THE COMMUNITY OF THE DEAF IN NICARAGUA:  
LANGUAGE ACQUISITION AND EDUCATIONAL POLICY

Senior Paper  
Submitted by:  
Advisors: Judy Kegl, Lisa Smulyan  
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Introduction.

In 1979 the triumph of Nicaragua's revolution saw not only the formation of a new government but also of a new language community. The community consisted of deaf children and adults who were brought together by social reforms that finally provided education for them. An immediate need for a new communication system arose that would serve the needs of the deaf children and adults who finally had regular contact with one another.

Kegl and Iwata (1989) recount the social and educational conditions before and after the revolution. Before the revolution, there were no schools for the Deaf and their families often kept them in isolation. Wealthy parents sent their deaf children to schools outside of the country that used only oralist methods, disallowing manual communication or any attempts at signing. Oralist schools encouraged children to associate only with the hearing population and to avoid contact with other deaf. The goal of such programs is to mainstream deaf individuals by encouraging them to speak and learn the oral community's language (in this case, Spanish). The methods of oralist teaching approach deafness as a disability, a social stigma, and an obstacle to learning.

Any form of sign language that existed before the revolution probably stemmed from deaf individuals who had little or no oral background and only communicated through gestures or "home signs." The home signing varied from individual to individual, depending on what each family used with the deaf member. When schools for the deaf opened in Nicaragua, a new language community formed. Because each individual used some variation of home signing or oral Spanish, new sign systems were necessary for communication amongst deaf individuals. The formation of sign systems within the past eleven years in the community provides evidence that a natural language is developing, Idiomas de Signos Nicaragüense, or ISN (Kegl and Iwata, 1989).

Early versions of sign systems in the community (classified by Kegl and Iwata [1989] as highly systematized sign systems, not natural language) probably formed as a result of constant social contact. The natural language data that is found (what Kegl and Iwata call ISN) probably formed through acquisition processes, the nativizing effect of children who acquired the language of the new community. ISN is now the native language of the deaf community, but is still primarily used by the smaller children and some adolescents. It is slowly being used by the older adolescents and adults as they incorporate the
structures of ISN into their own signing. ISN differs from the non-natural sign systems existing in the community in that it does not depend on home signing, Spanish, American Sign Language (ASL), or various Latin American sign languages for its structure. Instead, it seems to have a unique structure created by the nativizing effect of children who acquire the developing sign systems in the Deaf community.

The current educational policy used for the Deaf is an oralist one, advocating that the Deaf are to be taught through programs that emphasize learning a trade, speaking Spanish, developing oral abilities, and mastering fingerspelling. However, in contrast to many other countries' oralist schools for the deaf, Nicaragua's schools do not disallow the use of signs, except in the classroom. Between classes, at recess, and outside of school, the indigenous language flourishes amongst the Deaf and the community's sense of identity and self esteem grows with the development of their language. Within the class, the children are learning trades but are not learning how to better communicate in the hearing world, nor how to read, nor how to become more expressive in their native language, ISN.

The history of deaf education in America provides an illustration of the effects of various educational policies on deaf children and the assumptions and goals behind implementing those policies. I trace the history of deaf education in America and examine policies which seem to have most hindered or helped the individual needs of deaf children. This historical review has important bearings on the education of the Deaf in Nicaragua because the current oralist policy used is one that has been recently rejected in American Deaf education. It seems that bilingualism proves to be the most effective for the deaf children, emphasizing first language acquisition in the most easily acquired language, sign language. In implementing such a program, the sign language must first be recognized as a natural (full) language and its structure must be documented.

I attempt to explain the development of ISN into a natural language by using theories of creolization and nativization to illustrate how home signing and more complex signing systems develop into what theorists define as natural language (in this case, ISN). The theories explain how humans acquire natural language in somewhat adverse conditions. I simply compare the less complex morphological structure of home signing to the more expressive sign systems that exist in the newly formed deaf community. Using data from videotapes of signers from San Marcos (isolated deaf) and Managua (the Deaf community), I
attempt to assess the signers' competency and fluency in their signing. Establishing that ISN is a natural language and the language most easily used by the Deaf lends to the importance of implementing the language as a medium of communication in the classroom.

The situation of the Deaf in Nicaragua provides an excellent example of what needs to be present for a human to acquire natural language (deaf children, particularly) and what happens when they do not acquire it. In order to further support the implementation of bilingual policies in schools for the Deaf, I cite relevant educational and developmental literature. Research suggests that children who do not acquire a natural language during their critical period (up to age 15) can suffer linguistic and cognitive impairment, and may never acquire any natural language. Furthermore, mastery of a natural language facilitates other cognitive development as well as second language acquisition. For deaf children, particularly profoundly or severely deaf, the acquisition of a natural language can usually only be attained through mastery of a sign language, as opposed to lip reading or manual representations of oral language (Kohl, 1966; Gee and Goodhart, 1988). For this reason, it is important to consider ways in which schools for the deaf can better ensure that deaf children achieve competency in their sign language, especially if the long-term goal is to also help them to develop functional skills and acquire the language of the larger society. As it stands, the deaf children in Managua are only partly able to achieve this goal of bilingual fluency (many still do not seem to understand Spanish and are not educated in their native sign language) and the deaf children in San Marcos are not fluent in any native language.

Finally, in suggesting how such programs could be implemented I draw on research to create further parallels between deaf education and creole education (socially subordinated, natural language communities). For both of these split language communities, bilingual approaches seem to best meet individual needs in that the policy ensures competency in a natural language leading to a better groundwork for acquisition of the language of the larger society. Again, it is important to recognize the language of the Deaf as being a natural, fully communicative language. This recognition may be achieved through further documentation of the language leading to the creation of dictionaries and grammar books (Kegl and Iwata, 1989). Such materials would enable teachers as well as students to formally learn the native language of the Deaf community and use it as a stepping stone to second language acquisition and functionality in society.
Framework: Educating the Deaf, An American Model.

"The work presented here can be seen as a study in special education, though this is hardly as limited as it may sound. Special education in the broadest sense can be defined as the education of those individuals that our society chooses to treat as special. It may be that in these cases we reveal more about our own fears of not being "normal," or of being "normal" and wrong, than we do about the group that is stigmatized." Herbert Kohl, from: A Follow-up Report: Language and Education of the Deaf, pg.26.

Education for the deaf in America has recently been an issue caught between two diametrically opposed groups, oralists and manualists. Several intermediary methods sprung from these opposing systems but none seem to adequately meet the goals that educators have for deaf children. Oralists believe in completely avoiding signing and focusing on lipreading and speech in the attempt to mainstream the deaf. They fear that focusing on sign language will permanently isolate the deaf from the hearing society. Given this assumption, they advocate that the deaf must begin assimilating as quickly as possible into the larger society. Furthermore, oralists believe that if children do not learn English early enough, they will never master it. Other fears of using sign language may also stem from the fact that many educators do not view sign language as a full language that can be used as a medium for education.

The manualists urge that deaf children be taught to sign and fingerspell before or simultaneous to learning the oral language of their society. Their logic stems from developmental research suggesting that cognitive development hinges on early language learning and extensive exposure to social and linguistic input throughout the "critical period," lasting until about age 15 (Krashen, 1982). Adequate input must be input that is easily accessible to the child. This approach hinges on the fact that sign language has recently been shown to be a natural language (Kohl, 1968) and that first language acquisition in the majority of deaf children can only realistically be achieved through the use of sign language.

One of the more controversial and revolutionary pieces in deaf education was the report, cited above, by Herbert Kohl. This report discusses earlier research on the results of deaf educational practices of the time and suggests what might be done to improve those techniques. Kohl starts by explaining how deafness has historically been regarded in society and literature as a "stigma" and how deaf people are represented as "fools, wretches, and demons." This stigma is also present in modern society where the deaf are seen as severely disabled.

Kohl examines the linguistic and social isolation of deaf children by tracing their typical upbringing
(before the 1960's). Ninety percent of deaf children were (and are) born to hearing parents, most of whom cannot sign. Most deaf children were then sent to schools where they were taught by hearing teachers according to oralist methods, usually being disallowed or punished by the teachers for using any type of signing. The children failed at their attempts to communicate at home and at school and secretly signed with other deaf children. The oralist schools which disallowed the use of signs alienated the deaf children. Their failure in acquiring oral language forced the deaf community to become an even more exclusive, misunderstood faction of society.

