York Regents 1975; Ad Hoc Committee 1967; Alaska Educational Program 1975).

The Journal of American Indian Education includes many articles describing how the locus of control for programs is being shifted into the community (Bayne 1969; Kersey and Justin 1970; Tunley 1970; Osborn 1974). The major thrust of all this writing has been that there must be a greater involvement of Indians at all levels of education and that curricula must be transformed to reflect the values of the native heritage.

Jack Forbes (1974) a Powhatan Indian, eloquently summarizes these desired in an article in Indian Historian titled: "The Americanization of Education in the United States". He says that educational goals for Indians must be based on the development of the individual and the "reestablishment of the native community within the universe" (Forbes 1974: 18).

Numerous types of programs have been developed within the past

ten years; these vary greatly in quality, depth, breadth, and concerns. Many bilingual programs have been developed recently (Osborn 1974; Bodioga 1974; Horsecapture 1976). There are early childhood programs which introduce children to school and to English (Jessen 1974; Thomas 1975). Many schools are building up special libraries and with the help of institutions of higher learning have structured programs to prepare teachers to meet the special needs of Indian children (Mathieson 1974; Peterson 1971; Baty 1972). The evaluation of the tribal history/literature project (Warren 1973) includes many interpretations and suggestions for the use of oral literature in the classroom.

The major themes which run through the literature show that Native Americans are not content with being dominated socially, politically or economically. There is an increase in Indian control of all phases of education. In terms of curricula two kinds of changes are being insisted upon: (1) bilingual and (2) incorporation of Indian culture into the classroom. A corollary to this is the preparation of teachers who are culturally sensitive and professionally committed to the concept of cultural pluralism.

Summary

What of the future? Are experiments like Rough Rock going to continue, be expanded, or cease to exist? Is Rough Rock a success? What is the future for community-run school systems in areas where the Bureau now determines educational policy? What should the goals

be for American Indian education?

Szasz (1974: 196-97) eloquently summarizes the importance of the experiments in Indian control as the "threshold of a new direction, ...that could reverse the trend from 1928 to 1979...it would mean that the Indian people, after so many years of denial, had finally achieved the right to determine the education of their own children."

THE CAHUILLA

Although preceded by historical accounts, the first published anthropological account of Cahuilla culture was Barrows' (1900) study of ethnobotany, which included data on Cahuilla history technology, settlement patterns and religion. Since Barrows anthropological observations have been published by Kroeber (1908), Gifford (1918), Hooper (1920), Strong (1929), Drucker (1937) and more recently Bean (1972) and Oswalt (1966). These later studies tend to concentrate on selected areas of interest to the authors. Kroeber's work focused primarily on material culture. Gifford's report was the first to provide important data on social organization, kinship and oral literature. Later, Hooper added data on religion, ritual and oral literature. Strong's survey, published in 1929, was the first comprehensive analysis of Cahuilla culture and history. Drucker's article (1937) has added ethnographic details to the picture drawn by earlier writers. The following ethnographic data are summarized from these sources.

Ethnography

The Cahuilla Indians of Southern California were hunters and gatherers who inhabited a "multienvironmental and multicultural milieu" (Bean 1972: 12). The physical features of their homeland vary from low interior deserts to high coastal mountains. Their

neighbors included the impoverished, desert oriented Chemehuevi and the rich and powerful Gabrielino of the Pacific Coast. Eastward across the desert were the Yuman speaking Colorado River agriculturalists, the Halchidoma, Mohave and Yumas (Bean 1972: 12). Surrounded by a varying physical and cultural environment, the Cahuilla integrated many of the basic cultural features of the Southern California area.

There seems to be general agreement that the Cahuilla consisted of three main divisions, the Desert, Pass and Mountain Cahuilla. The segregation of these three subdivisions is mainly geographic, "with slight dialectic and cultural differences" (Strong 1929: 36).

"The name Cahuilla seems to be regarded by all tribes...as of Spanish origin" (Kroeber 1953: 693-708). The Cahuilla speak a Shoshonean language related to other Southern California Shoshonean languages, including Luiseno and Cupeno. There are three dialects of Cahuilla, which are referred to as Iviat by the Cahuilla (Strong 1929: 36). The three dialects, Cahuilla, Palm Springs and Wanakik, correspond to the major subdivisions of the tribe.

The three geographical linguistic divisions of the Cahuilla make clear that they were never a unified tribe; rather they consisted of a large number of independent local groups, differing from one another according to their degree of isolation from outside influences (Strong 1929: 37).

Economy

As hunters and gatherers the Cahuilla exploited the major wild plant and animal resources of their regions. Plants included acorns, mesquite beans, a variety of cacti and other native plants (Barrows 1900). Small game, usually jackrabbits, woodrats or quail were basic elements of their diet. In the higher mountain valleys deer were plentiful (Strong 1929:144). There were also bear, although these were not eaten.

During times of plenty, usually the late spring and fall, seeds were gathered in quantity and stored in baskets and pottery containers located near the villages. In addition, caches of food were secreted in caves and along trails. The basic rule of sharing was thus circumvented to some degree. A traveler in need could use these supplies, but was obligated to at least attempt to replace them in the future.

Water was always scarce, and hot springs which were shared were frequently used as meeting places for the scattered groups. Where there was enough water horticulture was practiced, with useful land allotted to each clan (Strong 1929: 38). The crops included corn, beans and squash. Later the Spanish introduced wheat and various fruits were grown.

Social organization

Cahuilla social organization is complex, reflecting their strategic location between various Yuman and Shoshonean groups.

Cahuilla social structure consisted of a series of ever larger, more inclusive social groups moving from family to lineage, sib, moiety and finally a territorially-based, dialect group (Bean 1972: 85). The social structure ranked more than just groups; it also ranked individuals. The net was the ritual leader of the ?aca?i, the "parent" lineage from which all other lineages sprang. It was from this lineage that the net, leader of all the related lineages of a sib, was selected. The principal duty of the net was to preside over the netem, or council of lineage leaders (Bean 1972: 87).

In addition to social and economic leadership the paternal clans were basic to Cahuilla social life. Villages were formed of single or multiple clans. Only among the Mountain Cahuilla was there any merging of these independent clans into larger political units. Strong presents evidence that this larger unit resulted from pressure by the Catholic Missions and Mexican government to merge Indian groups into local groups (Strong 1929: 333). Traditionally, clans were aligned into a moiety pattern (wildcat and coyote) and moiety exogamy was verbalized if not always practiced (Strong 1929: 334).

Probably the two dominant modes of social categorization used by the Cahuilla were relative age and descent. Descent determined lineal group membership which meant that family, lineage, sib, and finally moiety membership was determined by one's male linear relatives (father, father's father etc.). Within these patrilineally organized groups relative age was marked by kin terminology,

assistance, generosity and the entire pattern of reciprocal etiquette.

The lineages or sibs were not just social groups. They also constituted the pattern of creation laid down by Mukat (the Creator) in the myths. To insure that the social order continued to reflect its sacred beginnings, each lineage or sib had its own maiswat, or sacred bundle. Within the bundle was a voice, ?amna?a, which communicated with the net and his assistant, paxaa, to insure lineage prosperity (Bean 1972: 88).

Life cycle

Like all societies, the Cahuilla marked changes in social status through acts of public disclosure, usually ceremonial in nature. Numerous dietary and other behavioral prohibitions were used to personally and publically give notice that a person was entering a critical even dangerous stage or cycle in life. Pregnancy, birth, marriage and death were the principal events of life.

A child was named and given formal recognition only after several children had been born in the sib and parents had accumulated sufficient food and wealth items to present a feast (Oswalt 1966: 192).

When a marriage was decided, the spouses had to be from separate moieties and not be related to either side of the family. Distant cousins could be married if from the other moiety. The general pattern was for parents to arrange a marriage thereby insuring proper relationships and continued support from prosperous and

respected in-laws.

After marriage, the bride was an outsider because of the patrilineal emphasis and patrilocal residence. She had to be decorous in her behavior towards her in-laws. Elder family members looked to the younger married couples to be industrious and to provide food and material for the successful operation of the patrilineage.

The Cahuilla saw life as the collection of power, reflected by increasing old age. The most honored and powerful individuals were those who had gathered years. Respect for life was reflected in the great concern and interest in death and its meaning for the living. When an individual died, the body was washed, dressed and removed to the sib dance house. Mourners sang the creation narrative songs throughout the night. The body was cremated on the morning following death. In addition, the deceased's house and personal possessions were also "cremated." Elaborate procedures were followed to prevent the return of the deceased's spirit (Oswalt 1966: 195).

World view and religion

Ceremonies for the dead and the propitiation of their spirits form the center of religious life. Usually carried out as a week-long series of ceremonies, they "sum up for the Indians all that they remember and cherish of their former life" (Strong 1929: 121) in the dramatic "Mourning Ceremony". Other important ceremonials such as the Eagle Killing Ceremony probably were related parts of the overall

theme of death dramatized by the Mourning Ceremony.

The Mourning Ceremony was the most significant drama for the tribe and involved the distribution of significant wealth and the recitation of the creation epic depicting the origins of the Cahuilla world. The ceremony itself was a reenactment of a mythic drama first described by Mukat just before he died. In this ceremony all the sibs who had lost members could unite to give public expression to their loss. Images of the deceased were carried in a procession around the dance house and then cremated. The souls of the dead were released and no further mourning was necessary or permitted.

To the Cahuilla, the soul was real and its fate was closely interwoven with that of the body. Fainting and even "dream-trips" were viewed as temporary soul wandering (Oswalt 1966: 200). Spirits, apparently life guiding aspects, could leave a person for extended periods of time and wander similar to souls. Their life-principles were the focal point of interest in the interpretation of an individual's health, well being and prosperity. At death Mukat was the recipient of most soul spirits, but only after the soul/spirit had been freed by the "Mourning Ceremony". Those souls who failed to reach Mukat because of a life of disrespect, became "butterflies, bats, trees or rocks nearby" (Oswalt 1966: 200).

Power in a variety of forms was an important element that altered many relationships to nature. Power would come to a youth in a dream of a song that would signal his potential as a curer or seer. These power dreams originated with the mythic culture hero Mukat

who, along with the dream, gave a novice his guardian spirit (Oswalt 1966: 187). To finalize the young man's calling he must dance for three nights before the people of his sib. He was then a shaman, a practitioner of power originated and given authenticity by the mythic world of creation.

During his life, a shaman improved his skills by enhancing his powers through learning new songs, dances and feats of magic and bewitchment, each given to him in a dream. Various plants were included in his pharmacopeia, as well as the familiar "sucking" technique to remove lethal foreign objects from the diseased body, and blowing to effect cures. Agent-messengers, usually particular species of animals, birds or insects, served the shaman by diagnosing illnesses before they occurred. A successful shaman could expect payment for his services but fear of his power might also result in distrust and assassination.

As can be seen throughout the previous discussion, the creation story was frequently mentioned as a rationale for almost every artifact and behavior. Mukat, the hero of the story, created the world, and ceremonial life follows his prescriptions.

The creation story was told and sung during the Mourning Ceremony. Strong (1929: 123) notes that he obtained "the Cahuilla story of the creation...at this time while it was fresh in the mind of my informant, for nearly all the songs sung from the six nights are concerned with this theme." Strong's article (1929: 100, 102-108) includes numerous myth fragments. The histories of various clans

and moieties usually include segments of the creation story (Strong 1929: 125). Since the singing of the Creation Songs continued throughout the night children frequently fell asleep before all stories are told (Strong 1929: 125).

Cahuilla Today

As with nearly all studies of Native Americans on reservations the data on specific programs, including reliable data on education are difficult to obtain. This lack of data is primarily a function of neglect and oversight by local, state, and federal officials. Data tend to be collected to serve bureaucratic interests rather than laying the basis for sustained development or complete analysis. Compiled here are recent figures on educational facilities and students on the Cahuilla reservations. The purpose of this section is to give the current impressions of education held by local Indians.

The largest Cahuilla reservations are Morongo, near Palm Springs, and Augustine and Torres-Martinez near the Salton Sea. Several other reservations officially belong to Cahuilla bands but are occupied by small groups or are only used seasonally. These include the Cahuilla, Ramona, Santa Rosa, Los Coyotes and Agua Caliente reservations.

Population figures for reservation residents are difficult to obtain and assess. Many individuals are on the tribal rolls but live

off the reservation or live on the reservation only during particular seasons or for short, irregular periods of time.

The economy of the reservations is poor. Until recently many men and women were agricultural workers, but farming has declined in the region. The lack of water has restricted the use of reservation land for agricultural purposes. Wage labor in nearby towns support only a few families. Many run cattle on the reservation to supplement their income. Welfare checks are a significant factor in the reservation economy and some income has been derived from the leasing and/or sale of allotted reservation land (California State Advisory Commission 1966).

In 1961, the city of Palm Springs purchased lands allotted to 8 adults and 22 children for \$2,977,000. The first major leasing enterprise was the Palm Springs Spa complex and hotel completed in 1963. With the leasing and sale of land there has continued to be immoral and often illegal handling of Indian lands, especially of Cahuilla affairs at Palm Springs. A reporter for the Daily Enterprise of Riverside, California, uncovered sufficient evidence to force the BIA to investigate the system of court appointed guardians and conservators who were handling the payment. Significant fraud was discovered (Oswalt 1966: 211).

