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EMERGING SIGN LANGUAGES OF THE AMERICAS
Edited by Olivier Le Guen, Josefina Safar, and Marie Coppola

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Marie Coppola

Sociolinguistic sketch: Nicaraguan Sign Language and homesign systems in Nicaragua

Nicaraguan Sign Language (NSL) emerged from the newly formed Deaf community in the late 1970s. The Deaf community formed as a result of the expansion of two centers for special education and vocational training in the capital city of Managua (Polich, 2005; Senghas, Senghas and Pyers, 2005). The national deaf association, ANSNIC (Asociación Nacional de Sordos de Nicaragua) was formally organized in Managua in 1986 and, with the support of the Royal Swedish Association of the Deaf, purchased a house (Polich, 2005). In Nicaragua, the language is referred to as “Lenguaje de Señas Nicaragüense”; forms of the language have also been referred to in the literature as “Lengua de Señas Nicaragüense” and “Idioma de Señas Nicaragüense” (Kegl and Iwata 1994, Kegl, Senghas and Coppola, 1994).

This sketch will also provide information about the nature and context of individual homesign systems used by deaf children and adults in Nicaragua. Homesigners are deaf individuals who have not acquired a spoken language (due to their deafness), nor had sufficient contact with a Deaf community in order to acquire an existing sign language. They nevertheless develop gesture systems, called “homesign” or “señas caseras”, that they use as their primary means of communication (Coppola, 2002).

Demographics and deafness

Nicaragua has a population of 6 million, and a total area of 130,000 km² (about the same size as Greece). The overwhelming majority of the population resides in the western half of the country, with much of the urban growth centered in the capital city of Managua (World Factbook, 2019). Reliable figures regarding the number of deaf people in Nicaragua are difficult to come by; estimates of the occurrence of significant hearing loss (greater than 30 dB) among children enrolled in public, non-special education schools are between 18 and 20% in some areas (Saunders et al., 2007). The authors note that the etiologies of deafness in Nicaragua differ from those in wealthy, industrialized nations; these include poor perinatal health care, infectious causes, gentamicin (antibiotic) exposure, and hereditary hearing loss. Local explanations commonly given for an individual’s deafness include

prenatal accidents (e.g., falls, scorpion bites), accidents related to the major earthquake that occurred in Managua in 1972, and child or maternal illness.

According to a census conducted in 2009 in which 179,138 households were visited, people with hearing loss constituted 10.1% of the disabled population in Nicaragua (12,783 people) (JICA, 2014). This figure likely includes many non-signing deaf people. The census also reports that 41% of people with disabilities have no formal schooling (JICA, 2014) and 49% are unemployed (JICA, 2014). However, figures on education and employment are unavailable for deaf people as a subgroup.

It is quite rare for deaf adults to have deaf children; thus, a very small number of deaf children in Nicaragua experience regular contact with a deaf signing relative (parent, sibling, or extended family member). Most deaf individuals begin learning NSL when they enter school. The Nicaraguan Ministry of Education lists 25 cities with centers for (general) special education, and there are a handful of private schools serving deaf children (see later section for more details and a map). However, the deaf individuals who are among the 41% of the population living in rural areas (World Factbook, 2019) do not have access to special education. Indeed, even deaf individuals living in urban areas often do not attend school or have access to a signing community.

As mentioned in the introduction, the deaf community began to form in the late 1970s in the context of two educational vocational programs aimed at deaf children and young adults (Polich, 2005; Senghas, Senghas and Pyers, 2005). There was no previously existing deaf community or sign language in Nicaragua; thus, the first group of deaf people to form this community did not learn a sign language from older signers. Rather, the deaf individuals who participated in these programs brought with them the gestures they used to communicate with their families, also known as homesigns. The homesigns themselves were idiosyncratic and likely varied considerably across individuals in terms of their structure and complexity. However, within a relatively short time, the deaf signers converged on a rudimentary sign language, which served as the language input for deaf children who subsequently entered these programs.

Thus, researchers characterize the transmission of the language in terms of “cohorts,” or waves, of children and adults who enter the community via an established program or through contact with the Deaf association. Signers who entered the signing community before 1983 are considered Cohort 1; those who entered between 1984 and 1993 are Cohort 2, those who entered 1994–2003 are Cohort 3, and so on. These designations are purely for purposes of analysis, and do not correspond to signers’ identities or actual patterns of interactions in the community (i.e., signers interact freely across these groups, especially after they have completed school). Deaf adults often marry each other, and usually have

hearing children, who are bimodal bilinguals (users of both NSL and spoken Spanish); such individuals are also known as codas (children of deaf adults). Gagne (2017) reports on codas' acquisition and use of NSL.



