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Scott Schiefelbein

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NATIVE AMERICAN LANGUAGES AND LITERACY:
Issues of Orthography Choice and Bilingual Education

Christina Biava

Abstract: Native American language communities have had four choices regarding the adoption or change of a writing system in recent years: to adopt or not to adopt a system, or in the case of an existing system, to alter it or not to alter it. Also examined are criteria of orthography choice and functions of literacy. Bilingual education issues are seen as the most important function of Native language literacies. Also examined are problems that face Native language literacy programs.

The study of Native American languages has played a major role in the development of American linguistics over the past century. Many of the most eminent scholars, such as Leonard Bloomfield and Edward Sapir, did some work in a Native American language. Most of these studies were descriptive studies involving the cataloguing of the phonological, lexical, and morphological systems of various Native American languages (Leap 1981b:610).

These languages have not been well studied, though, in higher-level aspects of language such as discourse and literacy. This is understandable to some extent since these linguistic areas have only been examined in the past twenty years or so. Ironically, though, the need to study Native American languages in the context of literacy is much more crucial than these earlier descriptive studies in a way. This is because literacy relates to educational issues, thus directly affecting the daily lives of thousands of Native American children, and so the future of their communities, their languages, and themselves.

The most important issues involved in the study of Native American language literacy have been two-fold. First, the tribes have been faced with the decision of whether or not to adopt an orthography (or change an existing one). Secondly, if an orthography is adopted, the question arises as to whether literacy in the Native language should be the focus of the literacy education of the children and, to some extent, of the adults. These are the two issues this paper will address.

Before looking at the question of orthography, though, an important aspect of Native American languages to address is their diversity. Specifically, there are more than 200 languages spoken today; these belong to twenty language families. According to U.S. Census figures for 1973, 32% of all Indians have a Native mother tongue (242,967 of 760,572). This percentage is higher for Indians living on reservations, as 123,255 of 211,843.(or 58%) of those have a Native

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language as their first language (Leap 1981a:126-27). Some languages, though, have few speakers while other languages have many speakers. Navajo, for instance, has more speakers than all the other Native languages combined. Thus, some languages are believed to be closer to extinction than others.

Not only is there great linguistic diversity among the tribes, but there is also cultural diversity. Cultural diversity will involve values within the tribe as well as between the tribe and other groups, especially the dominant white culture. Both of these aspects of cultural diversity will be directly related to Native literacy education. For instance, tribal values and attitudes toward their language will determine whether or not an orthography will be adopted in the first place. The interaction between a tribe and the dominant white culture will affect what uses and functions literacy will be used for.

It is therefore important to point out that cultural as well as linguistic diversity is great among tribes. As a result, no single situation regarding the questions posed earlier will be appropriate for all tribes. As each tribe has unique needs, approaches to orthography choice and bilingual education must be unique also.

A brief look at the history of Native American education and the U.S. government will be helpful in understanding issues of bilingual education today. Young (1977:459) describes how the official goal of the U.S. government for over a century (1819-1929) was to stamp out Native languages and cultures 'as a prelude to assimilation.' In 1926-28 the Institute for Government Research appointed a committee to investigate the status of Native American life. The Meriam Survey was the result of this investigation. It stated that federal Indian policy must change if reservation living conditions were to be improved, and that changes would only come about with 'the direct involvement of the Indian communities themselves in defining local needs' (p.459).

This attitude lasted until the 1940s when, given the Cold War attitude of Americans after World War II, assimilation became the word again in all of American education, and as a result, only literacy in English was tolerated. Then, with the Civil Rights Movement of the 1960s for Black Americans, Native Americans also pressed for more control over their educational process; this was reflected in the 1972 Indian Self-Determination and Educational Assistance Act which allowed tribal authorities, not the Bureau of Indian Affairs, to make decisions about their own curriculum, materials, etc. (Leap 1981b:10-11).

All of these historical events interacted with individual tribes in unique ways, depending on the tribe's own situation (e.g., location in the U.S., historical acceptance of while culture, cultural values, number of Native language speakers, etc). Thus, with the resurgence of Native American pride in the late 1960s and early 1970s, not all tribes were in the same situation regarding their language.