At Palm Springs women have taken a strong leadership role in several of the bands since the late 1950's because there were no resident men capable of handling their business affairs (Oswalt 1966: 210). These women successfully carried out the litigation which

resulted in the settlement of numerous land claims cases.

Education

The Bureau of Indian Affairs does not operate any schools in California; with few exceptions California Indian students are educated in public schools. Despite a rural Indian population estimated at over 40,000 there are relatively few governmental services aimed primarily at California Indians. There are no federal or state health facilities, training centers or schools for California Indians. In 1972 there were 543 California Indian students attending college who were supported by federal money administered by the BIA office in Sacramento. No information on the tribal affiliations by these individuals was available.

According to Madeline Ball, Tribal secretary at the Morongo Reservation (Personal Communication, 1976), 127 children are currently attending public school. No tribal school, as such, exists. Instead to provide their children with information on Cahuilla history and culture, the tribe has received Johnson-O'Mally and Title IV funds which they use to hold evening classes at the tribal hall. These classes provide the students with information on their culture not offered at the local public schools.

Like most Indian tribes, the Cahuilla have found it necessary to confront local school authorities regarding erroneous, even disrespectful, materials found in adopted teaching materials (M. Ball, Morongo Reservation, Banning, Calif., Personal Communication, 1976).

At present, Rupert Costo, a Cahuilla and publisher of Wassaja and Founder of the Indian Historian, has acted on behalf of his and other California tribes. He has attended, along with other tribal members, the yearly meeting of the California curriculum committee. At these meetings curriculum material for all the public schools are examined and discussed by the public and school administrators to determine if the books meet local and state standards of relevance and do not contain distasteful or "controversial" materials unacceptable to parents. According to M. Ball these meetings are dominated by the publishers who want to see their products adopted; other issues seem to take a secondary role (M. Ball, Morongo Indian Reservation, Banning, Calif., Personal Communication, 1976).

For the Cahuilla, along with other tribes, the search for relevant text materials and curriculum continues. They are presently reviewing materials for possible improvement. The present solution for overcoming this lack of relevant curriculum materials on Cahuilla culture is the evening tutorials mentioned earlier.

A significant institution operated by the Cahuilla is the Malki Museum. This museum is funded and operated by the tribe and has gained a world-wide representation for the excellence of its staff, research and publications. This museum gives ample evidence of the commitment of the Cahuilla people to the preservation and continued use of their unique culture.

One area of concern for many tribal members is the preservation of the Cahuilla language. Because of the long term use of public schools,

many younger children do not use their native language. Instead, it is the older tribal members who continue to preserve this important aspect of Cahuilla culture.

Interest in the present project was expressed by Ms. Ball, the Morongo tribal secretary, who stated that she would like to have a copy of this paper to be kept at the museum so that tribal members could read and use it in their future educational planning.

Helen José, Community Health Agent on the Torres-Martinez Reservation, confirmed the same general situation as at Morongo (Personal Communication, 1976). About 50 Cahuilla children are in public schools in the nearby towns of Oasis, Mecca, and Indio. Johnson-O'Malley and Title IV money support arts and crafts programs and Cahuilla language training on the reservation. Ms. Jose noted that the Mukat stories are still known by the people, although less so among the young. The elders are not participating in the Title IV programs, which only began a short time ago (H. Jose, Torres-Martinez Reservation, Oasis, Calif., Personal Communication, 1976).

Clearly, there is a desire by the Cahuilla to implement programs which reflect their heritage. The increased interest in teaching Cahuilla to the children is a clear reflection of this. Discussions with tribal members indicate they are receptive to the type of program offered here.

MATERIALS: CAHUILLA ORAL LITERATURE

It was decided that a thorough understanding of the themes in Cahuilla oral literature would come only by examining the breadth of materials available. This follows the advice of Fischer (1963) and Blackburn (1975). The analysis focused on ten texts collected from Desert Cahuilla informants and published by the German linguist, H. J. Seiler (1970). These texts were selected because they are published in phonemic transcription with free translation. Seiler's work with the Cahuilla language is the first to deal with the grammar, syntax, semantics and orthography of this language.

While the texts are freely translated into English, the volume contains an important discussion of the decisions involved in translating a previously unwritten language -- the kinds of stylistic devices not translatable, the lack of verb tenses in Cahuilla, the constructions which are difficult to convey in English, and other decisions which had to be made to insure that the translation was understandable in English while reflecting Cahuilla intent (Seiler 1970).

An understanding of some of the complexities of translation can be gained by examining Casagrande's (1954) discussion of types of translation and Nida's (1976) discussion of approaches to translation. Essentially there are four "ends" of translation. The first type is pragmatic translation where the only concern is with the accuracy of information (i.e., a technical manual). The second type,

an aesthetic-poetic translation attempts to convey the overall effect, emotion, form and message of the original (i.e., poetry). The third type is ethnographic translation whose purpose is to "explicate the cultural context of the source and second language versions... to be sensitive to the way words are used" (Brislin 1976: 3). An example here would be the use of "yes" and "yeah" in American English. The fourth type is linguistic translation where the analysts seek "equivalent meanings of the constituent morphemes of the... language" (Casagrande 1954: 337). Lack of such linguistic analysis is the primary reason that machine translation has not been more successful (Toma 1976: 247-260).

In using translated texts a key question which must be addressed is to determine the extent to which knowledge of the native language is necessary for heuristic analysis. The grammatical analysis of a language by a linguist does not entirely exhaust what is generally meant by language style (Stutterheim 1952). Grammatical analysis does make one aware of the linguistic "tools" a language provides for communication. However, which tools are selected and why are only two of the questions related to creative forms of language such as myth. A third question, and the one addressed here, is how such creative thoughts and themes are incorporated within a story format to instruct and entertain.

The selection of the Cahuilla for this analysis was partially based on the context of Seiler's publication of Cahuilla texts. It was felt that such a description of translation problems and the

decisions which the translator made would allow for future scrutiny of the results. The existence of phonemic transcriptions of the texts in Cahuilla meant that there was a resource for indigenous language training. The present analysis could be used to explain terms, actions, puns or allusions no longer within the range of general knowledge, much as students of Chaucer used concordances when reading his works.

The texts included in Seiler's volume were put directly on tape and then transcribed phonemically (Seiler 1970:7). Then the elements for translation were obtained "principally by clarifying the grammatical structure of the forms and by securing glosses for all hitherto unknown lexical items...[then] a continuous translation into English" was drafted (Seiler 1970:7).

Only part of all the recorded and transcribed texts collected were included in the volume. Fragmentary accounts have been omitted in favor of those versions approaching a reasonable degree of completeness. Seiler states that the published texts "provide...good material for further linguistic studies in Cahuilla, and ... a representative sampling of myths and ethnographic material of interest to the folklorist and ethnologist." Seiler notes that by including only the more coherent texts, "that possibly a standard has been applied here which is basically alien to indigenous standards of quality in a work of oral literature" (Seiler 1970: 9). Seiler notes, as have many other students of myth, that the "stories are in principal told to people who already know the plot." Therefore the narrator "can permit himself a

certain amount of license without in the least overstepping or violating the rules of his art". From a European point of view chronological order is violated. Different narrators insert episodes at different places. However, Seiler notes that the "lack of coherence in the story reflects the general disintegration of Cahuilla culture" (Seiler 1970: 9).

"The (onetime) existence of native literary theorizing, however elementary, may be seen in the major distinction which the older informants see between their narration". These are spoken of as true story (?a?alxe?at) which Seiler calls "myths" and "tale" (selhisce?at). According to Seiler (1970: 8) the narrators saw the "Creation and related stories including the story of migration [as] 'true'".

The ten stories analyzed here include four myths, the first (Creation) describing the creation and the remaining three (Yellow-body, Eagle and Flower, and People who went to the Sea) describing migrations of people populating the world. The second group of stories were 4 tales describing the adventures of various animals (Coyote goes visiting, and Whirlwind and Crow) and people (Kúnvaxmal and Pacaquarawih) who have supernatural power. The final texts, which Seiler titles "Belief, Culture" included two short stories of bears (Foolhardy Boy and the Bears, and Menroy Turns into a Bear).

The remainder of the text in Seiler's (1970) book is not traditional oral narrative. It includes two ethnographic descriptions of a particular olla and basket, two historical accounts of incidents the

speakers had witnessed in their youth , an accompanying "Song of Hate," and a transcription of a series of responses to stick figure drawings. All of these texts provide valuable data on the Cahuilla language and culture but this analysis is confined to an examination of traditional narrative forms, so these six texts are not considered here.

In addition to Seiler's texts, which have such excellent provenience, several older published Cahuilla tales were examined. Gifford and Block (1930: 228-32) include a story they title "Magician and Son" which is similar to Story 6 which Seiler titles "Kúnvaxmal" (Seiler 1970: 100-111). Strong includes numerous myth fragments explaining the history of various clans and the moieties (Strong 1929: 100, 102, 109, 180, 220, 235) and a creation story collected from a Pass Cahuilla informant (Strong 1929: 130-143). Hooper (1920: 317, 328) has published the longest and most detailed creation story, collected from a Desert Cahuilla informant.

The texts published by Hooper, Gifford and Strong were not included in the body of myths to be analyzed because no data on their collection or translation were available. However, they were helpful in explicating certain ambiguous portions of the Seiler texts. They have also been used to show the general stability of the stories over a period of fifty years. The Seiler versions are generally abbreviated in form, omitting some episodes entirely but the general flow of the stories has remained unchanged. Some of the difference

may have resulted from Seiler's omission of texts he felt too incoherent for inclusion. These may be isolated episodes, a common narration practice (Gifford 1932, 1933, 1936). Or the abbreviated Seiler versions may simply represent the overall disintegration of Cahuilla traditional life. Seiler (1970) notes that his informants were among the last Desert Cahuilla to know the complete stories and songs.

Cahuilla ethnographic material was also used in the analysis of the texts. These were seen as the basis for crosschecking the validity of inferences drawn from the myths. These include the volumes previously mentioned in the section of Cahuilla ethnography: Barrows (1900), Hooper (1920), Strong (1929), Gifford (1918), Kroeber (1908, 1953) and Bean (1972). This material is independent of the texts being analyzed.

As Blackburn notes for the Chumash "the aboriginal context in which narration took place is obscure,...but the frequency of restrictions with regard to storytelling elsewhere in California makes it seem likely that similar concepts" existed among the Cahuilla. Tales seem to have been narrated by older people, probably as part of a general enculturation of the young. Considerable skill and a good memory were required for the narration of some of the complex myths, which lasted through several nights. There is some evidence for the use of a special ceremonial language for narration. Seiler (1970: 8) notes that there are sex correlated stylistic differences in the

stories he collected. In addition, the male narrators tended to give more elaboration in their versions. The existence of such detail on supernatural behavior suggests that some stories may have had esoteric meanings for certain segments of the audience; initiated males, nets, or shamans, for instance.

One feature of the myths which it is difficult to control is the variability which occurs between individual narrators. As Seiler (1970) notes many of the stories lack the type of coherence Westerners expect in a story. The narrator was essentially repeating a story with which the audience was familiar. Each narrator could choose elements from the larger context which suited his purpose and mood. However, when comparing these variants with previously published versions, like Strong (1929) or Hooper (1920), there is a basic continuity of plot, characters and themes over a 40 year period.

An exhaustive treatment of the stylistic features of Cahuilla oral narratives must await a more detailed linguistic analysis of the language. A few general remarks can be made. There are stock phrases which introduce and end stories, like "Once upon a time" and "they lived happily ever after." Sometimes the story begins with a phrase indicating the time such as "when there was nothing but darkness." In other cases this setting is omitted and the first sentence describes the main character - "There was once a Crow." "There was a man." Traditionally the story ended with the phrase

"That's the way it was and here the story ends."

Another common storytelling device is the repetition of a description or statement in slightly altered grammatical form. Thus brief stories are prolonged. In the same way the insertion of songs attributed to various characters repeat the previous actions in verses which repeat themselves. In fact there are reports that the songs could be used alone, without narration to tell some of the stories (Strong 1929).

To minimize the possible impact of language on these analyses, oral narratives were selected which had both native orthography and English translations. This was the basis for the selection of the Cahuilla materials for this study. Ultimately, no English text is going to give the full flavor of the original document. However, there are sufficient successful studies using translated materials to justify the use of what are deemed excellent English translations for the native Cahuilla. The Seiler texts also provide direct access to native language texts for cross checking by native linguists.

ORAL NARRATIVES AS CULTURAL CURRICULA

This study of Cahuilla narratives is based on the assumption that oral literature is a cultural curriculum, a plan for learning. Taba (1962) presents a clear discussion of the theoretical and practical issues involved in curriculum development. She (Taba 1962: 10) says that all curricula, no matter their specific design, contain four elements, a statement of aims and of specific objectives, some selection and organization of content, the implication or manifestations of certain patterns of learning and teaching, and a program of evaluation.