Kohl goes further to tie the linguistic development of the child tentatively to his/her social maturity. He cites a study by Martin L. Nass (1964) which shows that deaf children, in responding to moral dilemmas, cannot "uncover and formulate the motives of others." Such gaps in moral/social development are probably temporary lags due to the linguistic and social isolation from larger society.

The history of deaf education in America, as Kohl states, did not always follow a dualist approach. Early in the nineteenth century, some educators recognized the fact that sign language was a practical tool for communication with the deaf and attempted to use it in the schools. The policies which strived to implement a fully oral method arose only later in the century.

The statistics that Kohl presents reveal crucial facts about the deaf in the 1960's. Deaf Americans generally had lower-paying jobs, less education, and an average reading level comparable to fourth grade hearing individuals. The deaf believed that the hearing world rejected them and they therefore clung to their community, not wishing to go beyond it. Finally, regardless of these factors, deaf people remain in a large, functioning community that chooses not to use English as a sole or primary means of communication. Instead, the community flourishes and perpetuates itself while communicating through sign language.

The situation as described by Kohl has changed slightly for the Deaf. Firstly, the arguments between oralists, manualists, and the middle-of-the-road approaches such as Total Communication continue but, also provide a testing ground for discovering the effectiveness of several policies. Secondly, the recent recognition by linguists of ASL as a natural language has made sign language a viable mode of communication in the classroom. Kohl's report was not the first acknowledgment of American Sign Language (ASL) as a natural language, but such pieces of literature became the turning point for attitudes
about the status of sign language in education. Since the 1960's, extensive linguistic research has been
done on ASL showing that its structure is parallel in complexity to that of any natural language and
contains features of Chomsky's Universal Grammar (features which all natural languages seem to share).
Furthermore, deaf children more easily acquire these structures when presented in the modality of sign
language rather than spoken language. (See Stokoe, 1960; Brannon, 1966; Klima & Bellugi, 1979;

Lou claims that the debate between all of the schools of thought ignores the needs of the deaf child.
If children do not master a natural language before a certain point in their development, then they are in
danger of never acquiring native competency (fluency) in any language (Krashen, 1982). Unfortunately,
none of the above approaches ensures that the child will acquire language. The oral methods have failed
for reasons previously stated. The manual methods, including the Total Communication approach, often
try to use both sign and spoken language but fail in that they more often sacrifice the structure of sign
language in order to convey the structure of spoken language manually. The assumption lies in that many
educators believe manual forms of oral language are the perfect compromise between the two modalities.
This technique fails because the modality of sign language precludes native competency if one is simply
mapping signs onto spoken words (further evidence given in the analysis below). It seems that any
approach that overemphasizes mainstreaming the child will more likely fail the child and alienate him/her
from any language.

A bilingual approach, employed by some American schools, seems most effective for facilitating
native competency in deaf individuals and for eventually mainstreaming the deaf into the larger society.
Bilingualism can facilitate the mastery of both the native language (sign language) and the language of the
larger society. It requires that teachers be able to teach the curriculum in both English and ASL. One
reason for its resistance to being implemented is the extremely expensive cost of maintaining teachers and
specialists who know sign language and can work with children individually according to their language
ability. Lou gives a justification for expensive educational policies by stating that there is a greater
"...cost to society of vocationally wasted individuals who must receive social security benefits throughout
their adult lives." Beyond economic reasons lies the issue of whether or not a society should take
responsibility for providing each individual with the opportunity and the knowledge to function
independently in society.

In the tradition and capacity of the American economy, movements for equal opportunity and equal financial support are more likely to be implemented. In contrast, this approach may not be effective for the economy of Nicaragua which may not have the ability to fund such specialized programs. Instead, a more realistic compromise can be sought after.

In summary, it is useful to consider the linguistic and social needs of the child while choosing an educational policy for the deaf. The economic and educational implications of a bilingual method may not be realistic in Nicaragua but there may be compromises that prove more effective than the current policy for educating deaf children. Any approach should recognize the children's native mode of communication in the educational environment and encourage them to interact with each other and the teacher in both languages cognitively and socially, allowing mastery of at least one natural language and potential to acquire second language competency.

**Linguistic analysis: classifying ISN.**

Kegl and Iwata (1989) have also researched ISN, in part, to uncover whether it is a natural language. They use pidgin and creole theories to hypothesize about its formation. Such theories examine language genesis situations similar to that in Nicaragua. The genesis occurs due to a social imbalance and mixture of language communities and because of the influence of children acquiring the existing product of the mixture of those languages. The social and developmental factors that are present in creating creoles may be present in the genesis of a natural sign language in a community such as Nicaragua.

I generally support Kegl and Iwata's classification of the various forms of sign language present inside and outside of the deaf communities. They argue for the presence of pidgin-like and creole-like forms of sign language within the deaf community and only simple sign systems outside the deaf community. In my analysis, I first look at two signers outside of the deaf community who seem to use gestural or highly restricted sign language. I then look at two signers within the community who are at an age that Kegl and Iwata would classify as too old to have acquired the language in the community (the community only formed 11 years ago and the individuals are 20 years old). One would hypothesize that they would be using a more limited form of the language (pidgin) but it appears that the expressive form
of sign language they use more nearly parallels a natural language. Finally, I examine the language of one signer who Kegl and Iwata, and Kegl (forthcoming), would hypothesize as a native signer of ISN. The difference in language abilities between the signers inside and outside of the deaf community suggests that those who are in an environment where there is abundant opportunity for inter-communication will develop a more sophisticated language system, even if it is not a natural language and become more proficient at linguistic skills. Furthermore, children born or simply raised with some consistent linguistic exposure will most likely acquire a natural language.

The above theories trace the genesis of creole languages by using evidence for innate (internal) language capacities to explain the formation of a new language from impoverished linguistic input. Such impoverished environments exist for the deaf children isolated in small communities outside Nicaragua.

**Using creoles to understand the structure of ISN.**

Recent linguistic research of sign languages has shown that its structure is within the boundaries of what theorists define as natural language. Fisher (1978) compares the spoken Hawaiian Creole English to ASL in order to highlight the structures that the two natural languages share. The reason why creole theory is interesting for sign language situations like that in Nicaragua is, as discussed before, the fact that some similar social and developmental situations exist before the formation of the natural language (creole or sign language). Creoles, like sign languages, seem to be formed as a result of children acquiring the input from an impoverished or inconsistent source. As has been suggested for the genesis of creoles, sign language, when it first appears in a community, may be the product of innate language capacities (the language bioprogram). It is important to determine when a child is acquiring a natural language (as opposed to a restricted system, such as home signing) so that the child is ensured of mastering a natural language during his/her critical period.

**Defining Pidgins and Creoles: The Language Bioprogram and input.**

An environment with a juxtaposition of cultures and languages facilitates the formation of a new communication system that all members can use. One alternative is to adopt an already existing language as the means of communication. On the other hand, the formation of a new system occurs when there is a social imbalance between the various groups. Such situations are historically found in plantation settings where the empirical culture held slaves who had been captured from various tribes in Africa.
Few slaves shared the same language and only minimally interacted with members of the superordinate culture so that a communication system was created which suited the needs of the subordinated language communities. The new system may become what is loosely defined as a pidgin if it uses the lexicon of the "superstrate," or dominant culture's language, and maps the words onto the differing structures of languages used by the "substandard" or "substrate" cultures.

Susan Fischer (1978) describes the social setting where this formation occurs as one of extreme inequality, where the standard culture dominates the substandard culture economically, politically, and socially. Since the subordinate culture is forced to accommodate the "language of power," the lexical content of the pidgin is similar to the standard language. The pidgin, in contrast to "broken" or foreigner speech, actually has some amount of predictability of structure but is not a natural language. Most linguists agree that pidgin-like languages are not natural languages because they are formed by adults who are striving to communicate with each other. The pidgin is not a full language because its lexicon is severely limited and its structure is not consistent since the variations of a pidgin contain a combination of the grammars of the many original natural languages in the community.

Most pidgins do not have a productive morphology allowing the formation of new words, a prominent process in natural languages. Such morphology would include compounding (eg., black-board), derivational morphology (changing a word to serve as another part of speech such as "stigma" to "stigmatize"). This lack of productiveness in the language limits the expressive capacity of the pidgin. Natural languages, including creoles, do not have such problems in allowing expressiveness through productive morphological processes. This is only one aspect of the pidgin that falls short of a natural language and which is always present in natural languages. I examine this aspect of sign systems and sign languages later on in the paper.