Four choices can be seen for the various tribes in regard to the basic issue of orthography choice. First, if a tribe had an existing orthography, they were faced with the decision of whether to keep it or

to change it to something closer to a roman alphabet. Second, if a tribe did not have an orthograhy, it could choose to adopt one or to resist having their language written. All four choices are present in Native American tribes.

The first choice, to keep an existing orthography, has two aspects to it. That is, the existing orthography may already be in roman letters and thus not need any change. In this situation, the system is either left intact or perhaps several variations are standardized. A good example of this is the Navajo orthography which was developed in the early 1900s by various missionary groups and standardized by the U.S. government in 1937 (Young 1977:460-65). Since the 1972 Self-Determination Act, then, the Navajo Nation has not had to deal with the orthographic issue. Instead, they have been able to devote their energies to other issues, such as developing reading materials and literacy programs. Partly as a result of this advantageous position, Navajo has the most native speakers of all U.S. Indian languages and is the only Native American language adapted to a typewriter keyboard.

The second aspect of keeping an existing orthography is when a language has an orthography that is not at all close to the English alphabet. In this case, the tribe is faced with the decision of keeping a very different orthography or adopting a new one. Like many other languages, Cherokee adopted a syllabic writing system in the early 19th century. Unlike other tribes who had their syllabary developed by a European (usually a missionary), the Cherokee syllabary was developed by the illiterate Cherokee Sequoyah, who was monolingual in Cherokee (Walker 1969:149). Although many of the letters in his syllabary resemble upper-case roman letters, they have very different phonemic values. Probably because the syllabary was developed by a Cherokee--an event that Walker calls 'one of the most remarkable intellectual tours de force in American history' (p.150)--Cherokees 'have an emotional attachment to the orthography' (p.153) and have always resisted changes to it.

The next option regarding orthography choice is when an established system is rejected in favor of one closer to the roman alphabet. The syllabic systems used for the Cree and Ojibwa languages of Canada reflect this situation somewhat. The syllabary used for many Canadian Native languages was developed by the Methodist minister James Evan in 1840 for Cree; it was subsequently adapted to other Native languages of Canada. This system is very different from a roman system, being based as it is on shapes such as pyramids and triangles. According to Burnaby and Anthony (1985:107), syllabic systems 'are regarded as a tangible symbol of "Indianness" and as such have a social value.' Thus, like Cherokee, there is considerable psychological attachment to this long-established script. On the other hand, most of the material written in the syllabary is liturgical; only a small amount of materials exist for teaching reading to children, for instance (p.107).

Therefore, in addition to this syllabary, alphabetic systems have been developed for Cree (Burnaby & Anthony 1985:107) such as one by Ellis in 1975. The purposes of developing this were three-fold. First,

as already mentioned, few teaching materials existed in the syllabary. Second, reading research has indicated that either type of system, since both are phonemic, are best for initial literacy training. Third, the issue of transfer of reading skills (to either French or English) would indeed be easier from a Native roman script than from a Native syllabic system, although Burnaby & Anthony point out that the 'risk of confusion of the two systems will be much greater' with using a similar roman script (p.123). Thus, since the roman system appears to have a slight advantage over the traditional syllabary, most Cree children who are taught literacy in their Native language today are taught in the roman script. A similar development has taken place among the Ojibwa Indians of northwestern Ontario. Todd (1972:359) notes that the adoption of an alphabetic system 'has met with general approval' there.

What about languages that had no script until recently? Their options were to either adopt a script or to resist adopting one. To the Western mind that cannot imagine the absence of a written language, this choice might seem obvious, but this is not so; a number of tribes have resisted adopting an orthography. To understand this, it is helpful to examine a common attitude held by many tribes toward the power of the spoken word.

In her 1981 article 'Native American Attitudes toward Literacy and Recording in the Southwest,' Brandt (1981:186) describes in detail the 'historical and contemporary aversion to writing and other relatively permanent means of data storage' held by several southwestern U.S. tribes such as the Pueblo Indians. This aversion is based on the belief that since speech is an immediate act, it represents life and is therefore imbued with 'the creative power of thought.' Writing, on the other hand, is considered 'static,' 'dead and dry . . .[It is] violence against the spirit.' The Pueblos, for instance, 'believe that their identity and sense of security is bound up with their exclusive control over their languages and cultures and they fear giving up that control to outsiders' (Leap 1981b:84).