To accomplish these goals, Taba (1962: 11) proposes six steps to be used to analytically categorize the materials to be used in a curriculum. These are to:

1. determine objectives
2. select content
3. organize content
4. select learning experience
5. organize learning experience
6. select criteria to be evaluated and method(s) of evaluation

In Taba's analytic model four general kinds of information shape the developer's decisions in each step (Taba 1962: 13, 16-18). First, the recognition of the demands and requirements of culture and society shapes the kind of knowledge required of its members. Second, since a curriculum is a plan for learning, "what

is known about the learning process and the development of the individual has bearing on shaping the curriculum" (Taba 1962: 11). For example, learning can be conceived as an organic whole or as a developmental process and the model assumed determines the organization of learning activities. Third, the nature and specific character of the knowledge "from which the content of curriculum is derived" impinges on decisions in curriculum development (Taba 1962: 11). Each subject or topic needs to be organized in a way which facilitates its use by the learner. Fourth, there are "basic considerations and choices of values which mold the decisions at each level" (Taba 1962: 11). For example, "attitudes toward permanence and change determine the extent to which independent thinking is prized over mastery of heritage and tradition" (Taba 1962: 11). What emerges from all these decisions is a plan for learning which is reflective of the developer's conception of the functions and objectives of knowledge and his less obvious assumptions about the nature of cognitive processes and individual development.

Taba's model of curriculum development just outlined will be used to extract and organize information from the Cahuilla myths. This will permit an evaluation of the instructional content of the narratives. It is necessary to present the materials analyzed in detail to illustrate the various levels and complexities of content within the narratives. Summaries at the end of each section will be used to characterize the instructional content drawn from the stories and to show their relationship to the overall objectives of

the curricula.

Basic Objectives

The first step in curriculum development is to select the basic objectives of the curriculum by defining the needs of the target learners. Therefore the first step in the analysis is to define the basic objective of the narratives. The assumption made here is that as cultural curricula, Cahuilla oral narratives are designed primarily to provide the listener with information that promotes the basic philosophy, norms and values held by Cahuilla society, thereby ensuring the continuity of Cahuilla culture. Thus the basic objective of the narratives meets the need of Cahuilla culture by ensuring the continuation of Cahuilla life as it has always been.

Selecting Content

The second step in developing curricula is to select the content to be presented to allow the learner to meet the stated objectives. In the narratives the content has already been selected by the Cahuilla. Thus the information in the stories instructs the people in the basic features of Cahuilla life. Certain segments of life, specific themes and values predominate in the stories. These choices of content reflect Cahuilla beliefs as to the areas of knowledge essential for their cultural survival.

An assessment of the content being conveyed comes from analyzing

the myths at several levels. First, the plots provide an inventory of characters, activities and objects whose frequency, occurrence and articulation denote patterns of preferred information. Some obvious patterns are the sex and age of interacting individuals; the existence of numerous arguments, fights and killings; personified animals and objects acting as characters; and characters who do unusual, even extraordinary things. The second level of analysis, which is more abstract than the inventory of participants, is the patterns of associations among the characters, objects and actions constituting the narratives, the themes which the Cahuilla have selected to be articulated in their myths. These themes include systems of knowledge about the physical world (the sexual division of labor) and the spiritual world (the concepts of power, supernaturalism and mortality).

The analysis of content begins with an inventory of the plots, characters and objects in the stories and concludes with a discussion of three major themes presented in the stories.

Plot as content

There is considerable variation in plot from one narration to the next ~~but~~ there are three general subjects covered, the Creation (story 1), Etiquette (Stories 5 and 8) and Medicine men (Stories 2, 3, 4, 6, 7, 9, 10).

The Creation story explains how the physical world came to be as it is today, including the origin of death. It tells the story of

a world populated by the creations of two brothers. The older brother (called Mukat here) gains control of the world and creates things as they are today. The people eventually turn against the creator and kill him by bewitchment. While cremating his body Coyote steals and eats part of his heart, which was to have provided food for the people. This is known as the Dying God Story (Strong 1929, Kroeber 1908). Three major cultural practices are explained in this story, the origin of cremation as a treatment for the dead, the beginning of the Mourning Ceremony as commemoration of the death of Mukat and the scattering of the people into separate small bands.

Two stories, Coyote goes visiting (Story 5), and Whirlwind and Crow (Story 8) are concerned with characters who gain (or lose) objectives through cunning, deceit or trickery. Both delineate the consequence of breaking cultural norms and are termed "Etiquette" stories here. In Story 5, Coyote tricks his daughter into giving him more food and she punishes him and then disappears. He can not fix his own food or get his own water so he sets out to find her. Realizing that she has hidden her tracks he seeks someone else to live with. He encounters a series of people and spends one night and eats one meal with each. During that time he manages to offend each of them by damaging their blankets, shaking soot on them eating too much food or eating the wrong kind of food.

In Story 8, Crow fills a similar trickster role. Because he is thirsty, Crow asks for water and drinks all that Whirlwind has. When

she is gone Crow kills her baby. When she returns she finds the baby dead and Crow gone. Whirlwind attempts to find Crow by tossing a basket in each direction and eventually follows his tracks to Gopher's house. Crow hides under Gopher's apron and Whirlwind knows he is there but can not find him. Whirlwind threatens Gopher if she will not tell where Crow is but Gopher refuses and kills Whirlwind by throwing a rock down her throat and squashing her heart.

The remaining 7 stories are mainly concerned with the actions of characters who have unusual, extraordinary or shamanistic powers. These include Yellowbody (Story 2), Eagle-Flower (Story 3), The Man Who Journeyed to Sun (Story 5), Kunvaxmal (Story 6) and Pacaqarawih (Story 7). Each describes a series of adventures and escapes of a protagonist who encounters dangerous monsters, malevolent, powerful beings or powerful medicine men and overcomes them through supernatural means. This is a favorite theme throughout Southern California. Stories 9 and 10 (The Foolhardy Boy and Menroy) describe the shamanistic behavior of bears.

Major characters as content

Character development, depiction of emotion, and an analysis of motives underlying the action are neither explicit nor obvious, which is true of most North American folk tales. Actions seem to be "an inevitable outgrowth of [the] fundamental nature [of characters] - they do what they do because they must, rather than as a consequence

of having made a deliberate choice between viable alternatives" (Blackburn 1975: 24).

The list of characters which appear in the myths is rather large. It includes a number of animals and natural phenomena which are personified. There are three general types of characters: the creators, main characters (protagonists and their adversaries) and minor characters (assistants and attackers), which are listed in Figure 1.

The major characters in the first half of the creation story include the two creators, Temayawet and Mukat, and the people they create. The second half of the story focuses on the exploits of Coyote, who has made life difficult for the people by stealing Mukat's heart. Coyote is eventually outwitted by Ferret. Mukat and Temayawet are born with their capabilities although their personal behavior diminishes this power and makes them subject to the wishes of the people. They stand as the creators of model behavior although they could not always live up to their own standards. The function of Coyote will be discussed below.

Story 5 includes Coyote as the familiar trickster and Marplot, described as a man with one eye (Seiler 1970: 92), (all following citations from the Seiler texts will be in the following form (p. 92). The reoccurrence of Coyote after he was supposedly killed in the Creation story illustrates the difficulty of drawing any total overview of the characters between narratives. This brings up one of

		CREATION			ETIQUETTE STORIES			SHAMAN STORIES				
		Story 1	Story 2	Story 8	Story 2	Story 3	Story 4	Story 6	Story 7	Story 9	Story 10	
MAJOR CHARACTERS					Protagonist: Yellowbody	Eagle-Flower	a man	Kunvazmal	Pacaqarawih	Boy	Menroy (Bear)	
					Lives with: Mother, later has two wives	Grandmother, mother, wife and later a baby	alone, his relatives die in the journey	Grandmother	Grandmother	--	--	
					Father: --	--	--	K. fights father & brothers	P. fights father (Patavniwas)	--	--	
		Mukat Temayawet Coyote The People Ferret	Coyote His daughter People: One-Legged, Blanket - Ears, Blackbirds, Pots-on-Head Bread-Makers	Crow Wife/Wind Wife/Wind's Baby Mother	Other Main Characters: ---	relatives Levi Family	Sun Moon Bees Winds	K.'s mother (a mouse) Father's second wife (Rat)	Father's 3 daughters Takus (father) Mother of P.	Bears	Cowboys	
MINOR CHARACTERS	Attackers & Assistants	Lizard Frog Takus Fox Wildcat Bat Buzzard Goose Rabbits				Dog Weasel	Rock Whirlwind	Eagle	Three Birds Roadrunner Hawk Buzzard Crow Ogre	Deer		
		Palm Tree Fly							Dove & Butterfly			

Figure 1. Inventory of characters in Cahuilla oral narratives

the most important features of character development in Cahuilla myths. Many of the characters stand not as individuals with personal histories as explanations of their motivation but as symbols of attitudes or behaviors, i.e. in the same manner that medieval passion plays had characters named Greed, Passion, Lust. Coyote is such a character. He is a model of the exceptional, either good or bad, in behavior. Therefore there is no inconsistency in his being killed in one story and returning in another story. This is also an important key to understanding that frequently the characters in the narratives are instructional models. The character of Coyote illustrates overtly the pedagogical function of the story.

The remaining characters in Story 5 are the people Coyote insults. These include: The One-Legged People (he races them); Sleepers-with-Blanket-Ears (he wraps himself in their ears to sleep and tears them); Blackbirds (he gets cold sleeping with them and jumps into their fire to get warm spraying them with ashes); People-with-a-Pot-on-Top (he uses one of their pots for a blanket and breaks it); and the Make-and-Eat-Bread People (he eats their feces). Since Coyote can never do what is right Coyote gives up, goes into the wilderness and dies (p. 98). These are models of various status and role positions and may be representative of the neighbors of the Cahuilla.

The characters in the second "Etiquette" story, Whirlwind and Crow, are models of the respective rights of women and men. Whirlwind is unsuccessful in her search for Crow (who may be her husband)

because such revenge is outside of her socially ascribed role; she does not have the ability to force Gopher to release him.

The third type of character in the stories are shamans. The importance of shamans is evidenced by the special circumstances surrounding their living arrangements, the actions they are a part of and the assistance they receive from other animals and natural objects.

Each of the characters lives away from his father and in two cases the characters actually fight with their father (Kunvaxmal and Pacaqarawih). Three of the shamans live with their grandmothers (Eagle-Flower, Kunvaxmal and Pacaqarawih) and one with his mother (Yellowbody). In Story 6 it is explained that Pacaqarawih's father, Patavnivas did not like Pacaqarawih's mother and so they (mother and child) had to leave. However, later in the story Pacaqarawih's mother is still living with Patavnivas although Pacaqarawih is living separately with his grandmother. This indicates that antagonisms among family members exist, especially when supernatural power is involved.

The arguments between these fathers and sons (both shamans) are overlaid by two other themes. One is the antagonism between the generations. One major concept of Cahuilla life was that age was to be respected and that knowledge and power increased with age. However, along with this is the fact that increasing age also leads to decreasing physical abilities. Thus, there is a tension between young, able-bodied men who wish to take control and older wise men

who have the knowledge, but no longer the physical capacity to act. The result seems to be that families often break up and these eldest sons are forced out of the family. Subsequent sons are allowed to remain because by this time the father has declined physically, is more ready to share his leadership role and in fact needs his sons to hunt, something he can no longer do. In each example of intergenerational conflict in the narratives, it is the oldest son who leaves and later must do battle with both his father and his half (or full) brothers.

Minor characters as content

The use of characters as models is also evident in an inventory of minor characters. Those characters who are used by the main characters in attacking one another, defending themselves from attack, or in some other assistance role, are assigned duties which fit their physical capabilities. This pattern holds throughout all the stories. In Story 1, the Creation, when the people need someone to eat Mukat's feces to bewitch him they choose animals that are active at night and who live near water. The lizard is not successful because he can not stay under water long enough to hide from Mukat. Therefore, Frog, who lives in water, is assigned the duty. This secrecy is necessary because the Cahuilla are extremely private in their toilet activities, usually waiting until after dark, because they fear being bewitched. The guard around Mukat's funeral pyre is composed of all the people and Coyote only gains access by jumping over

badger, the shortest one of the people guarding Mukat. In this case even Mukat's fear of Coyote reflects the natural observation of Coyotes as scavengers, who will steal any food not protected. After Coyote steals the heart three runners are sent to catch him-- Ferret, Fox and Wildcat, all naturally swift runners. At the end of the story Coyote is defeated by Ferret, who stands away from the crowd, watches how Coyote is winning and runs in and steals the hiding star. Thus, Ferret's speed and cunning allow him to defeat Coyote.

The second story includes a worm, which is shoved up the nose of a sleeping man causing him to die. In this case Yellowbody is pursued by a hawk, the spirit of the man he killed which has been liberated in the cremation fire. The hawk is tricked into killing itself by diving onto a rock placed on Yellowbody's head as protection.

In the third story, Eagle-Flower escapes from a massacre of his relatives by calling a Whirlwind to carry him away. He had been warned about the coming disaster by Coyote, who carried in the news to him.

The use of characters to personify the characteristics they reveal in nature is obvious in Story 4, "The People Who Went to the Sun." Here, Willow Tree, which burns every night when the sun sets and is only extinguished when the sun pours water over it, burns up the man who has disobeyed Sun's orders not to go near the tree.