Fischer (1978) provides examples of variations of manually signed English, Pidgin Signed English, and pure ASL. Each sentence is a version of the question, "Have you been to Europe?"

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SENTENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>manually signed English</td>
<td>HAVE YOU BEEN TO EUROPE</td>
</tr>
<tr>
<td></td>
<td>FINISH YOU B-E-E-N TO EUROPE?</td>
</tr>
<tr>
<td>pidgin of signed</td>
<td>YOU FINISH TOUCH EUROPE QUESTION</td>
</tr>
</tbody>
</table>
English and ASL

ASL (natural language) TOUCH+FINISH EUROPE, YOU? (question-eyes----------->)

(In the above translations, each sign is represented by capitalized words and fingerspelling is shown by letters connected with dashes.)

The first three sentences were produced by signers who simply map signs onto English word order and syntax. Lexical gaps are filled in by fingerspelling the English word. The word FINISH is actually a sign which marks past tense, the rest of the sentence contains signed or fingerspelled English. The fourth sentence, a combination of signed English and ASL shows more dependence on ASL sentence structure. There is no need for auxiliary verbs and the copula (to be) is not used. The only necessary features are the presence of Europe and the indexing of the object (EUROPE). The QUESTION constituent is tagged on at the end in keeping with English positioning of rising intonation at the end of a sentence. The last sentence shows the consistent structure of ASL in that the question marking is accomplished through facial expression (rather than tagged on linearly) and FINISH part of TOUCH+FINISH is occurring as a productive morpheme attached to the word rather than a randomly occurring part of the sentence.

Only through broader and continued use in the society and through children’s acquisition of it, can the pidgin be altered to take the form of a natural language, or "creole". A creole is a natural language arising from pidgin input acquired by children and eventually, used consistently by the entire community. Interestingly, its structure differs from the earlier pidgin. It has syntactic and morphological features that are unique to it. Creoles generally have rules that do not reflect either the pidgin, or combination of languages from which it arose (Bickerton, 1981, 1984). Still, creoles are viewed as substandard, according to Fischer, because they are created and remain in a similarly oppressed social setting to that of pidgins. The culture that uses a creole is subjugated economically and socially partly because they do not speak the standard language.

Nativization- Acquiring Language through a bioprogram

The genesis of natural language in a linguistically impoverished environment is explained through theories such as Derek Bickerton’s Language Bioprogram Hypothesis and abrupt creolization (1984, 1989a). He, opposing some theoretical views, describes the process of creolization as occurring in one
generation rather than over a long period of time. The language bioprogram, as defined by Bickerton, is an innate language capacity in all humans that is extraordinarily functional during the critical period, but functional even afterwards. The program can help create structure from most forms of linguistic input based on a preprogrammed "grammar" in the brain.

Language Bioprogram Hypothesis.

A theory central to Bickerton's claims (1981, 1984) is that of Universal Grammar (UG) first established by Chomsky. This grammar (with semantic, syntactic, phonological, and morphological rules) is the basis for the innate language capacity that all humans seem to have. For example, UG claims that all languages will contain: phrases and tensed clauses; phonological rules which place stress in the sentence based on the occurrence of natural constituents such as phrases; and semantic rules which give thematic roles to the major arguments in a sentence. The actual structure of UG is hotly disputed but its basic components, according to Chomsky, are X-bar theory (determining the hierarchy of the constituents in the sentence); binding theory (stating which parts of the sentence license other parts to occur); theta theory (defining the thematic roles that syntactic constituents play in the sentence); and trace theory (allowing only specific movement, move alpha, in a sentence such as that movement seen in English question formation). Specific features that make up these categories are viewed as parameters in UG. As the child perceives or does not perceive these parameters in the occurring input, each feature is given either a positive or negative value by the existing structure of the external grammar (the natural language). If a feature is perceived it will be plugged into the innate grammar and will appear in the output of the child.

For example, the null subject parameter either requires that a tensed clause have an overt subject or allows it to have a null (not phonologically realized) subject. English syntax switches on the parameter so that a child must learn that tensed clauses require an overt subject:

(1) I am a good kid
(2) *am a good kid.

The ungrammaticality of (2) shows that the subject must overtly appear. In contrast, Spanish tensed clauses do not require an overt subject:

(3) Yo soy una niña buena
Evidence that the child receives from an external grammar will give her/him clues as to whether the language s/he is trying to acquire allows a null subject or requires an overt one. This input will set the internal parameter and the child, once the parameter is recognized and acquired, will use it consistently.

In any language learning environment, normal or otherwise, the bioprogram also provides internal input that makes up for any lack of external input from the environment. In this way, a natural language may emerge from limited input due to the structure imposed by the internal grammar. In creole situations, it is believed that the internal grammar plays a larger role since there is inconsistent input comprised of a pidgin that has few productive rules and a severely limited lexicon. The supposed similarity between the structures of creoles (and even sign language and creoles; Fischer, 1978) suggests that it is the internal grammar that makes such natural languages look the same (Bickerton, 1981).

Bickerton proposes that the internal grammar may have the following forms: 1) parameters which determine possible forms of UG with the "switch" set initially at a neutral position and swayed either way by external data, 2) parameters, but with the switches set at some unmarked, "preferred," form of UG only changed by opposing external input, and finally, the strongest claim, 3) a bioprogram without parameters which is a single grammar common to all humans. In Bickerton's response (1984) he champions the strongest claim, the non-parametrized bioprogram, as the most acceptable model of language acquisition.

If this "no parameters" claim is true and all internal grammars look the same, then it would seem that all the world's languages would be extremely similar and that creoles (with no singular natural language as input) would look incredibly similar because they all rely on the same internal grammar. In opposition, Kegl and Iwata (1989) note that some similarities highlighted in creoles may only be a function of linguists' fixations on European language structures. This does not discount the fact that children, regardless of what types of parametrized grammar they have, are creating natural language from inconsistent input.

**Abrupt Creolization.**

Bickerton claims that his data on Hawaiian Creole English show signs of a natural language formed by the first generation after the creation of the pidgin. In order for this full transition to occur, the child
must have the sophisticated, innate bioprogram that will actually fill in any structural gaps in the input. In a normal language situation, any child will allow his/her innate system to assist in making sense of the input. This tendency results in the ease in which children acquire structures such as prosody (sound/shape patterns in a language) or can correctly form noun phrases (all part of UG). In a normal situation, the child then denativizes the language s/he is acquiring (moves from the nativized version). S/he assimilates the output of the bioprogram to match the target language (the language of the community). A language remains a natural one after denativization but, the changes entail moving away from the structure of the innate grammar. This final step does not occur, or occurs much later, in creole language situations since there is not always an external norm toward which the language can denativize.

The existence of bioprogram accounts for how children may form natural languages from pidgin-like input but it is not enough in some circumstances. The bioprogram alone cannot create a productive, expressive language. The child must be supplied with some amount of consistent input (even pidgins and pidginized sign systems have systematic input) as well as with a wide variety of social contexts in which the child is forced to express his/herself. The social, linguistic, and cognitive processes must feed from each other to allow the formation of a natural language (see Krashen, 1982). In the case of home signers, they probably do not receive enough input in order for their native capacities to fill in the gaps to create natural language. Instead, they never acquire a natural language, just a severely limited system of gestures. In the case of adults who entered the Deaf community later; they are building what might be a pidgin sign language, and probably know little Spanish. For the children who entered the community approximately before the age of fifteen, they are signing what looks like a natural language and probably have less trouble learning Spanish and can more effectively communicate with their peers. (Testing needs to be done in order to assess their competency in Spanish).

For the deaf individual, research has shown (Lou, 1988; Bochner and Albertini, 1988) that learning through solely oralist or solely manualist methods does not meet the needs of the individual and may often deter cognitive development. Bochner and Albertini (1988) favor an open approach to sign language use in the classroom that allows children to alter the input of a signed language (eg. Signed English). They ask, "should digressions be prohibited because they are errors in (the oral language) or should they be permitted because they are meaningful and creative usages?" They go on to warn that
"measures taken to prohibit such digressions and preserve the integrity of an (oral language) may have a detrimental effect on acquisition in some (deaf) children." If the primary goal of educators is to enable the Deaf to function in mainstream society, then it seems more effective to allow the children to first master the language that they are nativizing. Mastering a language during the critical period has been shown to stimulate neurological and cognitive growth that is necessary for further language development and for second language acquisition (Krashen, 1982; Bochner and Albertini, 1988).