Another aspect of this aversion to written expression is that Native Americans have come to blame it for the poor memories of whites who 'must write everything down.' Furthermore, because of this need to write, whites cannot pay much attention to their surroundings. 'The reliance on writing is believed to interfere with attention, thus interrupting listening, seeing, and understanding with the heart.' It also causes a 'tendency to reduce the complexity of sensory input only to those minimal features easily jotted down' (Brandt 1981:187).

The Pueblo Indians of New Mexico are a good example of a tribe that has successfully resisted adopting an orthography because of their 'complex of secrecy' (p.190). Furthermore, they have discovered that such a move has helped them maintain their own cultural identity because of the control they can maintain over young adults in their community. As Brandt (1981:190) says:

> Pueblo college students are often forbidden by tribal officials to read ethnographies and linguistic studies of their own communities. They are often frustrated by these

> prohibitions and by the lack of material on their communities, but these choices by tribal leaders have the effect of pulling young people back to the community, to their elders to gain information. They are rarely permitted to write or record material if they do enter into a learning relationship with someone in their own community. They may find it difficult to establish a proper social relationship, find no teacher, or chafe at the demands of the relationship. All of these behaviors are clearly relevant to the opposition to writing and other more permanent forms of recording; they underlie this opposition.

Even among tribes that do have an orthography such as the Papagos in Arizona, this aversion to writing is believed to be one of the reasons why literacy has not caught on. The Papago, for instance, have had an orthography for their language since 1900, yet literacy in the Native language has never been at all widespread. Bahr (1975:332) states that the Papago, like other tribes of the Southwest, have a 'fear that written texts will automatically be "scattered out among the whites and other tribes."' As a result, most writing since 1900 has been in English to fill functions originating outside the tribes.

The final option regarding orthography choice concerns a community that does not have its language written and chooses to adopt one. This has been a common occurence among Native American tribes during the past twenty or thirty years as Native American pride has experienced a renaissance, and some form of literacy teaching in many Native languages has been newly allowed.

This situation gives rise to two situations. The first possibility is that the proposed orthography can be successful and find acceptance by the Native speakers. This has been the case with the Zuni Indians. A roman orthography was prepared by Curtis Cook of the Summer Institute of Linguistics in 1967. He did some testing of the orthography among Native speakers who were literate in English to find out their preferences for spelling Zuni words; this helped make his orthography popular among them. He then put together a reader and some other materials and found 'an unexpected amount of native interest' (Walker 1969:163-64).

The unsuccessful situation can be seen in Buesing and Walker's 1967 development of a writing system for Passamaquoddy, an Algonkian language of eastern Maine. In writing of the failure of this orthography to catch on, Walker himself points out some of the problems with the script. First, a single letter such as 'b' would stand for both voiced/voiceless varieties even though the distinction exists in Passamaquoddy. Walker notes that although 'Native speakers of all ages showed considerable interest in this system, . . . [they] failed to become literate' (Walker 1969:164). The Native speakers, mostly literate in English, complained of the difficulty of applying the voiced/voiceless rule and also of using a 'v' to represent the vowel ' 'Clearly,' writes Walker, 'the adults who were literate in English found the writing system too different from conventional English spelling' (p.164).

This last point illustrates another aspect of adopting an orthography. When an orthography is being considered, what are the criteria that it must fulfill in order to be adopted? For instance, as just noted, the Passamaquoddy system failed due to the fact that many Passamaquoddy speakers were already literate in English. This, therefore, brings up the issue of transfer of literacy skills from one language to another. Mainly, transfer is concerned with such a basic issue as choice of orthography; we have just seen problems with this. One point to keep in mind is that transfer can work both ways--from Native language literacy to standard language literacy or the other way around. In the first case, transfer will especially be important when discussing and arguing for Native language literacy as the first literacy in a bilingual education situation. Since eventual literacy in the national language--French, English, or Spanish in most cases--is always a part of any bilingual education program, the ease of transferability from the Native language will often determine whether or not Native language literacy will even be allowed as the first literacy. This was one of the prime concerns in the cases of adopting a roman alphabet for Cree and Ojibwa, as already discussed (Burnaby & Anthony 1985:105).