Figure 1: The locations of schools for special education in Nicaragua; cities with public schools are labeled in **bold** and private programs serving deaf children are labeled in *italics*.

Language use

The sign language began to coalesce around 1978, making it approximately 40 years old. As noted earlier, the original centers of language transmission were the center for special education in Managua, the vocational school (now closed), and the Deaf association in Managua, as well as the other affiliated Deaf associations that began to spread out from Managua. Managua, the capital and largest city, has the largest Deaf community. Other deaf population centers include Estelí,

León, Matagalpa, Masaya, San Marcos, Jinotega, Granada, Chinandega, Somoto, Ocotal, and Bluefields. NSL has since spread to other cities, generally through the establishment of classrooms for deaf children, as well as the movement of deaf adults from Managua to outlying areas. NSL signers in the earliest stages of the language's emergence had very little contact with signers of other sign languages. The international support from Sweden resulted in limited contact with Swedish Sign Language; much later in the development of the language (after around 2010), the internet and social media facilitated contact with American Sign Language videos. Nicaraguans, both deaf and hearing, tend not to travel much outside of the country, thus limiting in-person contact with users of other sign languages.

The dominant spoken language in Nicaragua is Spanish; however, many indigenous languages are also spoken (including Miskitu and Sumu), and the majority of these speakers live on the Atlantic Coast (Eberhard et al., 2019). Many deaf individuals know some Spanish; this knowledge, as well as the general increase in literacy¹ in NSL, has been facilitated by the increase in deaf teachers and teacher assistants in elementary classrooms (Gagne and Coppola, 2020). Hearing Nicaraguans are generally quite open to using their hands to communicate with deaf people regardless of their knowledge of NSL or their previous experience communicating with deaf signers and homesigners. Indeed, Coppola's chapter (this volume) characterizes some of the conventional gesture resources available to hearing non-signers.

Culture

Nicaragua is one of the poorest countries in the western hemisphere (The World Factbook, 2019). Underemployment is high; among those employed in the formal economy, 31% work in agriculture, 18% in industry, and about 50% in service occupations. The country is predominantly Christian (50% Catholic, 33% Evangelical), and 59% of the population lives in urban settings (The World Factbook, CIA, 2019). Multiple generations of families tend to live together, or close to each other, and family relationships are highly valued and relied upon. Deaf people, like their hearing counterparts, often struggle to find adequate employment, even when they have completed their primary (required) or

¹ The notion of literacy in a sign language that does not have a written form encompasses conceptual knowledge about language, as well as metalinguistic skills, including the ability to use the language effectively in different contexts and registers (Cummins, 2006).

secondary education. The relatively recent emergence of the Deaf community and sign language, as well as access to education, mean that skilled jobs are only available to deaf people under the age of about 45; indeed, the vast majority of deaf people are unemployed, or work informally (e.g., selling food or goods on the street, or as domestic workers). As noted in the next section, however, opportunities for higher education and better job prospects for deaf people have been increasing in recent years.

Education

NSL is recognized by the government as the natural language of deaf children, and is being increasingly used in deaf classrooms. However, there is simultaneously an increase in the application of the policy of “inclusive education”, whose intended goal is to educate deaf children alongside their hearing peers, with appropriate supports (e.g., interpreters, signing teachers, specialized teaching assistants). Unfortunately, a lack of awareness of best practices in educating deaf children, as well as a lack of financial resources and pedagogical expertise, often compromise effective implementation of this policy in Nicaragua (Donovan, 2015) and elsewhere (e.g., Goico, 2019). In many inclusive education scenarios, deaf children may be physically present in the classroom, but their lack of access to the communication of their teachers and classmates severely restricts their learning.

Outside of Managua, the availability and size of deaf classrooms in public elementary schools varies, as does the availability of Deaf signing teachers (Figure 1). There are 25 public schools of Special Education located in the municipalities of Managua, San Marcos, Jinotepe, Diriamba, Nuevo Amanecer Community (Diriamba), Masaya, Granada, Rivas, León, La Paz Centro, Chinandega, Chichigalpa, El Viejo, Corinto, Boaco, Juigalpa, Matagalpa, Jinotega, Estelí, La Trinidad, Condega, Ocotal, Somoto, Bluefields and Bilwi. As is the case in many schools serving typically hearing children, the school day lasts approximately 3.5 hours. In recent years, Deaf signing teachers have increasingly been offered paid teaching positions; however, many teachers are hearing and have only rudimentary signing skills. Javier López Gómez, the president of the National Association of the Deaf, notes that some of these programs only offer education through third grade (La Prensa, 2010).