**Pidgin/Creole Morphology and the Structures of LSN and ISN.**

To tie in the importance of morphology in language acquisition, Bickerton argues that variation in languages can exist mainly due to the "idiosyncratic properties of language" seen in the unique morphological and lexical properties of each language.

"At each level of syntactic maturation children will develop additional principles of UG which in turn will enable them to make sense out of more (and more complex) morphological and lexical properties: these, on being acquired, will interact with the syntax so as to yield the grammar peculiar to English (or whatever the target is) Bickerton (1981).

In discussing the morphology of pidgins and creoles, I focus on productive processes used to create new words in the lexicon to fill its large gaps. For pidgins, such processes may include circumlocution, repetition, and some relatively unproductive compounding. Circumlocution is the most prevalent because the generally haphazard structure of any pidgin reveals very little productive morphology (Mühlhäuser, 1980, 1983).

The following are examples from Samoan Plantation Pidgin English (Mühlhäuser, 1983):

<table>
<thead>
<tr>
<th>Pidgin</th>
<th>Gloss</th>
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<tr>
<td><em>man i katim kabora</em></td>
<td>'the men opened the dry coconuts'</td>
</tr>
<tr>
<td><em>he white fellow man bilong cocoanut stop no grass</em></td>
<td>'a bald-headed European'</td>
</tr>
<tr>
<td><em>plenti plenti blackboi</em></td>
<td>'many many black boys'</td>
</tr>
</tbody>
</table>

This pidgin, as described by Mühlhäuser, demonstrates the problems of a limited lexicon and inconsistent grammar. The first sentence shows that the pidgin does not pluralize or mark for indefinite or definite noun phrases. The predicate marker "i," a word that introduces the verb and objects of the sentence, is only haphazardly used in the pidgin (not seen in the preceding data, but described by Mühlhäuser). The following phrases show the severe limitations in the lexicon; firstly, in the
circumlocution used to simply express baldness and secondly, by the repetition of a word to mark intensity. Repetition in and of itself is not an invalid morphological process but it is generally the only one in a pidgin. According to Mühlhäusler (1976; as quoted by Sankoff, 1979), several pidgins have "a very small inventory of lexical bases; and the paucity of lexical information found within these bases (is) a result of superficial contacts which spawned it...lexical items derived by regular processes in the lexifier languages have lost their 'transparency.'" Only in the pidgin's advanced stages, after the community has been long established, or after the formation of a creole, is there a more consistent and complex morphological system.

Some special issues arise in examining the morphology of a manual language. ASL, often considered a creole, has an inflectional morphology that is atypically complex for creoles. As described by Gee and Goodhart (1988), ASL has fusional morphology which uses one morpheme to represent several meanings simultaneously. Fusional morphology is seen in Russian where the morpheme "-ov" in the word "stolov" (of tables) represents both genitive case, plurality, and declension. There is no one-to-one correspondence between the morpheme and a particular meaning or function. In contrast, agglutinative morphology has several morphemes attached to various parts of the word, dramatically changing the word, but still recognizable as separate entities of meaning. Turkish shows this type of morphology. For instance, the following example from Turkish is an entire sentence composed of various morphemes which combine to form one word ("misiniz" is only a question marker). "Czekslovakyalilashtir­madiklarimizdan misiniz?" The translation of the sentence is "Are you (pl.) among those whom we have failed to turn into a Czech?" Finally, the least complex morphology is one where morphemes exist as separate lexical items such as those in English. (For example, "of" is always a separate morpheme describing source or possession. English also has signs of agglutinative morphology such as plural morpheme "s").

Whether the morphology of ASL is actually fusional is a topic of debate. Kegl believes that ASL's morphology is agglutinative. One piece of evidence for agglutinative morphology in ASL is that the morphemes of signs can actually be isolated and contain only one meaning. Even though the morphemes co-occur in signing (to meet cognitive prerequisites), the morphology is probably agglutinative.

ASL's morphology is necessarily based on the locative hypothesis of language. Many spoken
languages structure their grammar on this hypothesis which states that functional words and representations in language are underlyingly based on the physical reality of the world. For example, in English, the abstract concept of time is expressed locatively; "I'm going on Thursday," "The meeting is at seven o'clock." In order for ASL to have the expressiveness of a natural language it must follow adhere to the tenants of the locative hypothesis. The reason for this restriction stems from Slobin's (1977) four "cognitive prerequisites" for language (as cited by Gee and Goodhart): to be clear, to be humanly processible in ongoing time, to be quick and easy, and to be expressive. Under these constraints, the large articulators of sign language (hands and arms) are clumsy compared to the quicker and more easily controlled tongue, lips, and vocal chords. To make up for this burden, the information conveyed by each movement and handshape must contain multiple levels of meaning per unit of time. ASL often uses real world spatial relations to more efficiently convey a message so that many units of meaning are visually represented at the same time; each hand may have a different handshape while the arms are moving and the orientation of the body changes. All of these characteristics give sign language a mimetic quality.

In terms of acquisition, if the deaf child truly follows the "four charges" of language inherent in the bioprogram, then s/he will use the input of signed pidgins and create a creole that has a consistent morphology with the efficiency of processes found in ASL. Gee and Goodhart predict this result and find it to be true. Deaf children receiving purely verbal or signed English input will sign using a one-to-one correspondence of word to meaning. This makes signing slow and clumsy. It also disables the child from learning to treat morphemes productively and from creating a more complex grammar. Such children do not acquire a natural language. A deaf child exposed to richer signing input or to ASL will acquire a more complex morphology and ability to communicate more fully and productively, leading toward the mastery of a natural language.

ISN, like ASL, seems to have an agglutinative morphology (see Case Studies below). This type of morphology may be more difficult to acquire than isolating morphology at first but it seems necessary for educators to acknowledge and use this type of signing so that deaf children can successfully acquire it. If the children are deprived from signing input and are forced to learn structures that are not conducive to the modality of signing, then they may not acquire competency in sign language and therefore fail to acquire
any language.

Case Studies

In this study, I examine the presence or lack of morphology in the Nicaraguan signing data. This aspect is only one predictor for determining whether output is a natural language. As a springboard, I used some of the definitions of Kegl and Iwata (1989) in determining which of the signers looked like home signers or pidgin- and creole- speakers. Through looking at only the productive use of morphemes, the presence of reduplication, inflection, and other morphological evidence, Idiomas de Signos Nicaragüense appears to be a natural language. The signer's use of an extensive lexicon and more specifically, productive morphological processes, suggests that the young children are acquiring/creating a natural language. Some processes seen in the data include various inflections placed on the same verb, agreement between verbs and objects through inflecting the words (indexing and coreferencing them in space). For example, if the signer expresses that she is always selling clothes to many people, then she will inflect the verb for "sell" not only to express the continual nature of her "selling" (circular movements) but also move the sign to various points in space to show agreement with "many people."

Lenguage de Signos Nicaragüense (LSN), used by adults and older adolescents, exists in an extremely developed pidgin-like form. In the data that I examined, it was difficult to differentiate LSN from ISN probably because I videotaped signers who were young adults and may have already nativized their signing. The signers use many of the same inflectional processes as the ISN signer when they make the verbs agree with their objects or when they index objects of a verb in space and refer to those points in space again in the discourse (coreference). They also used abundant facial expression in their discourse.

Home signing, on the other hand, is much like the output of deaf American children who only have an isolating morphology and therefore cannot be fully expressive. There is no use of space to index or inflect verbs and no productive use of words to describe variations of similar events. Also, there is very
little use of facial expression except for possible lip pointing.

Further examination of Idiomas de Signos Nicaragüense has been and is being done in order to determine its complete structure (Kegl and Iwata, 1989; Kegl, forthcoming). This research is necessary in order for educators to recognize the sign system as a natural language and to better communicate with the children to increase their chances of mastering the sign language and developing their expressive skills. The following examination of children from various communities also provides evidence that the impoverished social and linguistic environment of the isolated children in San Marcos inhibits them from learning natural language. Furthermore, the children who do have a natural language within the community are not learning Spanish, nor how to read or function in the larger society.

Procedure.