The second situation--transfer from English literacy to Native language literacy--is illustrated by the Passamaquoddy situation. This will be the case when an orthography is presented to adult (rather than children) Native speakers who are already literate in the national language, such as English.

Other criteria besides transfer exists. One of these is that the orthography must be 'mechanically suited for the language' (Venezky 1977:37). This refers to the fact that some languages are better suited to an alphabetic system while others to a syllabic one. Yoruba is one language ill-served by an alphabetic transcription. Walker (1969:162-63) quotes Jahn (1961:188): 'What expense, what trouble, how many auxiliary marks are necessary in order even to write a name such as Lakiko Orokulabebeja. We can see from the orthography how inadequate an alphabetic script is for rendering this language.'

Venezky further elaborates on various aspects of what makes an orthography suitable by mentioning the often-given ideal of a one-letter, one-sound system. However, maintaining this ideal is realistically not do-able, as writing is a visual system and not a spoken system. Thus, this ideal will constantly be deviated from in several ways. The most basic is that morphemes must be identifiable visually from one word to another, even if the morphemes are not pronounced the same due to phonological rules. Another problem with the one-letter, one-sound idea that is crucial in Native American languages is dialectal variety. Since variety will exist and since standardization is usually necessary for the survival of an orthography, some compromises to this rule must be made (Venezky 1977:47).

According to Venezky (1977:46), though, the most crucial criteria concern which phonemic distinctions should be represented in the orthography. He points out that all major segmental units should be given representation, whereas contrasts of low functional load shouldn't

be. Passamaquoddy was an example of a system failing due to inadequate representation of crucial distinctions (voiced/voiceless). The opposite case seems common also, as when linguists 'overdesign' a system, 'confus[ing] reading with phonemic transcription' (p.46).

An example of this occurred with Otomi, a Native language of Mexico, which had its older, rarely used, orthography revised by the linguist H. Russell Bernard in the early 1970s with the help of Jesus Salinas, a native Otomi speaker. The original orthography was 'considered cumbersome' by native speakers, especially since it marked tone. Bernard (1980:134) remarks:

> Although tone is clearly phonemic in Otomi, . . . it proves unnecessary and cumbersome for Otomies to mark tone in their own language. We do not mark stress in English although foreigners wish we would.

As a result, the revised orthography does not mark tone, even though the linguists' desire would be to do so. This system works fine 'so long as the reader is an Otomi and not a North American or Mestizo academic' (p.134).

Besides linguists and nonnative speakers learning to read a language, another group to benefit from having all phonemic contrasts marked are Native speaking children learning to read. Venezky (1977:47) notes that there is little evidence, however, that children learn to read faster with a more detailed writing system. He points out that although children may be able to connect letters to sounds quicker if they are using a highly phonemic system, 'this is not in itself reading' (p.47) He makes the observation that cross-cultural studies of children acquiring literacy show that 'a significant percentage of children in all countries will be classed as remedial readers, and within this group most will come from lower socioeconomic environments' (p.47). The irregularity of a writing system--i.e., the deviation from the one-letter, one-sound ideal--will not be the key issue.

In sum, the criteria that an orthography should meet are how well literacy skills can transfer either into or out of the system with regard to literacy in a national language, how well the system actually 'fits' the language it represents, and how it represents phonomic distinctions in that language. Both too much detail and too little detail can cause an orthography to not be accepted by Native speakers. Finally, the ideal of one-letter, one-sound was discussed; deviation from this ideal should be expected, so it cannot be an absolute criteria for an orthography.

As already mentioned in this paper, the fact that an orthography may exist for a Native language is no guarantee that it will be used. As just suggested in the discussion of criteria above, one reason an orthography may or may not catch on has something directly to do with the orthography. That is, it may be too detailed (Otomi) or not detailed enough (Passamaquoddy) or dialects may vary too much and a standard not exist yet.