The bees (Sun's animals) also kill the man, presumably with their firelike (sunlike ?) sting. When he wishes to return home the man is carried part way around the world by the sun and then the winds return him the rest of the way home because the man does not want to disappear with the sun in the west.

In Story 6 (Kunvaxmal), there are several specific citations which support the idea that characters are models of actual natural behavior overlaid with human abilities. Kunvaxmal's mother, called Mouse, is thrown out by her husband because she likes to dig holes and fill them with sticks and grass. The man's second wife, Rat, is worse because she digs larger holes and drags sticks and beans into the house. In this same story the brothers attack Kunvaxmal by sending an eagle to kill him. Kunvaxmal tames the eagle by using his power.

In Story 7 when Patavnavas sets out to revenge his daughter's death he uses Hawk, Buzzard and Crow to fly ahead and search for the enemies' tracks. He sends Mosquito into their camp to find out if they are expecting an attack. All four assist in killing the enemies. In Story 8, when Crow hides from Whirlwind, he seeks shelter with below ground in Gopher's den, where he is safe from the rages of the wind.

Even when transformed in shape the shaman characters assume shapes of animals whose behavior is adaptable for their purposes. Pacaqarawih hopes to deceive his father, Patavnavas, by changing into a young dove and when recognized becomes a butterfly and escapes.

Patavnicas himself takes the shape of a deer and appears in a meadow where Paca qarawih had been sent to hunt mountain sheep. Not wishing to disobey his grandmother's instructions to kill sheep Paca qarawih does not kill the deer (Takus = Patavnicas), is kidnapped and carried off to Patavnicas' camp to be killed.

In general, the behavioral patterns of the animal characters seem to be unlearned and natural or inherited as characteristic of their species. However, their use by shaman clearly illustrates that a shaman is a profound and detailed observer of nature and has obtained his mastery through observation and strategic use of specific patterns of behavior in a prescribed sequence to solve problems. To illustrate, the solution to a problem might be written as digging behavior (and running behavior and shooting behavior = solution, stalking and killing of a protagonist). Each species is a specialist, who performs his given natural task as part of the larger overall problem and its solution.

Objects as content

With some understanding of the characters and their modeled behavior the next step is to examine the objects of orientation for the characters, the material representations of their motives.

An examination of the objects mentioned in the myths (Figure 2) shows that there are natural objects like trees, anatomical objects like eyes, spit, feces, and cultural objects. This list generally reflects the simplicity of Cahuilla material culture and the relative

	CREATION	ETIQUETTE STORIES		SHAWAN STORIES						
	Story 1	Story 5	Story 8	Story 2	Story 3	Story 4	Story 6	Story 7	Story 9	Story 10
NATURAL OBJECTS	clay earth tobacco- light rock sky bamboo hole in ground precious stones tree trunk Sun-fire & Rock-Fire (flint) cottonwood leaves weeds pebbles star	jumping cacti tule (reeds) water wilderness wood	mesquite tree water flat rock	canyon stone plants grass water wood hot springs	rock pebbles brush	soft ground darkness thorn bush thorns water ocean willow tree sunlight	grass sticks water mesquite bushes white clay eagle feather quail feather	rain earth rabbit hole rock wood	bush	rock prickly pear
ANATOMICAL OBJECTS	feces heart eyes	one eye ears feces tracks of Coyote's daughter	tracks of Crow Whirlwind's mouth and heart	nose spit scabs tears feces	footsteps	--	finger nail	grandmother's eyesight Black Bird's eye rabbit's head, face & neck dove's feet bones of people ear wax mouth and heart of Takus	bear tracks boy's belly & guts	
CULTURAL OBJECTS	bow arrow shafts olla house money	food stores bed blankets ashes of fire soot bird's home pot bread home corn-mush	basket olla house traybasket Gopher's house, baskets, & apron firewood	houses (communal) smoke fire fire-like material (flint?) Fruitful plants	fool- grass & sticks house wrapper for baby	Bee's house Sun's plants. watermelon corn canelope grape pots dishes house without windows net fire	house grain (huat) grinding stone pot fire bow & arrows burning circle paint	house water jar fire inside house cradleboard bow & arrows grandmother's dwelling medicinal herbs net traybasket carrying basket food sharp knife flour	gun	rope belt home dried meat

Figure 2. Objects in Cahuilla oral narrations (Seiler 1970)

sterility of their environment. Plants include tobacco, cottonwood trees, bamboo (arrowweed) reeds or tule, grass, mesquite trees, thorn bushes, bushes, and weeds. The only domesticated plants are called sun's plants (watermelon, corn, cantaloupe and grapes). These occupy an uneasy position between natural and cultural objects, perhaps reflecting the haphazard Cahuilla approach to horticulture. They are listed in Figure 2 with cultural objects because they occur only in the land of the Sun visited only by a man whose dream will make him a shaman. The plants have "marvelous" regenerative powers. Similar "fruitful" plants are created by Pacaqarawih (Story 2). His grandmother gathers fruit from these plants and they never are bare.

In the anatomical objects there are two concerns, tracking and attack. Footprints are signs which allow one individual to find another. These are usually antagonists who are chasing one another, either seeking revenge or the continuation of a power contest. The second type of anatomical object are body parts which are vulnerable to attack. Several characters are killed when rocks are thrown into the mouth or down their throat, killing them by crushing the hearts. Eyes are vulnerable. Coyote steals the eyes of those who lose the hiding game. Black Bird is shot in the eye. Tears, feces, spit and ear wax are jealously guarded as they can be used to bewitch and kill people.

The final grouping includes cultural objects. This list reflects

the simplicity of Cahuilla material culture. The bow and arrow is the main weapon, although one story also mentions a sharp knife. Domestic implements include an olla (pottery jar), a water jar, a pot, baskets, blankets and a bed, and a carrying net. Personal adornment includes paint (which is applied by men for an initiation ceremony), a woman's apron and a wrapper for a baby. Houses are mentioned both as dwellings and as special ceremonial structures. Fire (or cooking or eating) is mentioned in all the stories except Story 9. Foods include corn mush, grass and sticks, sun's plants, dried meat and various small animals (rabbits) and birds.

This discussion of cultural objects leads logically to an examination of division of labor, one of the themes presented in the stories.

Content themes: overview

It is now possible to deal with the more complex relationships that exist between the characters and objects just inventoried. These relationships have been termed themes, denoting their topical organization of action. The three themes found to be the most pervasive in organizing the action in the narratives are the sexual division of labor, the notion of mortality, and the concept of supernatural power. Each of these major themes can be organized into subcategories which outline secondary themes, such as the status of males, respect granted with increasing age, the notion of order and control required of adults, the secrecy necessary for self protection and the parallel obligations of reciprocity. An inventory of the number of sentences

involved in each pattern is given below.

<u>Theme</u>	<u>Number of sentences</u>	<u>Percentage of total number of sentences</u>
Division of Labor	240	20%
Mortality	413	35%
Power	628	53%

From this listing it is obvious that these three themes include the majority of sentences in the stories; this illustrates their significance in organizing a major portion of the action. The first theme to be discussed is the division of labor.

Content theme: division of labor

Economic affairs are a major category of Cahuilla culture given ample recognition in the myths. Figure 3 lists all of the objects mentioned in the ten stories. Men and women are presented in the myths as learning and teaching activities within specific areas. Women it seems, have as their primary focus of learning and activity the plant world. Paca qarawih's mother collects medicinal herbs and his grandmother tells him which herbs to collect to cure her failing eyesight. Coyote's daughter prepares and stores their food. He can not get to the foodstores himself and must trick her into giving him more food. Yellowbody makes the plants fruitful but it is Grandmother who gathers and prepares the fruit. Kunvaxmal's father's second wife is depicted as grinding grain. Kunvaxmal is

very hungry and steals the grinding dust after she finishes. He takes this back to his grandmother who prepares it.

Women are also responsible for preparing the game animals which the men bring back to camp. Yellowbody, Eagle-Flower, Kunvaxmal and Pacaqarawih all bring the birds and rabbits they kill to their women to be cooked. Pacaqarawih's first game is a rabbit he catches as a baby. He skins it and puts it on a stick (spit ?) and then waits for grandmother to cook it. In Story 7 Pacaqarawih's father tricks and kidnaps him, taking Pacaqarawih to the father's house. There the father tells his daughters to roast Pacaqarawih. Women also know where to get the proper plant and animal materials to make weapons. Kunvaxmal's grandmother makes his weapons and they are superior to those his father makes for his half-brothers. Likewise, Pacaqarawih's grandmother makes his weapons.

The main hunting tool is the bow and arrow. These are also used in shooting contests where medicine men test their powers. The gun mentioned in Story 9 is an obvious recent intrusion into the narratives.

Successful male hunting depended on the ability to track animals. Males are presented as the culturally ascribed experts on the behavior of animals. This is reflected in a negative sense in Story 8 where the female whirlwind has great difficulty tracking Crow (male) and is not successful in killing him. Coyote is also not a successful tracker, indicating how far outside the male norm his behavior lies. Interestingly, this sexual division of knowledge about plants and animals would

seem to be overcome by the presumed domestic superiority of women. Women are pictured in the stories as cooks and processors of many of the animals as well as the plants. Nevertheless, it may be that men are viewed as knowledgeable about the natural behavior of each species of animals outside of the world of women, the camp, and that women's knowledge of animals is restricted to the preparation.

This theme of sexual division of labor corresponds closely with that which is known from the ethnographies about the division of economic roles within Cahuilla society. Men hunt and gather firewood, whereas women gather foods and medicinal herbs, reeds and grasses for basketry, which they weave, make pottery, and carry water.

Content theme: mortality

The concept of mortality presented in the narratives is used to illustrate the thematic relationships among characters, actions, objects and important beliefs and values in Cahuilla intellectual life.

Among the Cahuilla as among nearly all southern Californian Shoshoneans and Yumans, mortality is the omnipresent theme that touches all aspects of culture. The Cahuilla do not view life as isolated from death but as an integral process of living. However, death is only the beginning of the final separation of an individual from his culture. The process of death and separation is dramatized in many ceremonies, the Mourning Ceremony being most important. This ceremony draws together all the other rituals into an interpretive design that explains individual events as part of a more comprehensive

whole.

In the myths a complex theory of death is proposed. Apparently death was not part of creation but was seen as a necessity by the creator Mukat to prevent overpopulation. This is one of the key issues that the two creator brothers debate. Death was initiated through trickery by the God-culture hero. The people agree to shoot one another because Takus, an elder, survives a demonstration and because Mukat promises that they will return to life. Because of Mukat's deceit the people turn against their creator and bewitch him. Thereafter, death is a part of life.

The initial reflection of death by mankind and the struggle with the creator over initiating this process resulted in the creation of an ambiguous state between life and death, i.e., the spirit world. It is this ambiguous spirit world that remains a potential and real source of chaos, anxiety, sickness and even death for mankind. After Mukat has tricked the people into killing one another, the spirits of those who have died wander back and forth across the landscape without a place to stay, they play tricks, laugh and are noisy (p. 48). They rise into the sky, but can find nowhere to go and return to earth. Eventually one man felt sorry for them, and with a stick made a hole in the ground pointing south. The spirits streamed into the hole (p. 48). The spirits live under the ground to this very day (Seiler 1970: 48).

Because of this uneasy relationship with the spirit world, the Cahuilla have, since the world's beginning, enacted the Mourning

Ceremony, as a way of giving finality to death by the separation of the spirits of the dead. The ceremony involves the display of images of the deceased, and the destruction of their property. The Mourning Ceremony occurs as an anniversary of the origin of death and the release of ambiguous spirits so that they may journey quickly to the afterworld. At the conclusion of the Mourning Ceremony the living have placed an impenetrable barrier between themselves and their deceased kinsmen. The ambiguity of the spirit world that originated at the time of creation is controlled and kept separate from the living. The past is not a neutral dimension of time populated with vivid personal memories but a social blank avoided out of fear.

Besides the Mourning Ceremony and its association with the origin of mortality the stories contain several episodes that involve death. The powers of the spirits of the dead is given in Story 2, where Yellowbody is attacked by the spirit of a man he has killed. This man's spirit is liberated by a cremation fire and turns into a hawk (p. 64). Several of the stories concern revenge. Eagle-Flower's enemies kill his relatives and set fire to their homes. This is done to insure that the spirits of the dead will not seek revenge. In Story 6, Kunvaxmal's brothers have an eagle attack him, then lure him into a thicket to hunt rabbits where they set a fire around the thicket (p. 106). The brothers think he is killed and return happily to their father saying "our brother is burnt" (p. 106). It is not enough that he is dead; to prevent revenge by his spirit he must also be burned. However, Kunvaxmal sings a magic chant, sinks into the

ground and winds appear that carry him to safety.

An indirect statement of the power of the spirit world is given in Story 4, "People Who Went to the Sun." Here only one man reaches the Sun. The Sun brings him back to life several times when the man disobeys the Sun's instructions. Eventually the man becomes lonesome and desires to return to his people. Sun allows him to do this but only if the man promises not to tell of his adventures. The man disobeys; he has the people construct a house without any openings to keep the sun out and then invites the people to hear his story. But an error is made. When the sun returns a tiny hole in the house lets "the rays [pierce] the house, piercing the man through the heart so that he fell down and vomited blood"(p. 90). This man, who knows all of the secrets of Sun, who has seen the wonderful domestic plants of the Sun that would make the Cahuilla prosperous is killed because such power is dangerous and can not be abused. Afterward the people cremate the man.