In Nicaragua, two different communities were taped allowing direct comparison between home signing and pidgins, creoles, or any nativized variations of pidgins. In San Marcos, Annie Senghas taped several deaf children and adults who failed to join the newly formed Deaf community. They are isolated in their homes and are using what appears to be home signing (impoverished language). Other tapes were made in Managua by Judy Kegl amongst the Deaf community which reveal the new language and other linguistic variations created by the adults and the children.

Each deaf individual was shown one of two cartoons (from the Mr. Koumal series) that contained no words. The deaf children and adolescents were asked to recount the events in the particular cartoon that they saw. I am using the performance of two home signers and two LSN signers in order to compare language abilities. The analysis of ISN comes from another tape (made by Kegl) of a girl signing in a schoolyard. Unfortunately, no definite ISN signers were taped using the Koumal test. But, the comparison between the home signers and the LSN signers is striking. I use a format of comparison similar to that used by Simmons de Garcia (1982) in her comparison of native and non-native signers of ASL. Simmons de Garcia breaks down the stories into separate events in order to count the amount of classifiers used per each event. I use my own breakdowns in the stories (see Appendices A + B) and look at not only the difference in the approximate number of classifiers or frozen signs per each event, but also note the general frequency of inflectional and derivational morphology used. I noted use of space for agreement, and movement for the inflection of verbs. In examining the ISN signer, I cannot make
frequency comparisons but I will examine the features that make ISN appear to be a natural language. I will also use some of the findings on ASL by Simmons de Garcia as a comparison to my own observations.

As mentioned earlier, I unexpectedly found striking similarities between those who I hypothesized were the LSN (pidgin) signers and the girl who I hypothesized was the ISN (natural language) signer. I believe that I selected young adults (LSN signers) who were in the process of nativizing their language to more closely match the ISN form being used by younger children. This is not surprising since the young adults, while they were not born into the community, may have entered it early enough to begin nativizing the pidgin-like signing that they see the younger children use each day outside of class.


The comparisons between home signers, and signers in the Deaf community revealed blatant differences in expressive power. Both home signers were shown the cartoon, "Mr. Koumal Flies Like a Bird," several times. In general, the home signers of San Marcos seem to have no morphology in their severely limited lexicon and therefore, cannot productively use and create signs through inflecting, compounding, or reduplicating parts of signs. One piece of evidence supporting the absence of morphology and the limitations of the lexicon is the lack of detail in retelling the cartoon. First, both signers described less than half of the events in the cartoon. Secondly, the cartoon, as seen in Appendix A, have tremendous amounts of repetition with slight but significant variation in each repetition (eg., Mr. Koumal tries to fly many times using slightly different techniques). The variation of each event is not described by the signers, only the actual event (they use only frozen or uninflected signs for flying, climbing, etc.).

Due to their limited language, it was probably difficult for the camera person to make the signer understand and carry out the task of retelling the cartoon. Furthermore, if the signers fully understood the task, they may have left out details that seemed redundant to explain after just having seen the cartoon. The camera person tried to control for this problem by making the signer tell the story to someone who had not seen the cartoon. It was necessary to show the story more than once to elicit any retelling.

Laura.

I analyzed the signing of one young girl who is about eight years old. She seems to have very
restricted language ability based on the fact that she uses only frozen signs. She is communicative enough to express simple concepts and desires through pointing at objects. She is given a lot of responsibility by her mother for caring for her younger siblings and doing chores; her frozen signs are gestures of the chores she does such as eating, washing, and carrying water. Her family tries to communicate with her by using some of these signs.

In describing the tape, she only describes the main character's attempt at flying by flapping her arms up and down. This event occurs in four of the nine parts of the cartoon. Both a bird and a man fly but she only depicts the movement, neither the nature of it (its path) nor the subject and object of the movement (man or bird; flying into side of mountain). She uses no other signs or facial expressions (which are possible grammatical markers) to describe the event. She does not talk about any other events and has no detail in her simple description. There were no other mimes or gestures and no variation on the event of flying.

After describing the cartoon she communicates with her family by signing about more familiar events such as washing clothes (using both hands for depicting the action of scrubbing against a washboard). She uses distinct signs for concepts such as "water," "drink," "eat," and "chair" that looked similar to the signs used by the Deaf community in Managua. Rather than having invented them herself, she may have had some exposure to other deaf children or her mother may have picked them elsewhere and used them with her. These signs are not used in any other way but in frozen form so that they do not agree with any reference points in space and do not undergo reduplication or compounding in any way. She does not use space in any consistent or productive way but continually uses the same small set of frozen signs over and over.

Nelson.

Another child, a boy who is approximately eight years old, shows different language ability. He is totally deaf since birth and is treated as disabled by his family. He is left alone to play in the streets having no contact with other deaf children. His family does not sign with him but, instead, has taught him to speak a few words. It is possible that his family actually tries to restrain him from signing.

In describing the "Flies Like a Bird" tape, he uses mainly frozen signs to describe four events in the cartoon. He shows Mr. Koumal climbing, flying (two different ways), falling, and possibly shows the
bird flying. In the description of climbing he moves two extended arms with his hands in fists, showing the use of the pick axe. The movement is in front of the signer and does not show the upward movement of climbing, therefore, there is no inflection of the verb.

He then flaps his arms to express flight, the sign is frozen, not showing any path of flight. He also does not establish who the flier is, he assumes the role of subject without any indication of who he is. Another description of flight is more abstract as he uses one flat hand to trace arcs in the air depicting the movement of flight (either of Mr. Koumal or of the bird). He seems to use the handshape as a classifier to symbolize a flying object and to use the movement as a more explicit description of the action. Still, there is no reference to what the subject is and if it is Mr. Koumal, there is no agreement between his starting point (top of the mountain) and his ending point (ground) which would be necessary in constructing a grammatical sentence with a spatially-based verb.

Nelson describes Koumal falling by using an open hand rotating at the wrist (similar to the LSN signers). Again there is no spatial agreement between starting point and ending point and no reference to who is doing the falling. Finally, he uses a finger to point up and trace a path in the air. He could be tracing the path of the bird as it flies near Koumal or he could be tracing Koumal's path as he flies and then falls.

In all of his signing there is little use of space for indexing, coreferencing and inflection of verbs. This is seen in the frozen nature of the signs and how the signs remained in one type of orientation (except for the finger tracing the air).

**Home Signers - Mr. Koumal Flies Like a Bird (9 events).**

<table>
<thead>
<tr>
<th>Nelson</th>
<th>Quantity</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-described four events</td>
<td>-no indexing</td>
</tr>
<tr>
<td></td>
<td>-three out of four events</td>
<td>-no coreferencing</td>
</tr>
<tr>
<td></td>
<td>used frozen signs</td>
<td>-one possible inflection of a verb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-some productive use of signs to express detail of event</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-no facial expression</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laura</th>
<th>-described one event</th>
<th>-no indexing (but pointed very often when describing other events beside cartoon)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-used one frozen sign</td>
<td>-no coreferencing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-no inflection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-no productive use of signs to</td>
</tr>
</tbody>
</table>

22
create new meaning
-some possible facial
expression (lip pointing)

In summary, the home signers do not consistently create new ways of expressing events or use their signs productively; there is no morphology (inflectional, spatial agreement, etc.) in their signing.

**LSN Signers. Armando and Eda.**

Strongly contrasting the severely limited home signing is the more expressive language of the adolescents who Kegl and Iwata (1989) claim speak a pidgin-like form of sign language. In viewing two of these signers, there seem to be numerous parallels between LSN and ISN. As mentioned above, the similarities could be due to the fact that they are still young adults who may have had a chance to nativize the pidgin to look more like ISN. These two individuals are using complex morphology and sentence structure, indicative of a language that is becoming nativized.

While the following two individuals are approximately 12 years older than the home signers, the evidence for morphology that I am looking for can be found in younger children. In Gee and Goodhart (1986), the children are shown a cartoon and asked for their rendition. Deaf American children between 6 and 8 years of age show the ability to not only use classifiers productively (changing their orientation to agree with action, using variations of the same classifier) but also index objects and coreference points in space.

**Armando.**

Armando is a twenty year old LSN signer. He has been completely deaf since five years of age and cannot speak Spanish. He was shown the "Mr. Kourmal Flies Like a Bird" cartoon. In the tape, he uses spatial agreement and some limited indexing in space. He uses classifiers frequently and has a large, productive lexicon (as opposed to frozen signs). In terms of frequency of classifiers, he uses approximately two to three classifiers per event (see Appendix A). The classifiers consistently reappear to describe similar events. He is also able to create variations in his use of signs to describe the minimal differences in the repeated events of the cartoon. Overall, his signing is becoming nativized toward ISN.