However, even with a reasonably good, standardized orthography, Native language literacy may not catch on. This leads to the crucial idea of functions of literacy. In their article on the sociolinguistics of literacy acceptance, Spolsky & Irvine (1982:74) argue that literacy in the Native language will flourish only if there exist functions for Native language literacy separate from functions for the national language such as English. To illustrate their point of view, these researchers give an example of where Native language literacy did catch on (Cherokee) and where it did not (Navajo).

As already mentioned, Cherokee literacy had its beginning with the remarkable development of a Native syllabary by Sequoyah in 1819. Equally remarkable as this development by an illiterate monolingual was the fact that, through Sequoyah's efforts, the system was immediately accepted, 90% of the western Cherokees becoming literate within the next decade (Spolsky & Irvine 1982:74). This was directly related to several factors. First, since Sequoyah was a Cherokee, the development of the orthography was purely an internal achievement. Second, the syllabary fit the language quite well, having taken Sequoyah twelve years to perfect. Finally, and most relevant to the discussion here, is that functions existed immediately for literacy in Cherokee. Of course, it must be noted that at that time, most Cherokees were monolingual and English literacy was virtually unheard of among any Native Americans. Thus, none of the functions for literacy were being filled by English literacy yet.

Walker (1969:150) describes the functions that Cherokee immediately filled:

> People wrote letters, kept accounts, and copied the sacred songs and curing formulas. A weekly newspaper called The Cherokee Phoenix was printed by a Cherokee national press as early as 1828. . . . Between 1828 and 1835 the press of New Echota, the Cherokee capital, also issued a number of portions of the Bible, copies of the laws passed by the National Council, various political pamphlets, 4 editions of a Cherokee Hymn Book, temperance tracts, and religious documents.

After the 1837 forced move of the Cherokees to present-day Oklahoma by the U.S. government, this prodigious rate of reading and writing continued (Walker 1969:150 citing White 1962:511-12):

> Between 1835 and 1861, this press printed 13,980,000 pages of books, tracts pamphlets, and passages from the Bible. . . . An annual Almanac was published for many years in English and Cherokee. The Cherokee Messenger, a bi-monthly religious magazine, was printed, as well as numerous tracts, primers, spelling books, arithmetics, Bible passages, a complete New Testament, hymn books, and other miscellaneous publications. The Constitution and laws of the Cherokee Nation were printed in various editions. Resolutions of the National Council were printed and promptly circulated among the people.

Thus, it is clear that functions in many aspects of life--religion, medicine, law, history, and everyday--were immediately available for Cherokee literacy to fill.

Present-day Cherokee literacy has fallen, though, as the functions have somewhat been taken over by English language literacy. Only two bona fide functions remain, participation in religious activities and the practice of Cherokee medicine, both important to Cherokees, especially adults over the age of thirty. A final function of contemporary Cherokee literacy is associated with status in the Native community, since knowledge (which equals literacy) is necessary for 'the full acceptance of an individual as a mature and responsible member of the Cherokee community' (Walker 1969:151).

Since many modern-day functions of literacy have been taken over by English (especially as the Cherokee Nation was dissolved with the admission of Oklahoma to the Union in 1906) and since the three functions of Cherokee literacy--religion, medicine, and knowledge--are not concerns of the young, Cherokees often do not become literate in their native language until full adulthood. Walker (1969:151) notes, then, that data that shows that most Cherokees who are literate in Cherokee are over thirty years old is misleading; Cherokee literacy is not necessarily declining but rather follows a different pattern of acquisition (1969:151).