There are also currently at least five private schools/programs that serve deaf children in Nicaragua: the Escuela Cristiana de Sordos Isaías 29:18 (the Christian Deaf School) in Managua, El Albergue in Jinotega, run by Mayflower Medical Outreach (mayflowermedical.org), the Hogar Escuela in Ciudad Darío, operated

by Catholic nuns (Hermanas de la Caridad de Santa Ana), the Ann Coyne School for the Deaf in León, and Los Pipitos in San Juan del Sur, funded by the Nicaragua Children's Foundation. A deaf education program in Ometepe is run by a sister-city project partnership with a US city (Bainbridge, WA), and there are likely other small programs. There is no centralization of information about educational or vocational programs for deaf people.

Until relatively recently, deaf education was limited to elementary school (i.e., 6th grade level). Many students would repeat grades until they were about 16 and then they would “graduate” from elementary school. Two high school programs now operate in Managua (one called Bello Horizonte). Estelí has had a secondary school program for the last few years, serving approximately 4 students per year. Another secondary program in Ciudad Darío has served approximately 25 students a year since 2012; these students come from many communities across the northern region of Nicaragua. It is common for deaf and hearing students to complete high school by attending classes all day on Saturdays for several years. The number of deaf people studying at the university level, or having completed a post-secondary degree, is now around 25. The number of deaf people pursuing post-secondary education has increased dramatically recently (mostly in Managua and Estelí); however, these students represent a very small proportion of the deaf population. (For comparison, the rate of university attendance among the hearing population is approximately 3% of the total population (Olivares, 2011).) Above the elementary school level, all classes are taught by hearing teachers in spoken Spanish, with interpretation into NSL. Access to interpreting services at the university level is difficult to achieve, and some groups of deaf students decide to pursue the same degree programs in order to minimize interpreting costs, which in many cases are paid by the students and their families. In 2010, ANSNIC had registered 20 trained interpreters nationwide (La Prensa, 2010).

The percentage of deaf people who enter programs for special education appears to be the highest in the capital city of Managua, where the school for the deaf is relatively well known. Managua's overall population is approximately 970,000, with a school-age population (ages 5–14 years) of 190,718 (World Factbook, 2019). The World Health Organization estimates that 1.6% of children between the ages of 0 and 15 years in Latin America and the Caribbean have disabling hearing loss (WHO, 2018). This rate would translate to 3,051 deaf students of school age living just in Managua. Given that an absolute maximum of 300 deaf students attend educational programs in Managua, these estimates suggest a rate of school attendance for deaf children in an urban environment of approximately 3%. Looking at the numbers on a national level, an estimated total of 1,040 deaf children attend school in Managua and across the country. Based on a total of 1,179,703 children between the ages of 5 and 14 years across Nicaragua,

the estimated total deaf school-age population would be 18,875. These figures suggest that approximately 5% of deaf children in Nicaragua attend school. These are far smaller percentages than suggested by the census data reported for disabled people more generally (59%, according to Table 10 in JICA, 2014). Note that the lack of access to education is particularly problematic for deaf children, whose access to a sign language often depends on an educational setting in which sign language is used.

Technology and oralism

There is no national screening program aimed at identifying children with hearing loss, nor early intervention services targeting deaf children. Hearing aids, cochlear implants, and speech training are relatively infrequent due to poverty and a general lack of medical, technological, and clinical expertise (Madriz, 2009). A very small number of families have traveled to the US to receive assistive technology. International non-profit organizations often donate hearing aids to deaf individuals, but these are rarely used on a consistent basis: batteries die quickly and are expensive to replace; the high humidity damages delicate electronics; and speech therapy with trained professionals is scarce.

Such resources are available in a small number of locations. For example, Mayflower Medical Outreach (MMO, www.mayflowermedical.org), a US-based non-profit organization, operates modern Ear, Nose, and Throat (ENT) clinics in Jinotega and Estelí (both about 2.5 hours from Managua). This organization also operates the Albergue, a facility that provides lodging, meals, health care, and access to education in both sign and spoken language to about 25 deaf children and young adults (previously described in the Education section). They also support a permanent ENT doctor in Jinotega and an audiology technician in Jinotega and Estelí and provide continuing education for ENT doctors in Managua, Jinotega, Estelí, and surrounding areas. MMO recently began a hearing screening program for all first graders in Jinotega, and also launched an Audiometry Training and Certification Program – both of these programs are the first of their kind in the country.

Linguistic status and language activities

Nicaraguan Sign Language (*Lenguaje de Señas Nicaragüense*) is considered a “Deaf community SL” (see the introduction, this volume) because of its origins in a small number of educational and vocational institutions that served as a focal

point for interactions among deaf individuals in the mid-to-late 1970s. NSL is one of the official languages of Nicaragua. Table 1 summarizes the laws related to the rights and well-being of people with disabilities in Nicaragua (JICA, 2014). The language does not appear to be endangered, given that the number of users continues to increase, and the geographic areas in which it is used continue to expand. However, transmission of the language does depend on the institutional context of education, because of the low incidence of inherited deafness and consequently rare transmission of the language within families.