He inflects verbs in a way that occurs in natural sign language. He is also able to sporadically use space for indexing. He inflects the verb "to see" when he uses a g-hand classifier tracing the path of movement as Mr. Kourmal watches the bird. This sign agrees with the subject (who is represented by the
signer) and with the object (which is the path that the bird flew as the subject saw it). He inflects another verb when describing Mr. Koumal flying into the side of the mountain. He sets up the side of the mountain using an open hand which traces a diagonal plane, then uses a g-hand classifier to trace the path of Mr. Koumal falling through the air and crashing into the mountain. The crash landing agrees in space with its destination.

He depicts the variations within Mr. Koumal's four attempts at flying. In the section where Mr. Koumal puts only a few feathers on his arms to attempt flight, the signer uses a simple handling classifier (flat o-hand) which sporadically touches his arms. When Mr. Koumal places feathers all over his body in another attempt, the signer uses the handling classifier again but this time he spreads the fingers of his handshape to depict many separate "long, thin objects" on the character's body. In each depiction of the attempts, the signer flaps his arms describing Mr. Koumal's motion in flying. In one attempt, where Mr. Koumal built heavy wooden wings, the flapping of the arms was modified by slower flaps and a knitted brows denoting intensity and heaviness. The productive variations made on classifiers and movements suggests the presence of a productive morphology and therefore, an expressive language.

Compounding occurs when the signer mentions "chickens." He first makes a new flapping motion with his elbows out to the sides and his hands under his armpits; then he makes the LSN sign for bird (using the thumb and forefinger, palm oriented toward signer, movement away from signer, the fingers come together as the hand moves away). This type of morphological process is not usually found until one is examining a natural language (Mühlhäuser, 1983).

The signer did not usually inflect the verb to agree with an indexed subject but produce the sign for the subject and acted as the subject himself (which is also a form of agreement). He also used abundant facial expressions in the course of his signing such as rolling and thrusting his tongue to describe and intensify Mr. Koumal falling.

Eda.

Eda, a twenty-year-old LSN signer, watched the "Mr. Koumal Battles His Conscience" tape. She is extremely hard-of-hearing but can speak Spanish fairly well. She was asked to retell the cartoon using purely sign and then using speech and sign combined. I analyzed her simultaneous speech and sign. Her frequency of classifier use varies from event to event (see Appendix B for breakdown of events). There
are only frozen signs in some events while there are between 1 and 4 classifiers used to describe other events. The use of frozen signs seems to correlate with the times when she is depending on the verbal articulation rather than the signing. She uses some agreement between verb and object (spatial agreement) as well as a consistent linear word order (probably influenced by Spanish).

Her use of classifiers is productive. She easily depicts Mr. Koumal splitting in half by using her arms to represent two upright objects (the two sides of Koumal) peeling apart, from her hands to her elbows. She then uses two fists hitting each other to represent the fight between the two halves (the use of mirror image classifiers is an extremely productive use of classifiers). Again, she maintains the dual body image of Mr. Koumal when he looks down after fighting with himself to notice that the beggar stole the money. Eda uses the index finger of each hand to show the two sides of Koumal looking down to notice that there was no money. Usually, the sign for looking with both eyes would appear as one hand with forefinger and middle finger extended but Eda was able to perseverate the split body effect.

She refers to Mr. Koumal each time he is mentioned in the discourse by using the sign for "hombre." She uses the same technique for each character throughout the discourse (i.e., "Old man / dirty in the face" = beggar; "Woman / Old" = rich lady). She establishes her subject each time leaving no sentence without one (similar to Armando's speech). She does not establish objects in space but, instead, signs them and then performs the action. For example, WOMAN GIVE-to HER, where the sign for "woman" is not indexed and the verb simply goes out to a random point in space. This structure seems to be based more on signing and may be part of the pidgin.

An example of the possible effect of Spanish on her signing is her use of frozen signs in linear order is her description of Mr. Koumal reaching into his pocket for money, tearing a hole through the pocket and pulling out a coin. She signs "[MAN] [COIN] [then puts her hand into an imaginary pocket] [BROKEN (frozen sign using two a-hand classifiers)]." The sign for "broken" uses classifiers that should describe the breaking of a rigid object (depicted by the a-hand classifiers being pulled apart) rather than the hole created by a hand pushing through a pocket.

Some detail is missing from her description of the cartoon. She only describes the content of one "dream" when there are two in the cartoon. She also leaves out important physical descriptions of the characters as they change (Mr. Koumal in his "good" form has a body shaped like a heart).
LSN Signers

Mr. Koumal Flies Like a Bird

<table>
<thead>
<tr>
<th>Armando</th>
<th>Quantity-morphological</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-between 1-2 classifiers per event processes used such as -at least 1 inflection on verb per event -no apparent use of frozen signs</td>
<td>-use of inflection on verbs -productive morphological compounding</td>
</tr>
</tbody>
</table>

Characteristics
-use of variations on movement and classifiers to describe shades of meaning -much use of facial expressions

Mr. Koumal Battles His Conscience

<table>
<thead>
<tr>
<th>Eda</th>
<th>Quantity-Morphological</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-sporadic use of classifiers between 1 + 4 per event -some use of frozen signs</td>
<td>-use of inflection on verbs -productive use of classifiers -lack of detail in parts -use of facial expression</td>
</tr>
</tbody>
</table>

In general, the LSN signers have a highly expressive sign system that has a fairly large and productive lexicon. Most of the verbs were inflected to agree with the source and goal of their action. Many objects were indexed in space and acted upon by the verb. There was productive breakdown of signs so that parts of classifiers and movements were used in ways that described different shades of meaning. The morphology is probably developing (or has developed?) into an agglutinative one. The evidence for such morphology is that movements and classifiers can be isolated from the discourse, even though they change the "frozen" or citation form of the sign. Interestingly, the signer who spoke as she signed showed more limitations in her signing when she depended on the verbalizations. She did not seem to use as many classifiers as she spoke and also seemed to use more frozen signs.

ISN signer.

While there are varying degrees of complex or simplified morphology amongst the Deaf community, there did not appear to be any native signers of ISN amongst those that were taped. Instead, I looked at the signing of an early adolescent girl talking with her friends in a schoolyard. According to Kegl (forthcoming), her signing most resembled a natural sign language. She uses spatial indexing as well as
several variations of inflectional morphology (which seem to mark aspect in a way similar to that of
ASL).

For example, she describes her home life and the work of her parents. She explains that they work
very hard so she uses the sign for "work" but reduplicates it and adds emphasis to the motion (the palm
touching the forehead and moving sideways away from the face). Her movement becomes slower to
emphasize how hard they work and the reduplication shows how much. She continues to describe her
parents business which entails making and selling clothes. She uses the sign for "sell" ("flat o" classifier
with the palm oriented up moving away from the signer) but inflects it and pluralizes it by using both
hands and alternately moving them to various points in space. The elliptical alternation is probably
another type of aspect which expresses the continual selling over a period of time. Pluralization is shown
by the movement of the hands to several different points in space in front of the signer ("sell to many
people").

This inflectional morphology looks agglutinative. The separate components (pluralization, aspect)
can be differentiated and used separately with other verbs. She shows this ability by using the sign for
"give" and pluralizing it in the same way as "sell." She also uses the same elliptical movement in her verb
for "talking to each other." She uses g-hand classifiers (hands with only the pointer outstretched) with
one palm facing away from her (depicting herself) and one palm toward her (depicting the other person).
The use of classifiers and the specific orientation of them is alone indicative of a natural language
morphology. She then describes the continual talking to each other by alternating one g-hand toward her
and the other away from her in elliptical movements (marking "continual talking to each other"). Overall,
her morphology is consistent and productive.

She more consistently employs space and productively uses signs and classifiers than the LSN and
home signers. None of her signs seem frozen since they are all inflected in various ways. Furthermore,
she is more articulate than her peers in using well-defined movement and clear handshapes. Her speed
and consistency as well as her morphology indicate that she is using a natural language.

Differences between native and non-native speakers of ISN and ASL.