Spolsky & Irvine (1982) then examine the case of Navajo. They note that although literacy in Navajo was introduced early in this century and the various orthographies standardized in 1937, 'there was no "rush to literacy" among the Navajos' (p.74, citing Young 1977). These authors feel this was partly due to the lack of functions that Navajo literacy was needed for:

> Navajo is spoken not just in the homes in the community, but is appropriate for contact with the government bureaucracy . . . , for legal proceedings, for governmental activities at the chapter and tribal level, and for local radio broadcasts. On the other hand, English is used for reading and writing in almost all situations: All forms and reports filled out in. . . BIA and tribal government offices are in English, records of law cases are kept in English, and minutes of chapter-house meetings of the tribal council are written in English. The tribal newspaper is in English, and local radio broadcasting includes many English programs, for which Navajo radio announcers use English scripts. . . . Essentially, then, the situation can be characterized as a kind of diglossia: Navajo is the preferred and appropriate language for oral use, and English the most frequently used language for writing. (Spolsky & Irvine 1982:74-75)

These authors also mention that when literacy was introduced to the Navajo Nation, it was linked not to Navajo culture but rather to aspects of the encroachment of Anglo culture: Christian missionaries, U.S. government policies such as military service and livestock reduction

programs, and now transitional bilingual programs for Navajo-speaking children (p.76).

A similar situation exists with the Papago Indians of Arizona, whose orthography, introduced by the Anglo linguist W.I. McGee with the help of a Papago, Jose Lewis Brennan, has been rarely used. The only writing in the period between 1900 and 1960 in Papago was by several linguistically-trained Papagos using a 'highly complex phonetic alphabet.' The bulk of the Papagos, though, did their writing in English and 'felt no particular need to write in Papago' (Bahr 1975:319). The culture is an oral culture; writing needs seemed to be well-filled by English. As with Pueblo Indians to a large extent and Navajos to a lesser extent, a type of diglossia seems to have evolved, with many spoken functions handled in the Native language and the written functions in English.

One function that Bahr (1975) states as present in Papago culture is to preserve the old culture, writing down 'songs and stories so they won't be lost.' However, even this important function is being replaced by the tape recorder, and in a better way at that. Bahr (p.323-25) then describes two functions that he believes Papago literacy should fulfill, legal Papago in order to deal with U.S. government legalese, and popular Papago such as comic books in order to appeal to the younger members of the community. Whether or not these functions will be thus filled is to be found in the future.

Thus, lack of tribal functions for Native language literacy can be seen as one reason for lack of use of a Native writing system. On the other hand, as more and more schools serving the Native American population are experimenting with some aspect of bilingual education, Native language literacy is being taken into the educational system.

As with other minority groups in this country, the extent to which the group's vernacular or minority language should be used in the education of the young has been a hotly debated issue over the years. From an assimilationist attitude that has existed at least since the 1930s in the U.S., the attitude has changed as more and more groups are concerned over the disappearance of their language and the erosion of their culture. Many feel that Native language literacy will 'reinvigorate' a Native language, as in the case of Montagnais in eastern Quebec and southwestern Labrador, where the young people now speak a mixed language of Montagnais and either French or English, depending on which of the two provinces their community lies in. Adults there feel that 'universal literacy in Montagnais is the surest way of allowing that language to compete with the country's powerful official languages' (Mailhot 1985:21).

Regarding Native language literacy, Leap (1981b:47) reports the findings of a study that showed 'the overwhelming majority of Indian students and parents have positive feelings about their tribal language and culture.' The issue is not clear-cut: that is, minority language groups are not simply saying that they want their children to be schooled in their Native language to the exclusion of the national

language. This, in fact, is never the case, although different tribes have very different attitudes and goals.

Rather, the debate ranges between two types of bilingual education programs which Engle (1975:2) terms the Native Language Approach and the Direct Method. The words 'approach' and 'method' refer to the fact that the ultimate goal of both programs is national language literacy. In the first approach, initial literacy is in the Native language and it is used as the medium of instruction for other academic subjects. The national language is then introduced, first as an 'oral subject in structured and ordered forms.' Later, literacy in the national language is introduced and eventually this language becomes the medium of instruction.

In the Direct Method, the Native language is not used at all. Therefore, the national language is immediately introduced orally and is used as the language of instruction for other subjects. When the oral language has been reasonably learned, literacy is introduced. The Native language is never used, not even as a subject of instruction (Engle 1975:2). Most bilingual education programs fall somewhere between these two extremes. For instance, a direct method may include the Native language being taught as a subject.