In general, the stories convey the Cahuilla theory of death and its importance through the actions of the various characters. Mukat's death is the most catastrophic, for after that time the people did not prosper. Only the image ceremony ends their grief and confusion; the people are forced on their migration journeys to the places where they live today because of their grief (Seiler 1970: 62).

The Cahuilla concept of mortality shapes their world view, their most comprehensive sense of time and space. The spirit world

is dangerous, and the dead, along with their belongings must be cremated. Names of the dead are never mentioned again. Life is not an accumulation of memories about deceased ancestors. Neither do the Cahuilla look forward or speculate about unborn children for fear this will cause the child injury. Hence, Cahuilla history is limited to those incidents considered safe from the spirit world. Life has a narrow contemporary meaning. Consequently, Cahuilla goals are likewise restricted to the preservation of life as it now occurs, rather than desiring change toward some future objective.

Content theme: power

The third theme found to be related to instructional content is power, illustrated by the extraordinary behavior patterns of many characters in the stories. In this rather long section there are three main objectives, first to illustrate the nature of the power held by the creators, second to inventory the types of behavior exhibited by shamans and third to show that there are limits to power and requirements for its use.

One of the difficult obstacles in comprehending oral narratives as reflections of reality is the existence of fantastic creatures and extraordinary actions by the characters, such as rocks that talk or fly. However, it must be remembered that the narratives do reflect conceptions of reality which are culturally bounded, not necessarily empirically defined. Magic and the supernatural play an important

role in eight of the ten narratives (Stories 5 and 8 do not include magical or supernatural events). Story 9 (Foolhardy Boy and Bears) and Story 10 (Menroy Turns into a Bear) are little more than a listing of tricks and actions which are evidence of the supernaturalness of bears. Several characters are specifically spoken of as extraordinary or supernatural. The creatures are called "extraordinary beings" (Story 1). Kunvaxmal is said to have supernatural power (6), Patavnivas (7) "knows all things", Bears have supernatural powers (8 and 9), Yellowbody is called a medicine man, who can do anything. In most cases magic and supernatural power are pivotal factors in plot development. There is a variety of forms of supernatural power which indicates a fundamental Cahuilla concern with delineating and controlling such power. Power, ?iva?a, was independent, existed in all things, and usually operated for the benefit of man. It was something people wanted but also feared because it could be used malevolently.

The manifestations of supernaturalism include performance of impossible physical feats, traveling great distances in a short time, unusual control over animals or natural elements, physical transformations and curing. A common device indicative of supernatural power is the death and later "revivication" of a protagonist. Supernatural birth and unusually rapid development are also evidence of an individual's possession of power. The variety of these elements and their occurrence in all the stories tells a great deal about the Cahuilla concept of shamanism.

Two kinds of supernatural behavior occur in the stories, that exhibited by the creators, Temayawet and Mukat, and their surrogates sun and moon; and that exhibited by men who are called medicine men or shamans. The power of the creators will be discussed first.

Power of the creators

An examination of the supernatural behavior of the creators gives some important dimensions to the exposition of the Cahuilla concept of power presented in these narratives. Power is presented as a special even unique category of knowledge. To understand fully the Cahuilla theory of knowledge it is necessary to understand the meaning and purposes behind their conception of power.

The behavior of the creators Temayawet and Mukat stems from their "original power," their innate extraordinariness. They "hatch" together from an egg which forms in the darkness. Together they create the world, the earth, the sky, the sun, moon, and all creatures including man.

The relationship between the creators is inharmonious from the beginning. They argue over who is older (Mukat actually is), who shall sing the origin song, and how to sing it. In all things Mukat is more careful and creates things as they should be, whereas Temayawet rushes too boldly. When they create people Temayawet gives man webbed hands, four legs and eyes all over.

Angry because Mukat will not agree to destroy sickness, Temayawet leaves the earth and goes underground with his creatures;

Mukat stops him from taking all the creatures, but has to remake the ones he rescues.

This sets up the initial premise that despite their powers the creators are capable of error. Temayawet's people are imperfect, his song is imperfect, and he suggests ideas that will be harmful to people .

When Temayawet is gone, Mukat also makes errors in judgement which are harmful to the people. He shows the people how to make bows and arrows and wants them to play a game shooting at one another , telling them they will die but will be reborn. He has Takus, an elder, demonstrate that the arrows will pass through his body and not harm him. The people follow this advice, shoot each other and many die but they are not reborn. Those who are not killed are angry with Mukat and want to kill him, which is impossible since he is a creator. However they can punish him by bewitchment, which they do. Frog hides in the place Mukat makes his toilet and eats Mukat's feces which makes Mukat sick. Mukat appeals to the people to help him get well by singing curing songs but they refuse.

Because of Mukat's mistreatment of the people and their bewitchment of him there is no time to create plants. In Strong's (1929) version Mukat promises these will grow from his cremated heart; in the Seiler version there is no such promise, but Mukat is concerned lest Coyote steal his cremating body. Coyote steals Mukat's heart and there is no mention of plants in the remainder of the story. Coyote, who has tended Mukat during his final illness, does teach the

people several things which Kumat had told him to pass on, including the Doll fiesta, the image ceremony honoring the dead and peon, the star hiding game.

The only reference to the originator of plants occurs in Story 4 where there are Sun's plants, watermelon, cantaloupe, corn, grapes and other fruits which were inexhaustible. After the corn was eaten "the husk rolled over and stuck to the plant," (Seiler 1970:84), so there was always more corn to eat. All the plants did this.

The importance of the Sun is also noted in several other ways; in Story 4 the people think it would be a good idea to visit the Sun. The one many who survives the journey is protected and cared for by the Sun who restores him to life after three separate disasters, one with a willow tree, one with bees and one with the moon.

The Sun is considered a male figure and is spoken of as father several times. In contrast the moon is female. Her power is seen as negative. Her insufficient light is partly responsible for the poor quality of Temayawet's creatures. Her contribution to the creation process (Story 1) is to teach the creatures to play and to dance. In Story 4 the moon kills the many who is visiting the Sun. He is watching her make pots; she asks what he wants from her and he refuses to answer. Because he will not talk to her, the moon kills him.

Sun, with assistance from the winds, returns to man home to his family, but admonishes the man not to tell of his journey for three days (by which the Sun really means three years). The man disobeys this advice, repeats the story of the whole adventure and

is killed when a ray of sunlight strikes his body. He dies, vomiting blood from his mouth.

Power of shamans

The second type of supernatural behavior is associated with characters who are shamans. Kunvaxmal (Story 2) is said to have supernatural power, Patavnavas (Story 7) knows everything, and Yellowbody (Story 2) is a medicine man who can do anything. Eagle-Flower (Story 3) and Pacaqarawih (Story 7) perform similar kinds of feats.

A list of the kinds of behavior exhibited by these characters includes an inventory of the kinds of extraordinary behaviors associated with shamans, including the following. Shamans have an ability to travel great distances in short periods of time. They control powerful forces (wind, whirlwind, spirits), other creatures (dog, hawk, eagle), or natural objects (rock). Because of their unusual prowess and their assistance from other creatures they rarely lose in contests. Shamans can cure people. They can change shape, especially into birds or butterflies. A shaman knows everything without being told. Shamans can not be killed because they use trickery and because of the power over others. They sing special songs for power.and

The dominance of males is clear in the stories. Most of the characters are male, The one female protagonist (Whirlwind) is incapable of defeating her male tormentor. Most of the women are depicted in female roles, such as cooking, getting water, or making

pots. However, Pacaqarawih's mother is said to be gathering herbs for medicine, so presumably she is capable of some type of cure. Likewise grandmother tells him what herbs to gather to cure her blindness. This indicates that powers of curing are open to either sex.

Limits and requirements of power

Power does have limits. Yellowbody (Story 2) is said to perform "no more feats" after his contest with the water shaman. The contests between shamans indicate that some are more powerful than others. Patavnicas, who is said to know everything, is outperformed by his son Patavnicas. Yellowbody outperforms a medicine man who can stamp water out of the earth. In Story 4 the man who survives the journey to the sun is favored and protected by sun, loses his power when he disobeys Sun's instructions not to talk about his adventure. Eagle-Flower (Story 3) resorts to hiding rather than supernatural tricks at the end of his journey and escapes only because he is among relatives. Kunvaxmal (Story 6) faces a series of tests with his brothers which his father sets up. In each case Kunvaxmal is victorious. The father finally decides to have some kind of a ceremony to invoke enough power to allow his sons to kill Kunvaxmal, but Kunvaxmal outsings them. The father and sons retreat to the sky and become stars. Kunvaxmal lives with his grandmother for a number of years and eventually follows his brothers to become a star. In the extended contest between Patavnicas and Pacaqarawih, the eventual

winner is Pacaqarawih, who kills his mother, because she sings his songs and also his father, who has transformed himself into Takus (a deer?). Pacaqarawih returns to live with his grandmother.

It seems clear that there are limits to power. Temayawet forms flawed creations and goes into self imposed exile in the underworld; Mukat is punished (bewitched) because he tricks the people and eventually dies. Only the power of Sun seems immune to change. Moon can be controlled by Sun whereas, once created, nothing molds Sun's behavior. Sun uses its power positively, reviving the man several times, healing and feeding him. Only when the man disobeys Sun's orders and describes his adventures does Sun use his power to kill. Although moon uses her power only in a positive way, to teach the creatures to dance and play she is considered dangerous by Sun (p. 86). Moon kills because the man is impolite and will not answer her questions.

Further requirements for the successful use of power are the existence of order and precision. The individual had to have control of the process he is involved in. This is illustrated in the Creation Myth. Temayawet molds his people from clay and "quickly put(s) it aside" (p. 40), and when light is created they discover that his creatures are misshapen; "Your creatures are bad, not at all good(p. 40). In all of his actions Temayawet is hasty, and his creations are flawed. Temayawet's creatures live in the Underworld (pp. 42-44), they include the animals with "joined fingers" (water creatures like frog), or with "four arms and legs" (spiders and insects) and with "eyes all

over" (flies ?).

Mukat is deliberate, orderly and controlled. Mukat's creations fill the earth today. He has to fix the fingers of palm tree, who remains with Mukat on the earth and to give Coyote his proper number of eyes (p. 44). He lifts fly with his many arms and his "thousand" eyes (p. 44). These three and Eagle-Flower were the only creatures left by Temayawet (p. 44) according to the narrator but new characters do appear afterwards in the story. It is not clear who created them, Temayawet or Mukat.

Further support for the thesis that order and personal control are important to the use of power is Mukat's misuse of his abilities to trick his people into hurting themselves. This improper use of his power angers his people and they plot to kill him (p. 48). Because of his power "there was no way to kill him" (p. 48), but his misuse of that power meant that he was not protected from witchcraft. Mukat's power is so diminished that he is unaware of the plot to bewitch him and powerless to reverse its effects once Frog has eaten his feces (p. 50). He repeatedly sings curing songs for himself and has the people join him, The people simply repeat what Mukat says to them, never denying that he is going to die , so he dies (p. 52).

Coyote, who has tended Mukat during his final illness (p. 52) steals Mukat's heart from the cremation pyre and eats it (p. 54). Previously, Coyote had eaten Mukat's droppings, instead of taking them away and hiding them as he should have (p. 52). Presumably Coyote learned many things while tending Mukat, many things which

Mukat had wanted to tell the people before he died but did not have time for. He originated the "Doll fiesta" (pp. 56-58) to "commemorate their father." Coyote also helped the people invent the hiding game, peon (p. 58). Coyote defeated all the creatures; his song was slightly different from the songs the others sang and he defeated all of them (pp. 58-60). He also won because he had "power over the star" (p. 60), the object being hidden. As he defeated the creatures, Coyote "took away their eyes" (p. 60). Coyote is defeated by Ferret who slipped into the game when "Coyote didn't see him...got hold of [the star], gained control of it" (p. 60). With this control he defeated Coyote, eventually killing him, and returned the eyes to the creatures. Coyote's misuse of his power results in its diminishment and his defeat by Ferret. Ferret learns how to defeat Coyote by "watching them from faraway" (p. 60).

The detail and complexity of the discussion of shamanism and supernatural power indicates this to be a central concept of Cahuilla life. Significantly in most references to power, knowledge in one form or another is also mentioned. This relationship between knowledge and power will be examined more fully in the next section.

Organizing Content: Cahuilla Concept of Knowledge

The third step in developing curricula is to organize the content so that it can be logically presented to the learner. Normally, the curriculum developer applies his concept of knowledge to the

content being included in the curricula to organize the specific elements into a coherent whole. In this instance the Cahuilla narratives present an indigenous theory of knowledge which has already been used to select and organize the content. Therefore, in this case it is the analyst's task to define the Cahuilla's concept of knowledge underlying the selection and organization of content presented in the stories.

This section illustrates that Cahuilla epistemology, their theory of knowledge, exists in two segments: knowledge obtained through experience with the natural world and knowledge obtained through experience with power, a diffuse, metaphysical quality with instrumental significance. Knowledge of the natural world is presented in economic terms, whereas knowledge about power is most clearly illustrated by the behavior of shamans.