Interesting parallels arose between the findings of Simmons de Garcia (1982) on native signers of
ASL and the observations of LSN and ISN signers above. She found that the amount of classifiers used
by the ASL native signer far exceeds those used by the non-native signer. In addition, the native signers use the classifiers as object and subject clitics of the verb. Furthermore, the analysis of native signers in Simmons de Garcia's paper show that they use space and classifiers consistently and productively. They also use far less frozen signs. This enables them to break down the separate components of each word in order to use productive morphological rules, such as repetition or compounding (seen in ASL, LSN and ISN).

More specifically, Simmons de Garcia notes that the nature of the classifiers used by the non-native signer is different from those used by the native signer. The types and degrees of classifiers used by the non-native signers is very limited. Generally, the b-hand or open hand classifier (a default classifier) is used without variation in non-native signing. This default handshape was not seen in ISN or LSN.

There was no use of classifiers in the home signing I saw, but in viewing other home signers I have found that the open hand is most often used in their gesturing.

The expressive differences seen here between home signers and signers within the Deaf community reiterates the importance of uncovering the structure of ISN in order to establish it as a medium of education in the schools. In the face of social and linguistic isolation, the children have very little chance of acquiring any language or expressiveness. In a socially open but linguistically repressed environment such as the one in Managua, the language may flourish but it becomes a source of subordination. The deaf who can speak are treated as more capable in school and are seen as more hopeful cases. Those who are fluent in sign language often seek to learn the grammars of previously established sign languages (like ASL or Costa Rican Sign) in order to be considered more prestigious. To educate the children in their sign language is to increase their chances of success in acquiring a language which triggers other cognitive abilities and lays the groundwork for second language acquisition (in Spanish).

EDUCATIONAL IMPLICATIONS OF THE LINGUISTIC ANALYSIS

Having compared the effects of different linguistic and social environments, we can now look at why it may be useful to strive for a bilingual approach, especially in the child's critical years in school. Through the lens of creole theory we saw that examining natural language situations reaches beyond making simple definitions of what a creole or a sign language is. It provides a means of exploring what
is necessary for successful language acquisition (Bickerton P.C. with comments on Kegl & Iwata, 1989b). Central to implementing these findings is, as described above, Bickerton's theories on the innate capacity of learners acquiring a natural language from non-native input. The cognitive and social needs of the child must be met to allow children to acquire and develop first and second language skills. Using the experiences of the American schools for the Deaf and further literature on creole education, I will discuss viable policies that could better enable the Nicaraguan deaf to learn ISN and become functional in Spanish. Success in bilingualism may increase their ability to perform in school and help them to work in the hearing community.

First, as suggested earlier, the native sign language must be recognized as a natural language, and a language with minimal stigmas attached. This step toward more effective deaf education, and less oppressive views of the Deaf community, requires that the language of the Deaf be seen as a wholly acceptable means of communication in education and society. Instead, a society's cultural definitions of language have often lead its people to make value judgments on the language variation within a society. The "standard" language of each community is a symbol for high socio/economic status and education. The standard language is the form that high status community members strive to use, especially in educational settings. Dialectal variations, pidgins, and creoles represent uneducated, unacceptable forms of gibberish (Bickerton, 1981). The speakers of these dialects often prefer to use standard forms of their language in order to escape their subordinate identity. Still others cling to their language as a source of positive identity that separates them from the oppressive majority. We have seen that a mixture of these attitudes exist in the deaf communities of both America and Nicaragua.

Variations in any language, even in the most formal settings, is inherent to the nature of language. Historical linguistics discovers again and again that language is not static at any given time. Productive linguistic processes change the content and structure of language constantly. Bakhtin (1981) describes the social and historical existence of language as a constant "heteroglossia." The heteroglossia is the state of any language at all times; it describes the simultaneous existence of several dialects that reflect the various socioeconomic and cultural aspects of society. Language is "something that is historically real, a process of heteroglot development, a process teeming with future and former languages."

In this sense, speakers of any language have the innate capacity and natural tendency to alter or create
new means of communication as the needs of their community change and as their individual needs change. Even the standard forms of language undergo change, although more slowly than other forms. Whether the linguistic change hinges on historical change, technological advancement, or developmental (nativization) processes in the individual, deviation from "standard" language should not be viewed as substandard or abnormal. Instead, it is an expressive power inherent to the cognitive abilities of people, deserving serious attention.

The second step for Nicaraguan schools for the deaf may be to change the expectations teachers and administrators have for the deaf children. It is crucial to the success of the deaf children in school to be treated as their hearing peers would be treated and not to be viewed as disabled. Recognition of their language only accomplishes a portion of this realization. Challenging the deaf students in tasks where they must constantly express themselves in situations that go beyond the "here and now" would be a beginning to developing better linguistic skills, especially if very few learning materials are present for use with a curriculum. Several studies show that increasing the amount and variation of the input will improve the child's development beyond the borderline of functionality (Report of the Commission on Reading, 1985).

Research on these issues suggests that the native or nativizing language of the child must be represented in the child's environment through a teacher or another adult as well as in the curriculum of the schools. The Report of the Commission on Reading claims that "the way in which parents talk to their children about experience influences what knowledge the children will gain from the experience and their later ability to draw on (that) knowledge." Constant dialogue is necessary for developing cognitive and linguistic skills. Erting (1988) more specifically makes claims about the educational environment deaf children need, "...if the children are to be active participants in the kind of dialogue necessary for linguistic, cognitive, and emotional development, at least one key adult in the educational environment should be fluent in ASL (or the sign language concerned)." This representation has a twofold purpose; it dispels some of the social stigma placed on the language, and it creates opportunities for the children to become more expressive in their native or nativizing language, which in turn may facilitate acquisition of a second language (Spanish, in this case).

I now consider some policies that could maximize the possibility of the deaf children learning both
their native language and the larger society.

*Parallels between Creoles, Sign Language, and Bilingual Education.*

Many of the issues facing educators of creole-speaking communities (both Deaf and hearing) parallel the concerns of bilingual educators. Members of a creole community, as well as those of a bilingual or foreign language community, are often also members of a low socio/economic, educationally deprived community. Furthermore, the native languages of these types of communities are primary indicators of a lower status. Compounding these problems are the added obstacles of historical and social opinions of creole languages. Creoles are often not recognized as full languages but rather "broken" or ungrammatical forms of the dominant language of that society. Also, most creoles do not have an orthography, a feature that is necessary for competing in technologically-oriented cultures (Craig, 1980). The creole may also be a new mark of cultural identity, an "anti-language," that establishes some identity, even though its users may believe it is substandard (Washabaugh, 1983). Similarly, the Deaf in Nicaragua face social and linguistic subjugation through the lack of acknowledgment of their language because non-spoken forms of communication have, until recently, been viewed as only gestural means of communication.

Before considering policies that could facilitate language learning it is important to be aware of the environment and resources with which the teachers and students function. The community in which the deaf children and their teachers live is extremely poor. Most of the people (teachers and students) live in one-room shacks with dirt floors having few material possessions. The parents of the children are gone most of the day so that they are often left alone.

There is little or no money or training for the deaf program, in fact, some of the teachers are illiterate. The curriculum mainly entails training in a beauty school, an agricultural school, or a school of carpentry, and lessons in spoken Spanish. No manual Spanish is used, although some of the teachers may be using it outside of the class as they pick up isolated words from the children and from ASL. If any sign language is slowly being accepted by the teachers, it is ASL, a prestige norm for sign language in Central America.

The following are alternatives to be considered for educating creole-speaking communities (equally applicable to Deaf communities).
The alternatives.

Craig (1980) outlines a range of policies used by bilingual educators that pertain to the language situations of creole-speaking communities (and therefore to the situation of Deaf communities). The premise upon which policy makers and educators choose their approach is not based on "explicit and rational processes; rather, communities tend to drift into policy positions under the force of historical and emotional commitments." The attitudes toward deaf individuals and communities (as discussed earlier) in both America and Nicaragua have determined the current educational policies used.