The pros and cons of the two approaches can be classified into two areas, cognitive (academic) and psychological. Most emphasis until recently has been put on the cognitive repurcussions of allowing initial schooling to take place in the vernacular. Educationally-concerned people, especially outside the minority community, say they worry about how well the transfer of literacy skills will actually take place when the time comes. In other words, will national language literacy suffer because initial literacy was in a Native language? Another concern is whether knowledge in other subjects will suffer as a result of being taught in a Native language. Research has mostly shown these worries to be unfounded, as they are definitely offset by accomplishments in the psychological area. That is, children who are initially schooled in their Native language have reason to be proud of their cultural heritage and so do better in all aspects of education. According to Leap (1981b:46), research indicates that 'the development of the Indian students' Indian language skills is crucial to his/her psychological well-being and cognitive development.'

This is not to say that the Native Language Approach is not beset with difficulties, because if it were not, why wouldn't Native language literacy be more widespread in the 10-15 years it has been allowed to flourish? We have already examined some of the cognitive concerns that non-Native educators and even Native parents express over the education of their Native-speaking children. In addition to these cognitive concerns are other issues that need to be considered in the Native literacy issue. Engle (1975:26) gives a list of other variables which can affect the success of a bilingual education program that wants to promote Native literacy:

1. The linguistic relationship between the two languages;

2. The functions of the two languages in the broader community, and the possible uses of literacy in each language;

3. The cultural context of learning in the community;

4. The relationship of the two ethnolinguistic groups in the larger society;

5. The initial linguistic status of the child;

6. The period of the child's development in which the second language is introduced;

7. Instructional methods and materials used;

8. The ethnic group membership of the teacher;

9. The training and linguistic knowledge of the teacher;

10. The length of time necessary to observe an effect;

11. The specific subject matter under consideration;

12. The appropriateness of the assessment devices for both languages.

Leap (1981b) also explores why Native literacy programs may not necessarily succeed. Some of the reasons he gives, like Engle's variables, are clearly outside the cognitive or emotional realm, having to do with aspects of teacher training, program design, and program funding and implementation:

1. The rate of personnel turnover is high. There is pressure to hire highly skilled Native Americans in BE programs, and therefore these individuals are in great demand. They can get good-paying positions, and as a result, move from program to program, rarely staying wih a program long enough to really have an effect.

2. Teachers are often not well-trained and have no role model to follow. Few colleges have any sort of teacher-training program that deals with the problems that a Native language program will have.

3. Funding comes from various sources, so it can be difficult to figure out who is responsible for what.

4. The U.S. government's language policy is seen as arbitrary, as it changes its mind every few years, or so it seems to Native adults. They are therefore cautious about embracing something so immense as Native language literacy when they know from experience that the funding may be cut off in a couple of years.

5. Poor teaching materials exist in the Native language. Often there are no curriculum guides, or good reading materials. These are related to some of the linguistic problems below.

   a. There may be more than one Native language in the classroom.

   b. The Native language may not be 'well-suited' to the classroom environment (no words for 'blackboard,' etc.).

   c. Many languages have no established orthography; dialectal differences are hung on to by many groups who therefore oppose compromising in favor of a standard orthography.

   d. No dictionaries or grammars exist of the language.

   e. Little is know about Indian language sentence formation, which is necessary in order to develop a 'properly sequenced language arts curriculum' (Leap 1981b:84-93).

This paper dealt with aspects of the adoption or change of a writing system by Native American language communities. Four basic options were examined. Also examined were the criteria for the adoption and successful use of a system, especially as related to functions that Native language literacy can fulfill. Of those functions, the one that is most important is bilingual education. Many tribes have struggled to get their language into the classroom at least as a subject but preferably as the medium of instruction in the early grades. Even with such an implementation, the struggle that these people face is enormous. Problems exist not only in the linguistic arena, but also in crucial areas such as teacher training, materials development, curriculum design, and program funding. Although it is unlikely that bilingual education will keep all Native languages from imminent extinction, hopefully it has at least slowed the process for some languges and completely halted the process for others. Only future research into the issue of Native language literacy will show to what extent the languages are still viable, both in the spoken and written mode.

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