Table 1: Nicaraguan laws related to people with disabilities (especially deaf people).

Law	Year passed	Summary
Law 202	1995	Rehabilitation of people with disabilities; obligates employment equality and accessibility of media (television). However, both provisions were extremely vague and not enforced.
Law 675, <i>Nicaraguan Sign Language</i>	2009	Nicaraguan Sign Language is the official language of Deaf people in Nicaragua.
Law 763, <i>Rights of disabled people</i>	2011 (updates/ replaces Law 202)	Sign language should be the language of instruction for deaf children.

A number of institutions are concerned with the rights and well-being of the Nicaraguan Deaf community. The National Association of the Deaf, (Asociación Nacional de Sordos de Nicaragua, or ANSNIC), maintains a physical headquarters in Managua and offers NSL classes, academic support, vocational training, and interpreter training. The national disability association (Federación de Asociaciones de Personas con Discapacidad, or FECONORI <http://www.feconori.org/>) also advocates for disability rights more generally. Since 2010, a number of new interpreter associations have appeared in Managua; some are church-based. Manos Unidas (now known as Signs and Smiles (signsandsmiles.org)), a non-profit organization founded by the author, promotes equal access to language and education for deaf people. Current projects include development of a smartphone app, *Señas y Sonrisas* (“Signs and Smiles,” Manos Unidas (2019)), to encourage literacy in NSL and Spanish among deaf individuals in Nicaragua and their families, particularly those who live in rural areas where no special education is available.

Prior research on Nicaraguan Sign Language

Judy Kegl, a linguist then based at the Massachusetts Institute of Technology (MIT), began investigating the language in 1986, made the first videorecordings in 1987, and published the first scientific report of NSL (Kegl and Iwata, 1989). Ann Senghas began to research NSL in 1989, completing her dissertation in 1995. Since then, a number of deaf and hearing researchers from many countries have led and contributed to research on NSL and related topics.

Laura Polich's book *"The Emergence of the Deaf Community in Nicaragua"* (2005) offers a historical perspective on deaf education in Nicaragua, and work by Richard Senghas and colleagues (Senghas, 1997; Senghas and Monaghan 2002) offers an anthropological view of this new deaf community. R. Senghas, A. Senghas, and Pyers (2005) characterize the earliest stages of the emergence of the community and language, and include summaries of detailed empirical work showing that the youngest signers in the community propel the language's most dramatic grammatical innovations, including introducing systematicity in the use of space in verbs (Senghas, 1995; Senghas and Coppola, 2001; Senghas, 2003).

Previous work characterizing the emergence and change in the structure of Nicaraguan Sign Language includes referential shift (Kocab et al., 2015) and the emergence of temporal language (Kocab et al., 2016). Prior work that carefully evaluates the relationship between the gestures produced by the hearing, non-signing individuals who surround the deaf community includes Senghas et al., 2004 (segmentation of manner and path) and Brentari et al., 2012 (use of handshape for grammatical contrasts). Other work has focused on the relationship between language and other cognitive abilities, for example Pyers and Senghas (2009) on mental verbs and theory of mind; Pyers et al. (2010) on spatial language and spatial reorientation; and Martin et al. (2013) on the relationship between language experience and mental rotation.

Prior research with Homesigners in Nicaragua

Examples of the linguistic structure present in Nicaraguan homesign systems include the grammatical relation of subject (Coppola and Newport 2005) and plural marking in child and adult homesigners and their hearing communication partners (Coppola et al., 2013). Coppola and Brentari (2014) offers a rare longitudinal case study of a child homesigner's use of handshape to mark grammatical distinctions. A relatively surprising finding is that even after interacting regularly over decades, homesigners and their hearing family members do not significantly share the gesture system. Carrigan and Coppola

(2017) found that signers of American Sign Language who had had no previous exposure to homesign systems in Nicaragua nevertheless scored higher than the homesigners' everyday communication partners on a task in which they had to match a homesign sentence presented in a video with an event (e.g., "a man pushes a chair").

A number of articles have both characterized aspects of the linguistic structure of adult homesign systems and further compared homesigners with successive cohorts of NSL signers in order to understand the impact of having a linguistic community on one's language development. These phenomena include: the conventionalization of lexical items (Coppola, this volume); the development of points into locatives and nominals (Coppola and Senghas, 2010); using handshape to express morphophonological and morphosyntactic contrasts (Brentari et al., 2012); contrasting arguments and predicates (Goldin-Meadow et al 2015); marking agentivity and number (Horton et al., 2015); and the noun-verb contrast (Abner et al., 2019).

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