In the following evaluation of policies I use the term "native" to signify the first language acquired by children in the deaf community. The children's first acquisition of a natural language becomes their native language. The effects of such policies probably also hold to some extent for the adolescents who did not acquire a natural language during their critical period. They may not reach native competency but their expressiveness in a language can most likely be improved. Craig outlines the following possible policies for creole education:

1) Monolingualism in school in the dominant language...home (native) language completely ignored.
2)(Transitional) bilingualism, in which the home language of the child is used in school only to the extent necessary to allow the child to adjust to...the school language to permit it to become the medium of education.
3) Monoliterate bilingualism, in which both languages are developed for aural-oral skills, but literacy is aimed at only...(the socially dominant) language.
4) Partial bilingualism, in which the aural-oral fluency and literacy are developed in the home language only in relation to certain types of subject matter...fluency and literacy in the school language are developed for a wider range of purposes.
5) Full bilingualism;...child develops all skills in both languages in all domains.
6) Monolingualism in the home language;...the aim of the school is to develop literacy only in the home language of the child.

It is advantageous to evaluate several types of policies since no particular policy will address all of the various needs of the individual and the communities.

Craig traces the characteristics and evaluates the various models: Monolingualism in the school language can, and in most situations does, inhibit cognitive growth. The policy places social and intellectual constraints on the child's native language in school and uses rote, detached techniques to teach the second language and its related subject matter. Studies by Krashen (1982) suggest that teaching a second language through emphasizing only grammatical form does not enable the speaker to master the language. There must also be emphasis on the truth value of the message in order to become fluent in a language. Studies done on first language acquisition show that mothers more often correct the truth value
of their children's speech than the grammatical form it takes (Krashen, 1982).

**Monolingualism** does seem to work in a situation which Craig cites from a study by Lambert and Tucker (1972) where the children are provided with an incentive to master the second language. Engaging the children's interests in their work and their environment will better enable them to master another language. Still, other factors may affect this development. If the creole language is totally rejected in the society, then the creole speakers will never develop very advanced competency in the home language which can inhibit the motivation or ability to acquire a second language (Craig cites Anastasi and Cordova, 1953). Unless the community's culture and language are officially recognized and widespread (as is increasingly the case for ASL speakers) then the child may face the risk of never acquiring native competency in any language. Currently, in Nicaragua, this method is being used because teachers do not acknowledge or understand the sign language or they only know a manual representation of Spanish.

In the second policy, *transitional bilingualism*, the teacher allows dialogue in the creole language within the classroom setting. It is never incorporated into the curriculum but it is used for any "two-way communication" between the students and the teacher. Creole use in classroom interaction "recognizes the linguistic autonomy of the child's home background." If the students and teachers are able to communicate using the creole, this would probably create a non-threatening and also empowering environment for the deaf individual. This environment could facilitate learning a second language as well as becoming more expressive in one's native language. It would require that the teachers in the Nicaraguan community have knowledge of not only the manual representation of Spanish but the actual natural sign language, ISN.

**Monoliterate bilingualism** goes one step further to add oral training in the home language to the curriculum while *partial bilingualism* attempts to incorporate both languages (in oral and written modes) into the curriculum equally but uses the standard language as a medium for more complex material and the creole to describe only "the immediate society and culture." Partial bilingualism has some extra advantage in that it attempts to incorporate some type of orthography for the creole.

There are several problems with the above policies. The limitations imposed by the curriculum and social attitudes about the creole prohibit people from using it for other than colloquial purposes. This approach might discourage the speakers from choosing to use the creole for fear of remaining in a lower
status in society. The creole language remains socially and educationally subordinated by only being used orally or by not being recognized at all.

Full bilingualism has the most advantage linguistically in that the scope of language use in both languages is equal. Bilingualism ensures not only native competency in the home language but also enables some advanced ability in the larger culture's language. Still, any use of the native (or nativizing) language in the classroom would be more effective than isolating or disallowing the deaf children from using sign language at all.

From this overview, it seems that the policies which show the most success in educating deaf children are ones that use the native language and also allow the child to choose the language of learning with minimal social stigmas or prestige attached to the language.

As mentioned earlier, a bilingual policy seems to meet the needs of the child, the Deaf community, and indirectly, the interests of society. The bilingual approach ensures that 1) the native language of the deaf will be treated as an acceptable language in education and society; 2) native competency in at least one natural language will be acquired through diverse learning situations that address the cognitive needs of the child in terms of challenging them to be expressive, think critically, etc. This approach also meets the needs of the larger culture through developing the child's skills and ability to acquire the language of the hearing which, in turn, may enable them to become more productive members of society.

*Where to start? Incorporating an orthography, grammar books, and dictionaries.*

For sign language to remain in manual form does not take away from the richness of the Deaf culture but it is an obstacle to achieving educational equality (Craig, 1980), at least in the Western, technological tradition of education. It also indirectly undermines the status in education that other orthographically-based languages hold. Sutton Sign Notation (Sutton, 1978) is useful to the extent that it is a widely developed system and can at least be used to accurately map the syntax of sign language in order to facilitate learning and teaching it. At present, new and more easily adaptable forms are being created for use amongst the American Deaf. The orthography accurately describes the use of facial expression, body orientation, and movement in addition to the shape, location, and orientation of the hands.

The notation is currently being adapted for use with ISN and being used for the creation of a hand
held dictionary for the Deaf in Nicaragua (Kegl and Iwata, 1989; Kegl, forthcoming). The systematic breakdown of ISN is useful in that it more clearly reveals its complex, nativized structure. If teachers did not learn ISN but at least had access to learning the most commonly used constructions, this would lead to a more interactive relationship between the teacher and the student. Furthermore, having access to a dictionary (and later, a documented grammar) will empower the signers and encourage their development in the language. More systematic knowledge of one's native language may lead to increased expressiveness and may also further enable second language acquisition.

Taking the steps to increase teacher involvement with the student, model the language of the Deaf, and create a non-threatening, non-stigmatized environment will empower the deaf individuals. Recognizing the language of the Deaf as a valid mode of expression and helping them to gain mastery over it will not only strengthen other cognitive abilities but also enable them to become functional in the society and language in which they are encased.

APPENDIX A

MR. KOUMAL FLIES LIKE A BIRD:

1) Mr. Koumal, climbs a mountain using an axe, smells some flowers, breathes the air on the way up, and then reaches the top.

2) He sees a bird flying around in arcing paths to one side and then becomes inspired.

3) He excitedly starts flapping his arms in an attempt to fly but falls to the bottom of the mountain while the bird watches from the top of the mountain laughing.

4) Some feathers fall off the bird as it laughs, Mr. Koumal collects them and puts them on the bottom of his arm. He tries to fly again only to fall back to the bottom.

5) This time, the bird laughs so hard that all of its feathers fall off. Mr. Koumal places them over his entire body, tries to fly and falls again.

6) Mr. Koumal runs to a yard of chickens that night, de-feathers the chickens leaving them bald, and walks off with a sack full of feathers.

7) He then tries to fly, having built huge wings. He hovers in the air and then falls in large arcs into the side of the mountain. The mountain crumbles and the debris piles on top of him.
8) He struggles to climb out, he pulls out an arm first, then a leg and then a large wing that is still intact. He gets an idea.

9) Later, he is standing at a cash register, surrounded by headdresses made out of the left over feathers. He is wearing one as are the line of children from whom he is collecting coins and placing them in the cash register.

APPENDIX B

MR. KOUMAL BATTLES HIS CONSCIENCE

1) Mr. Koumal stands in front of a building labeled "restaurant" and searches his pocket for money. He pokes his hand through a hole in the pocket and pulls out only one coin. A beggar sitting next to him reaches out for the coin and Mr. Koumal gives it to him.

2) A rich, old woman comes up to other side of the beggar and hands him a coin but, in doing so, lets drop a wad of paper money on the ground and walks away.

3) Mr. Koumal sees it and fights to walk away from it struggling not to pick it up and take it for himself. He grabs at the air to get away.

4) The demon in him pops out and embraces Mr. Koumal. They merge to become only the demon. He then grabs the money and begins dreaming: of increasing numerical figures, of the world, of women, and of riches.

5) Then the angelic side splits away from the demon, embracing him and pulling him away from the money. As they combine into one being, Mr. Koumal's body takes the shape of a heart. He dreams of grabbing the money, returning it to the old lady, and then running to the gate of heaven where he embraces a saint who kisses him on both cheeks.

6) Mr. Koumal then splits in half, peeling apart to become two separate beings that fist fight over the money. As they fight, the beggar sees them and then sees the money and takes it before they can stop him.

7) Mr. Koumal reunites into one being, looks sad because he's broke, and then reaches out his hand as if to beg. A car drives by with the former beggar sitting in it, dressed well. The man throws Mr. Koumal a coin and he catches it.
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