Knowledge of the natural world

Knowledge of hunting skills is passed from one generation to another and between hunters in long evening discussions about the hunt. These discussions invariably focus on the specific behavior patterns of various species. This essential knowledge serves the practical purpose of increasing the yield from wild animal resources. Knowing the color of a mature species of animal, the drinking habits of mountain sheep, and the dietary habits of rabbits improves the hunters' ability to supply enough food to support their families. Here human ingenuity in the intellectual sense provides for, and even

overcomes, the restraints of a limited material culture.

No other category of activities makes clearer the singular importance of knowledge to survival than the Cahuilla's intellectual elaboration on their limited technological base. Literally hundreds of plants and animals were known and understood in intimate detail, including their developmental cycle and their response to water, heat and climatic changes (Barrows 1900). This includes calculations that determined the time of the seasonal migration undertaken to harvest the ripening plants and hunt the appropriate species of animals.

Knowledge and power

Extraordinary behavior originates from power possessed by human beings, various species of animals and natural objects. In no case is there an explanation of how this power originates. Pacaqarawih has power even as a young child when he escapes from his cradleboard and goes hunting. Such precocious acts signal exceptional qualities usually said to be power-related. Kunvaxmal also exhibits his power while still a boy when he plays games, and begs food from his father's second wife. One reason that all of the shaman live apart from their fathers may be that they are feared because of their power.

Story 9 (Foolhardy Boy and Bears) lays out the power which the bear shaman has; even guns are no match for the power of a bear shaman. In every case except Story 9 the shaman only uses his power to protect himself or his family, or to rid the world of dangerous

or malevolent creatures. Such restraint is required of those who can disrupt the natural order of things.

Songs are one source of power explicitly mentioned in the stories. They are frequently sung by characters who are seeking assistants to help them escape from a dangerous situation, or to destroy an enemy. When engaged in a contest, songs are used to insure the presence of enough power to defeat an enemy. Each individual has his own songs for each occasion (p. 58). In Creation Story "All of them [the creatures] had their own (peon) song." The use of someone else's song was a grievous offense. Pacaqarawih kills his mother because she sings his song (pp. 124-125) despite the fact that grandmother wanted the mother alive to "give us some water" (p. 126). Kunvaxmal completely overwhelms his father and half brothers with the songs he sings to them in a contest. They are not even able to sing because his performance is so outstanding. Even the knowledge of a song is powerful.

Practical knowledge is viewed as an important aspect of power. "Knowing all" is characteristic of a shaman. Patavnivas (Story 7) knows everything without being present. He knows about his daughter's murder, that an abandoned baby is his son, (abandoned earlier) and that his wife's pet baby dove is really Pacaqarawih. Eagle-Flower is clairvoyant and knows when his relatives will be attacked. Story 9 indicates that bears are likely shamans because "the earth is the aunt of the bears," she "tells the bears everything that happens" (p. 140). Too much knowledge can be dangerous for the weak individual.

The man who visits the Sun dies because he divulges information which Sun has requested him to keep secret for three years (Story 4).

Knowledge

Based upon this analysis of the myths, the Cahuilla seem to see the acquisition of knowledge to be either age related or inherited. Age related knowledge means that children are not normally viewed as knowledgeable or wise but must be taught tasks commensurate with their developmental capabilities. They hunt insects or rodents with toy bows and blunted arrows. Adults make few demands on children because they are "unfinished." At the same time they are a source of error and even danger to themselves and to others, particularly their kinsmen.

In contrast to children, all adults are expected to have mastered all categories of Cahuilla culture. If all adults have equal knowledge then differences in performance can only be a function of the presence or absence of power. It is this special knowledge called power (?iva?a) that explains unique accomplishments.

Among the Cahuilla, as among most Native American tribes, knowledge does not have a quantitative character; an individual does not add new categories of knowledge throughout life. Instead a Cahuilla, once he is an adult, has learned, or been exposed to all the recognized and meaningful categories of knowledge, their related problems and their solutions. Instead, adult life is spent improving the quality of one's knowledge. How to become a better

hunter, singer, dancer or leader. Intellect is refined by dwelling on the subtleties and purposes behind the limited categories of knowledge. The quality of individual knowledge is related to a comprehensiveness gestalt that gives life a meaningful design.

Such an attitude about the content of learning and what purpose it serves has important consequences for education. First, it seems to say that change or progress is not a value sought or even recognized, in the Western sense of inevitability. Second, the search for comprehensiveness gives knowledge a finite character, something that western philosophy rejects as unacceptable. Third, if knowledge is finite then life is an act of refinement and wisdom not of hypotheses and laws.

Knowledge in the myths is presented as involving two areas, first the physical environment, with the economics and division of labor, and second, with the spiritual environment and the notion of power. In both cases knowledge is a source of strength. There is a limited technology, which is overcome by an intimate knowledge of the plant and animal worlds. In the duals between shamans, knowledge is the ultimate power; it is carefully acquired and used.

It is this distinction between knowledge as developmental skill shared equally and knowledge as power possessed unequally that gives importance to the distinct order and content of the material presented in the cultural curriculum found in the narratives.

Learning Experiences: Cahuilla Learning Models

The fourth and fifth steps in the development of a curriculum are to select and organize the appropriate learning experience to allow the learner to acquire the desired content. The Cahuilla narratives are existant learning experiences which have already been selected and organized. Thus, the task of analysis is to determine the basic Cahuilla conceptions of learning and teaching which underlie the choice of narratives as the primary learning experience.

There are two sources of information on teaching models presented in the myths: (1) the behavior of characters within the stories and (2) the pedagogical format of some sections of the narration. Cahuilla learning models are expressed through the actions of characters who are presented with situations requiring solutions.

Teaching

Teaching within the stories include demonstrations, games, and the use of ridicule. In the Creation story, Mukat is a teacher who shows the people how to make arrows. He sends them to collect dry arrowweed but they return with wet reeds. Mukat places them in the sun to dry and they curl and twist, demonstrating their unsuitableness for arrow shafts. When Mukat wants to convince the people to shoot at one another he uses Takus to demonstrate how the arrows will pass through their bodies without hurting them. Reluctantly they obey and are killed. The creators-teachers are themselves not taught but possess knowledge as an inherent quality of their species.

Another teacher is Coyote who directs the people to build a house. When the house falls apart he ridicules them for their lack of skill (p. 56). Later when Coyote wants to hold the Image Ceremony he has to make all the preparations himself, for the people do not understand. He fails to convince them that the leaves he is collecting are money and the pebbles are precious stones (p. 56). They think he is still making fun of them.

Careful observation and special skills are found to be used to outwit an especially talented adversary. In the story about the hiding game Coyote is finally defeated because Ferret, a fast runner, hides away from the game and watches the way Coyote played and the way the people were treating one another. When Coyote was not looking Ferret slipped in as Coyote was about to hide the star, got hold of it and gained control (p. 60). Ferret eventually won the game.

The use of games as a teaching device occurs in the Creation story when the moon teaches the people to dance and play. Also in Story 6 Kunvaxmal and his brothers have a shooting game where the winner, who is the most accurate shot, gets possession of the arrows of the loser. In this case Kunvaxmal considers the arrows of his brothers so inferior that he destroys them. This shames the brothers and spurs them on to further contests. Each time they lost to Kunvaxmal. This eventually leads to a contest where the brothers actually try to kill Kunvaxmal. The impression conveyed is that while ridicule is a recognized method of correction, it is not positively valued. Coyote is killed because he ridicules the

people. Kunvaxmal creates fratricidal anger in his brothers. However, successful use of ridicule is mentioned as a way of confusing your opposition to the point of impotence. Kunvaxmal defeats his brothers and his father because he shames them so completely that they are incapable of singing ceremonial songs.

The negative stories like Coyote are the most overt teaching devices in the narrative. They outline the contexts that offer alternative courses of action. The consequences that flow from unwise choices are made clear.

The Story of Whirlwind and Crow (Story 8) and of Coyote (Story 5), present another major teaching device, the negative example. The negative example illustrates how life should not be lived. They are not always overt statements, but rather they tell of characters with problems whose choices are clearly defined. It is clear from the context of the story what behavior is correct. However, the characters act improperly and the remainder of the story outlines the consequences of such incorrect choices. The choice where the character picks the obviously wrong solution is the high point of the narrative. For example, in the story where Coyote tricks his daughter out of her share of corn by pretending to be his own twin, who has come to visit. The daughter dutifully feeds this visiting relative. However, Coyote gives himself away when he burps from too much corn. His excessive appetite is mentioned twice more. Coyote fills himself with the blackbird's food, and is asked to

leave. When he meets the "Make-and-Eat-Bread" people he eats their bread and their feces (pp. 96-98) which offends them. Coyote eats again and then leaves in the morning. After this there is no place for him to go and he wanders into the wilderness to die (p. 98). Coyote, in these stories, illustrates the consequences of an intemperate appetite; rejection and finally starvation in the wildreness result from immoderate behavior.

Another overt teaching device is the narrator's direct insertions into the stories of explanations of why things are a certain way today. These "interjections" provide historical comparisons that give substance to the values of the past. The topics covered include miscarriage and the dangers associated with birth, and the use of songs to gain power. The narrators also provide explanations of why the hands of water creatures are webbed, why Coyote has four eyes (two are spots), why flies have a thousand eyes, why lizards and snakes have many colors, why woodpeckers say "Bewitch him" when they call, why lizards look toward the sun, why frog has marks below his eyes. In addition the stories tell why water creatures are unfit to eat, How the first olla (water jar) was created, how the Doll fiesta originated and how and why cremations began. In each explanation the narrator refers to a specific section of the story to prove his idea.

All these stories place a high value on resourcefulness and the ability to overcome an opponent. They also make clear that to defeat someone is to outwit them, ti use knowledge well and to give evidence of power by succeeding against others. To lose is to

be proven foolish and powerless.

How does learning occur? The myths present learning as an episodic process involving observation as the main learning device. Questions are never asked of the teacher. The only instructions given are limited to directions for where raw material are found. Also, there is no experimentation or hypothesis testing. Solutions are already known, except by normal children who often seek out their elders (usually grandmothers) for answers. There is never any attempt to ask questions of motivation because motives are part of the nature of the animal and supernatural characters. In the same sense, no attempt is made to move beyond the instructions given. Initiative would violate species integrity. Instead, tasks are approached as a unit - the boy takes his weapons and immediately engages in a contest. There is no concept of being taught how to hold the bow and arrow; the boy just shoots. Presumably one learns everything from observation.

In many situations in the myths, the way a problem is presented determines who is going to be able to solve it and how it will be solved. Once the problem is clear it becomes obvious which species have an affinity for the specific tasks needed; Whirlwind carries people great distances, Ferret is sly and a fast runner, and Gopher hides his friend underneath the ground where he lives.

Evaluation of Learning

The final step in curriculum development is the determination of what to evaluate in assessing learning and how to do the evaluation. In the myth analysis this is the most difficult area to evaluate because the Cahuilla have no measurement device attached to their stories. Ultimately the success of the narratives can only be measured by examining the total coherence of Cahuilla culture today. In this light it is clear that there are both successes and failures.

Outside pressures have led to the abandonment of traditional language and culture by many Cahuilla. However, there is a re-surg-ing interest in both aspects due, not so much to the elders who still carry these stories relatively intact, but among the younger people who know only fragments of their culture and language. For these people the narrative fragments they know serve as fragile links with the identity they seek.

CONCLUSIONS: EVALUATION AND SUGGESTED APPLICATIONS

The evaluation of this research requires a reexamination of the goals articulated in the statement of the problem which were (1) to describe important pedagogical characters and themes in Cahuilla oral narratives which could be used to develop educational resources that reflect the essential beliefs characteristic of that culture, and (2) to evaluate the effectiveness of using a computer program to implement such an analysis.

Evaluation of Computer Assistance

The effectiveness of the methodology is the easier of these two goals to evaluate. In general it seems that the KWOC program is superior to TRIAL for this type of analysis. KWOC is cheaper and faster to run and is a more widely available program. It gives a more compact printout which is physically easier to handle. The format of the output (see Appendix B) shows that story and sentence numbers are listed along the left margin, whereas in TRIAL they are indented above the text. This marginal notation facilitated the hand development of patterns from the keyword lists. For example, the determination that coyote and food existed together in a high percentage of the "Coyote" sentences was determined by crosschecking sentence numbers under each keyword.

The movement beyond patterns of co-occurrence to broader associations, such as showing that Coyote had other excessive behaviors, came first from the pattern extracted from the keyword lists and second from the context of the action. Thus, the basic unit of analysis was

extended beyond individual sentences to episodes, or short segments of action something like the acts of a play. It was from an examination of all episodes containing Coyote that it became clear that his behavior violated all important cultural rules. An examination of the consequences of this behavior, within the context of the general pattern of using characters as models, permitted the inference that Coyote was a negative model. In this sense the major technique for understanding the narrations is in becoming familiar with the nuances of each story. One of the important functions served by the tedious process of coding the stories for mechanical sorting is that the analyst becomes totally absorbed into the details of the stories. The exact definition of every pronoun, absent speaker and listener gives the analyst a preliminary feeling for the flow of the story.

There are numerous procedural revisions suggested in the last chapter that should make the computer work easier and the output be a more effective tool for analysis. These suggestions stem from the experimentation done during this analysis to evaluate alternative methods of computer assistance.

An evaluation of the second goal of this research is a more complex task. This involves showing that the myths contain accurate information about Cahuilla life, that they offer a different and useful perspective than is available in the ethnographies, and that the analysis results are relevant to improving the educational achievement of Native Americans.

Evaluation of the Validity
of Themes Analyzed

A comparison of the analysis results with the ethnographic account of the Cahuilla summarized here shows that the elements, themes and concepts drawn from the narratives mirror accounts which occur in the ethnographies. Kroeber (1908), Barrows (1900), and Hooper (1920) all speak of the division of labor, male dominance, and the importance of age in achieving status. Barrows (1900) documents the subtle and exhaustive knowledge of the plant world held by the Cahuilla. Kroeber (1908), Strong (1929) and Bean (1972) all discuss the male knowledge of animal behavior and hunting techniques. Little is included in the ethnographies about shamanism and curing, although Strong (1929) does note the use of songs, blowing for cures, and the ability to do fantastic things which comes from having supernatural power. Bean includes an extensive discussion of power, which essentially parallels what was drawn from the myths. The concept of mortality is epitomized in several ethnographic accounts (Hooper 1920; Gifford 1918; Strong 1929 by the Mourning ceremony.

If the stories so closely parallel the ethnographic accounts why spend the time and energy analyzing the narratives, why not just consult the ethnographies? First, the stories reflect a selection of information by the Cahuilla from among all cultural data. The narratives devote much time to a discussion of shamans, death and to a lesser degree the sexual division of the world. Virtually ignored

are the specifics involved in the manufacture of material objects or descriptions of political or social organization which form a large portion of the ethnographic accounts. Therefore the narratives allow the analyst to focus on those cultural elements and themes deemed important by the Cahuilla.

The second reason for examining the narratives rather than the ethnographies is that the stories lay out certain concepts of knowledge, learning and teaching which are not discussed in any of the ethnographies but which are of extreme importance to educators. The general pattern of teaching in the narratives is that the teacher performs the task while the learner observes. There are no verbal explanations or instructions given, except to indicate where raw materials are located. Errors are corrected by showing how something is wrong or by ridiculing the learner for behaving foolishly. The learner does not ask any questions while observing.

Suggested Applications for the Analysis

The final step in the evaluation of this research is to demonstrate how narrative analysis can be used to achieve the two major goals of multicultural education, to improve the quality of education and the level of achievement for the culturally different child and to educate all children in the positive heritage of cultural pluralism. Using Taba's (1962) curriculum development model the analysis showed that the stories do incorporate all the characteristics of a plan for learning, that they are pedagogical devices created by the Cahuilla to insure the continuity of their culture. The following discussion

will show how the elements discovered in the analysis can be included within a multicultural education context at several levels: within Indian organized programs on reservations, in programs in public schools which contain Indian students, in planning and developing curricula, in changing teacher preparation programs, and in an increased sensitivity to minority education within the publishing world.

Use of the analysis on the reservations

This analysis has clearly shown that Cahuilla oral narratives are organized to present the knowledge deemed necessary for survival in the Cahuilla world and ultimately for the survival of that world. It is this knowledge which is sought by many young Indian people who, through the gradual process of acculturation, have lost touch with their Cahuilla heritage. The strength of such desires to recapture that knowledge is evidenced in the growing number of tribally run programs offering language training, cultural history and crafts. Such programs have received government support and money is available to hire teachers and provide materials (Anonymous 1973a) under what is called Title IV. Therefore the most obvious application for this analysis is on the Morongo and Torres-Martinez Cahuilla reservation which have recently begun such Title IV programs.

The texts and analysis can be used several ways. The phonemic transcriptions, with their parallel, free English translations would be excellent texts for teaching Cahuilla. There have been many suggestions that folk literature is a valuable resource for such

programs (Sealy 1972). Regardless of how the texts are used for teaching the Cahuilla language, the content of the stories must be clearly understood, which is not possible from a superficial reading of the plot. As Seiler (1970:8) notes, the narrators assumed their audience was familiar with the material and only selected segments of the total story for narration. Even the most skilled raconteur was guided in his narration by the audience which prodded him to include segments which had been omitted or to tell favorite sections again.

The audience is expected to know the general outline of the story. Without such background information it is difficult to appreciate the subtlety and complexity of themes articulated. The stories seem to be only exotic fragments without coherence. This analysis shows that such a concept is a totally false impression. The stories lay out in detail, with infinite care, specific areas of Cahuilla life. With this analysis the characters and the thematic qualities of their interrelationships are clarified and made readily available to teachers and students. Such an explanatory device is needed because the teachers often do not know the stories as well as the elders (Ms. Jose, Torres-Martinez Reservation. Personal Communication, 1976).

Even without the element of language training this analysis can be used to reintroduce the younger generation to traditional Cahuilla life in a comprehensive and meaningful way. An understanding of the narratives is a first step to appreciating the beauty of tradi-

tional life and deriving pleasure and pride from that heritage. This is the first step in developing a positive self concept necessary for the culturally different student to thrive in the educational climate of most schools. The recognition by the student that his culture has devised patterns of categorizing the world that are as legitimate as those assumed by the public school allows the student to begin to draw accurate conceptualizations about the unique status of each ethnic group.

Seen as cultural history the oral narrative could form the backbone of a broader program to investigate indigenous systems of knowledge. Navajo Community College (Many Farms, Arizona) has a science course organized around Navajo concepts of nature and natural processes (Snow 1972). The Navajo program represents a tribal facility whose curriculum reflects tribal society. Perhaps this could be developed for the Cahuilla as well. The selection of content could begin with the areas of knowledge outlined in this analysis and then expand to other areas developed out of student interest and the special knowledge available from community members.

One advantage to beginning such a program with an examination of oral literature is that it is an excellent way to expand the program and involve the entire community. The examination of narratives leads logically to including elders who still have some functional knowledge of the stories, their uses and their purposes in the teaching process. This means that additional knowledge about traditional life can be recorded before it is lost forever.

Use of the analysis in public schools

A second application for this analysis would be to initiate culturally sensitive curricula into the local public schools which serve Indian students. As Forbes (1974: 155) says this does not mean using the data as exotic instances, but as examples of the functioning integrative nature of an Indian culture to demonstrate its coherence despite years of persecution and physical destruction. This is an important element in developing a positive self-concept among Indian students. In addition it is a technique to introduce non-Indian children to the intricacies of another culture. It is important for non-Indians to realize that there is much to be learned from the Indian conceptualizations of nature, especially in a world polluted by Western technology.

In the public schools the analysis could be adapted for use in several types of classes. The specific story elements, characters, plots, and themes could serve as resource material for curriculum planners or classroom teachers. The narratives themselves might be studied as literature, a dramatics or speech class could focus on techniques of character development or narration. Or specific themes might be examined in a class about religion or family problems. The concept is to integrate the ideas naturally into classwork as illustrations of the capacity of people to create diverse lifestyles and to adapt to a variety of social and physical environments. To allow students to realize that cultures can be judged only within their respective frameworks they must be made aware of the diversity

of culture.

Forbes (1969) maintains that the input of cultural material must reflect local Native American cultures. In addition, he and others (Hennigh 1975) have stressed the importance of including local people in planning and implementing programs in the public schools. Forbes (1969: 159) feels that one of the major ways of improving educational achievement is to involve the Indian community in the decision making process of the schools. For instance, the success of the Rough Rock Demonstration School is directly related to the community's involvement in planning and carrying out educational policy. The development of relevant goals and methods leads to parental support and a more conducive atmosphere for studies. Involving the community also tends to reopen educational doors for those older people who feel the need for more education themselves. At Rough Rock the school is now the focal point of community activity for all ages.

Another application for the results of this analysis is the newly mandated bilingual programs for public schools. The staff of the Institute for the Development of Indian Law (Washington, D.C.) has summarized and published the legal procedures and requirements for bilingual education (Anonymous 1973a). Turner (1973: 335) notes that folk literatures are important sources for material for bilingual education. However, to be usable, especially in a public school where teachers are not well versed in the second culture, some analysis of the stories is necessary to facilitate their use. The results presented here would be helpful to any teacher.

Use of the analysis in teacher preparation

If multicultural education is to succeed in its pursuit of quality education for all students then substantial changes must occur in teacher preparation programs. Some states are currently mandating human relations training for teachers. These represent a first step in the overall development of courses to acquaint teachers with the positive value of the diversity which exists in the classroom. To fully implement multicultural education there must be a complete review of curriculum to include training in methods of teaching ethnic students, teaching for global awareness, and a guided program to experientially sensitize teachers and administrators to ethnic differences. The purpose of such courses would be to give a general perspective on which each individual could later build the specifics necessary for their particular circumstances. The data presented in this analysis represents the type of information which must be available to teachers of Cahuilla children. The Cahuilla narratives present data to support the thesis that there are culturally patterned learning styles among the Cahuilla which have important consequences for educators.

In the narratives the concept of learning, basically requiring observation, is reflective of the general "passivity" of all problem solutions. No mythic character debates what to do when a problem arises; solutions seem to be already formed and part of the inventory of knowledge held by each character.

The Cahuilla pattern of solutions seems reminiscent of Gladwin's (1970) experimental work with the Puluwat navigation system. Every possible combination of variable had been defined and the correct solution already developed. The correct solution was determined by the definition of the problem. There was no examination of alternatives, no attempt to build or test hypothetical solutions. This style of problem solving has important consequences for school performance because children trained in such techniques are not prepared for the kind of problem solving models expected by teachers. Gladwin presents experimental data to show that the poor performance of the Puluwat navigators on Piagetian tests resulted from their inability to formulate hypothetical solutions for the problems presented and to logically test these models against the reality of the answers. It was not that they were incapable of forming such testing devices, simply that they were inexperienced in their use. He suggests that such students need to be placed in programs structured to teach them the Western model of problem solving before they move into the general curriculum (Gladwin 1970). The Cahuilla myth material suggests that teachers and curriculum developers should consider such programs for Cahuilla children entering school. Similar studies of other Native American groups must be done to define the styles of learning existing for each. This is one of the major reasons for designing a simple and relatively fast method of analysis so that such data could be developed.

Use of the analysis by publishers

The final area where this analysis can have an impact is with publishers. They must be made aware of the diversity within many Native American cultures and the subtle and complex formulations of the world which each group carries. Educating non-Indians about Native American ways requires the recognition that each Indian culture is unique and that therefore any generalizations are likely to be naive (Currie 1976) or totally inaccurate (Costo 1976). Publishers must also recognize that an understanding of culture is a delicate process, not one casually accomplished by a staff writer who reads a few books. The complexity of this analysis illustrates the intricacy of knowledge contained in relatively simple stories.

A word of caution

There is a caution that must be included with this discussion of creating culturally sensitive materials and sensitizing teachers to cultural differences. The stress placed on differences must be balanced by an examination of the similarities which all cultures share. If this is not done the result is to increase the differences between teacher and student, and among different cultural groups of students. The result can be that the culturally different student gets special treatment, that there is a lowering of standards, or that teachers incorrectly assume that all behavior reflects traditional culture (Kleinfeld 1975). Such attitudes are not beneficial to any students, and particularly not to minority students who frequently need more assistance and direction and not less.

Summary

The data developed in this analysis confirms the picture of Cahuilla life drawn in the ethnographies, but in a selective way reflecting Cahuilla conceptions of what is important. The behavior of characters in learning situations indicates that there are patterns of learning which should be helpful in assisting teachers in changing teaching techniques and learning assignments to fit culturally ascribed patterns. This could involve more observation and less direct instruction. Likewise, this analysis points out again that teachers must be prepared to meet students who reject the goals implicit in most schools, students who do not see knowledge as the key to future success or happiness. The success of the educational system in meeting the needs of these students rests on the willingness of teachers and administrators, planners and teacher educators to open policy making procedures to the minority groups whom they serve. This means that the educator must be willing to accept the definitions which minority members posit for education, whether those goals and methods mesh with the dominant system or not. The strength of America rests in her cultural diversity; without the support of the educational community that diversity will not survive. In the process millions of Americans will be denied the educational equality which is their legal right.

DISCUSSION OF SUGGESTED PROCEDURAL REVISIONS

It was clear early in the analysis that the Keyword lists were not sufficient in and of themselves to complete the analysis. The hand scanning of text was necessary to move into other levels of analysis and finally to draw inferences from the developing patterns. In reviewing the methods proposed the question of whether the computer was necessary must be answered. Could the time and money spent for keypunching have been better used elsewhere? The answer is clearly negative. A hand sort of all 1151 sentences for every keyword would have been difficult and time consuming.

It is difficult to assess where the breakeven point is between the cost and efficiency of the computer and the size of the sample being examined. A story of 100 short sentences might be more reasonably done by hand rather than spending the time keypunching the data, however, the accuracy of the hand sort is difficult to maintain, especially if the plot is complex, if numerous characters are involved, or the story is sketchy. Even with a story this short there are other reasons to recommend the computer sort over hand scanning.

One fundamental reason for using the computer is that the accuracy of patterns and the inferences drawn from the analysis improves with the breadth of oral narratives used in the analysis. Thus, even if individual stories are short, the total inventory should be as large as possible. Once beyond several hundred sentences, a hand sort becomes impractical.

Another reason for using the computer is that the keyword lists produced are not selective; every item and term in the narrative is indexed. Thus, the flow of analysis is not directed by the analyst but by the contents of the narratives. The analyst does not examine the stories to see if particular motifs are present, which may happen if the analysis is done by hand. Hand sorting requires an examination of one item at a time, which means that the priority of sortings may obscure other patterns examined later.

The major reason for concern in using computers is the cost. The biggest expense is involved in the coding and keypunching. It is advisable to find a keypuncher who will work directly from typescript, to remove the necessity of hand copying all of the text onto coding forms. If such keypunching is not available then the duties of transcription should be assigned to a clerk. The analyst must be sure that all ambiguities in the text are clearly noted before the clerk begins transcription.

The estimated cost for the computer work for this research is listed below.

Keypunching, 3947 cards (\$7.00/ hour)	\$ 130.00
Gang Punching, 1151 dummy cards (\$11.00 (\$11.00/ hour)	20.00
Computer Time	15.00

These figures are rough estimates because of the necessity of adapting the programs to the requirements of this study. In using these cost estimates it must be remembered that it may be necessary

to modify the KWOC program used in this study to the hardware available to the user. The cost of computer time varied from \$2.00 for the sorting of a 100 sentence story with 350 cards (including dummy author cards) to approximately \$5.00 for a 600 sentence story with 1500 cards. The KWOC program had enough central core space reserved to facilitate a maximum of 2000 cards. It is recommended that no more than one story be sorted at a time. This keeps the cost down and also makes the later development of patterns easier to check.

Based on the experience of this analysis it is recommended that KWOC, not TRIAL, be used to produce the initial keyword inventory. TRIAL is a more expensive program to run and its sorting advantages are useful only when the analyst builds in considerable category coding prior to analysis. Therefore, KWOC offers relatively inexpensive to produce a keyword index.

Several suggestions will insure an effective KWOC output.

(1) Words which end in column 60 will be considered to extend into column 1 of the next text card by the computer. Therefore, column 60 or column 1 in the following card must be blank to insure that run-on words are not created in the sort. (2) Contractions are handled as two separate words in the sort. For example "we'll" will be printed under the keyword "we" and a second keyword "ll." This can be avoided by writing out all contractions in the coding process or by putting "ll" and other contractions in the stop word list. (3) Proper names which the analyst wishes treated as a unit must be hyphenated

or they will be listed under separate keywords. This is especially difficult for character names. (4) Care needs to be given in the original coding for keypunching so that all people, places or things referred to directly or indirectly in the sentence are identified. Only through this process is the keyword inventory truly reflective of the contents of the narratives. (5) Identification of pronouns in the sentences should be done by placing the name immediately after the pronoun, possibly with parentheses to identify it as a coder addition. Such coding inclusions can be identified by placing a marker immediately after the closing parenthesis to indicate that the name does not occur in the original text. For example, "Mary gave the book to him (John)*" would indicate such an addition. The value of the keyword sort to the development of comprehensive pattern depends on the care with which these suggestions are implemented.

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APPENDIX A: COMPUTER PROGRAMS

Program for KWOC Keyword Output

```

//FH73N JOB 14010,'NANCY',MSGLEVEL=(1,1)
//JOBPARM LINES=8
//JURLIB DD UNIT=2314,DISP=SHR,DSNAME=SYS1.PROG7407,VOL=5FR=501SYS
//STEP3 EXEC PGM=KWJCA,REGION=26K,TIME=(,10)
//KWJCAA1 DD *

INSERT DATA CARDS HERE
//
//KWJCAA2 DD SYSOUT=A,DCB=(RECFM=FB,LRECL=111,BLKSIZE=111)
//KWJCAABC DD UNIT=SCRATCH,DISP=(NEW,PASS),DSNAME=EKWKABC, KWJCCD1B
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200,BUFNO=1),
// SPACE=(TRK,(500,100),RLSE)
//STEP4 EXEC PGM=KWJCC,REGION=44K,TIME=(,30)
//KWJCAABC DD UNIT=SCRATCH,DISP=(OLD,DELETE),DSNAME=EKWKABC,
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200,BUFNO=1)
//KWJCCD1 DD UNIT=SCRATCH,DISP=(NEW,PASS),DSNAME=EKWKCD1,
// DCB=(RECFM=FB,LRECL=134,BLKSIZE=7102,BUFNO=1),
// SPACE=(TRK,(500,100),RLSE)
//KWJCCD1 DD DUMMY,DCB=(BLKSIZE=80)
//STEP5 EXEC PGM=KWJCD,REGION=84K,TIME=(,30)
//KWJCCD2 DD SYSOUT=A,DCB=(RECFM=FBA,LRECL=132,BLKSIZE=1980)
//KWJCCD3 DD DSNAME=EKWKCD3,DISP=(NEW,PASS),SPACE=(TRK,(20,2)),
// DCB=(RECFM=FB,LRECL=24,BLKSIZE=7272,BUFNO=1),UNIT=SCRATCH
//SURTLIB DD DSNAME=SYS1.SURTLIB,DISP=SHR
//SYSOUT DD SYSOUT=A
//SURTWK01 DD UNIT=SCRATCH,SPACE=(TRK,(600),,CONTIG)
//SURTWK02 DD UNIT=SCRATCH,SPACE=(TRK,(600),,CONTIG)
//SURTWK03 DD UNIT=SCRATCH,SPACE=(TRK,(600),,CONTIG)
//SURTWK04 DD UNIT=SCRATCH,SPACE=(TRK,(600),,CONTIG)
//SURTWK05 DD UNIT=SCRATCH,SPACE=(TRK,(600),,CONTIG)
//SURTWK05 DD UNIT=SCRATCH,SPACE=(TRK,(600),,CONTIG)
//SURTIN DD DSNAME=EKWKCD1,DISP=(OLD,DELETE),UNIT=SCRATCH,
// DCB=(RECFM=FB,LRECL=134,BLKSIZE=7102,BUFNO=1)
//SURTRUT DD DUMMY,DCB=(,LRECL=80,BLKSIZE=80)
//KWJCCD1 DD *

INSERT STJ(WK) LIST HERE, ITEMS ON SEPARATE CARDS IN ALPHABETIC ORDER.
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//
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//

```

Program to Create TRIAL File on Tape

```

//EH73LSP JOB 14010,44,TIME=5
/*ROUTE EXEC JIA
/*MESSAGEJ PLEASE MOUNT TAPE POWERS SHELF CODE 0508 THANK YOU
//S1 EXEC PGM=TRIAL,REGION=150K,TIME=5
//STEPLIB DD DSN=SYS1.LINKLIB,DISP=SHR,UNIT=2314,VOL=SER=1FWA06
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR,UNIT=2314,VOL=SER=1MVT02
//SORTWK01 DD UNIT=2314,SPACE=(TRK,(50)),CONTIG)
//SORTWK02 DD UNIT=2314,SPACE=(TRK,(50)),CONTIG)
//SORTWK03 DD SPACE=(TRK,(50)),CONTIG),AFF=SORWK01
// UNIT=(2314,SEP=SORWK01)
//SORWK04 DD SPACE=(TRK,(50)),CONTIG),AFF=SORWK02.
// UNIT=(2314,SEP=SORWK02)
//SORWK05 DD SPACE=(TRK,(50)),CONTIG),AFF=SORWK01.
// UNIT=(2314,SEP=(SORWK01,SORWK03))
//SORWK06 DD SPACE=(TRK,(50)),CONTIG),AFF=SORWK02.
// UNIT=(2314,SEP=(SORWK02,SORWK04))
//FT05FD01 DD DSN=SYSIN
//FT06FD01 DD SYSOUT=A
//FT07FD01 DD SYSOUT=B
//FT11FD01 DD VOL=SER=POWERS,DSN=NANCY,DISP=(NEW,KEEP),
// UNIT=(FAPC,DEFER),LABEL=(2,SL)
// DCB=(LRECL=136,BLKSIZE=136,RECFM=WBS)
//SYSIN DD *
*EDIT
NEW MASTER=11,REFERENCE=5.
*DATA
*INSERT.
INSERT DATA CARDS HERE.
*END
/*

```

Program for TRIAL Keyword Output

```

//EH73LSP JOB 14010,44,TIME=5,
/*ROUTE EXEC UTA
/*MESSAGEJ PLEASE MOUNT TAPE, POWERS SHELF CODE 0508 THANK YOU
//S1 EXEC PGM=TRIAL,REGION=200K,TIME=5
//STEPLIB DD DSN=00911422,TRIAL360,DISP=SHR,UNIT=2314,VOL=SER=10WA08
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR,UNIT=2314,VOL=SER=INVT02
//SORTWK01 DD JNIT=2314,SPACE=(CYL,(10)),CONTIG)
//SORTWK02 DD JNIT=2314,SPACE=(CYL,(10)),CONTIG),SEP=SORTWK01
//SORTWK03 DD SPACE=(CYL,(10)),CONTIG),AFF=SORTWK01,
// UNIT=(2314,SEP=SORTWK01),VOL=SER=SORT01
//FT05F001 DD DDNAME=SYSIN
//FT06F001 DD SYSOUT=A
//FT07F001 DD SYSOUT=B
//FT11F001 DD VOL=SER=POWERS,UNIT=(TAPE,DEFER),DISP=OLD,
// LABEL=(2,SL),DSN=VANCY
//FT12F001 DD DSN=ESCRATCH,UNIT=2314,SPACE=(TRK,(200,50),RLSE),
// DCB=(LRECL=136,BLKSIZE=1636,RECFM=VBS,BUFNO=1),VOL=SER=SORT01
//FT13F001 DD DSN=*,FT12F001,VOL=REF=*,FT12F001,
// DCB=(LRECL=136,BLKSIZE=1636,RECFM=VBS,BUFNO=1),DISP=(OLD,PASS)
//SORTIN DD VOL=REF=*,FT12F001,DSN=*,FT12F001,DISP=(OLD,PASS),
// DCB=(LRECL=136,BLKSIZE=1636,RECFM=VBS,BUFNO=1)
//SORTOUT DD VOL=REF=*,FT12F001,DSN=*,FT12F001,DISP=(OLD,PASS),
// DCB=(LRECL=136,BLKSIZE=1636,RECFM=VBS,BUFNO=1)
//SYSIN DD *
*MASTER=11.
*INDEX
*WORKS,TEXT,CARDS(2),STOP,STATISTICS.
A,ABOUT,AFTER,ALL,AND.
*KEYC,TEXT,CARDS(0,2).
*END
*PRINT
SINGLE COLUMN,CARDS(0,2).
*END
/*

```


APPENDIX B: FORMAT FOR KEYWORD OUTPUT

KWOC Keyword Output

TRIAL Keyword Output

BACK THEY WENT FAR AWAY AND CLIMBED HIGH UP; THEY SAT DOWN TO REST, AND SPENT THE NIGHT THERE. A SHORT REST; AFTER SOME TIME HAD PASSED THEY LOOKED BACK AND SAW SMOKE RISING FAST.

BALL THEN HE (YELLOWBOOY) SAW THE SMOKE UP THERE TAKE THE SHAPE OF A BALL, WHICH TURNED ITSELF INTO A HAWK; HE SAW THE HAWK UP THERE.

BECAME THERE WAS NOTHING THAT THEY COULD DO; THEY MOJRNED DEEPLY. THEY DID NOT BOTHER TO EAT AND BECAME THIN; THEY DID NOT CARE ABOUT LIVING ANY MORE AND WERE READY TO DIE AS THEY WENT THEIR WAY.

BEGAN AND SO TIME WENT BY, AND AS IT BEGAN TO GET DARK ONE OF THE PEOPLE WHO LIVED THERE LAID HIMSELF DOWN TO SLEEP.

BORE AND THE MAN (IN FACT THE SPIRIT OF THE MAN, THE HAWK) BORE DOWN UPON HIM; THE HAWK, HIT (BY THE STONE), DROPPED TO HIS DEATH.

BOTHER THERE WAS NOTHING THAT THEY COULD DO; THEY MOJRNED DEEPLY. THEY DID NOT BOTHER TO EAT AND BECAME THIN; THEY DID NOT CARE ABOUT LIVING ANY MORE AND WERE READY TO DIE AS THEY WENT THEIR WAY.

BROTHER THEY LIVED WELL; BUT ONE OF THEM, THE YOUNGER BROTHER, DIED; HE LIED, HE LEFT THIS WORLD, AND WENT TO THE PLACE WHERE DEAD PEOPLE LIVE.

BROTHERS THERE WERE THREE PEOPLE, ALL RELATED, TWO BROTHERS AND THEIR MOTHER.

BURN IN THE OLD DAYS THEY USED TO BURN PEOPLE; WHEN SOMEBODY DIED THEY BURNED HIM.

BURNED IN THE OLD DAYS THEY USED TO BURN PEOPLE; WHEN SOMEBODY DIED THEY BURNED HIM.