



## First steps in the documentation of Ecuadorian Sign Language (LSEC)

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**Abstract.** Ecuador is home to 65,000-200,000 deaf and hard of hearing (DHH) adults; most rely on Ecuadorian Sign Language (LSEC) for communication with family, friends, schooling, etc. LSEC can be traced to three institutions in Quito and a sports team founded by DHH people, but also to some history of ASL through missionary efforts and other socio-economic/-political contact. To date, only very limited literature exists on LSEC, especially in collaboration with the DHH community. Thus, this project is the first direct description of LSEC by a collaborative deaf+hearing research team and serves as the first step in training community researchers in documenting and reclaiming their language/linguistic variety. We report on early results from four different studies focusing on description of LSEC as well as the methodologies for creation of LSEC corpora, all with the aim of capturing varying language contexts for evidence-based instruction for language learners and for interpreter training. The preliminary results indicate a) use of space (e.g. ‘agreeing’ predicates) reported in other literature on sign languages, b) different verb-types, c) SVO word-order, d) some (contact-induced) similarities with ASL, e) robust argument omission, f) role-shift, g) doubling, and other phenomena. The implications of this first step are direct: even with this limited dataset, the team can begin to inform creators of instructional materials.

**Keywords.** language documentation; Deaf; Sign Language; corpus; Ecuador

**1. Introduction.** Ecuador is a small country of about 17-18 million people (UMFPA, INEC), located in South America roughly between Colombia and Peru. Previous work on geolinguistics of Ecuador has demonstrated that the country is home to 14 Indigenous languages spread across 24+ communities (Fig 1, Haboud 2017).

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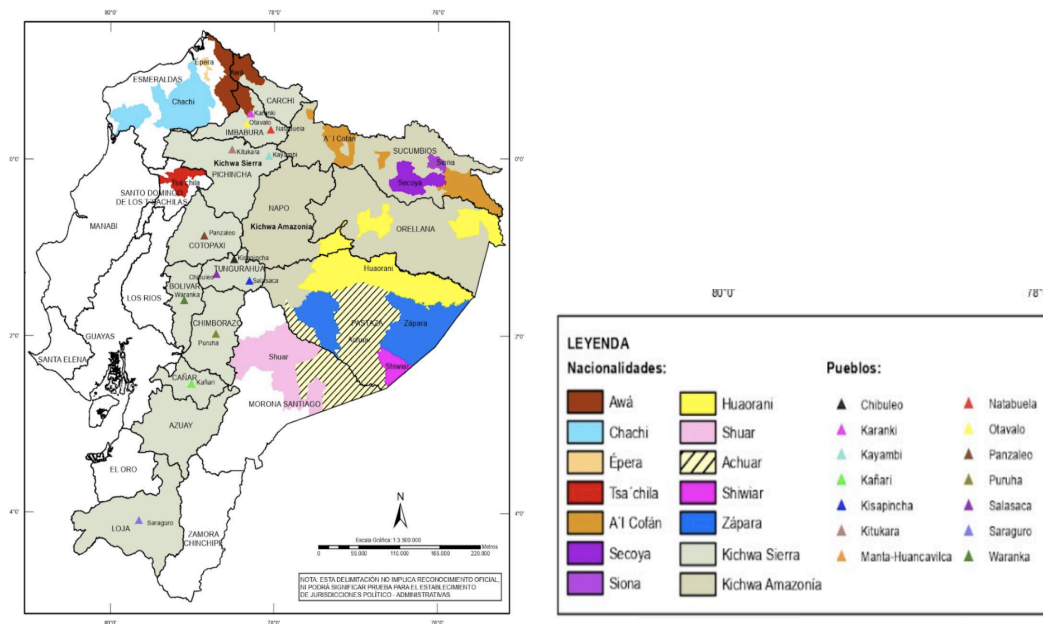


Figure 1. Map of Indigenous nations and communities of Ecuador (Haboud 2017)

However, noticeably, this expansive work does not include signing communities – i.e. a) sign languages do not appear on the geolinguistic map of Ecuador and b) in fact, to date, no work has recorded the geolinguistics of the Deaf/Signing community/-ies.

According to the National Institute of Census and Statistics (INEC) and Consejo Nacional para la Igualdad de Discapacidades (CONADIS), over 200,000 Ecuadorian are Deaf and Hard of Hearing (DHH), many of whom use Ecuadorian Sign Language (LSEC) for communication and daily operations (see also Izquierdo-Conodoy et al. 2023, FENASEC, CONADIS 2024. [www.sil.org](http://www.sil.org); though see Inge et al. 2021 on the complex issue of “counting”). Ethnologue labels LSEC an Indigenous “stable” language of Ecuador. It is ‘stable,’ with emerging digital resources (<https://www.ethnologue.com>). The language is legislatively supported. For instance, Article 47 of the Constitution of Ecuador (1998/2008) ensures linguistic access for Deaf people of Ecuador (1a); recent legislative updates reference LSEC directly (1b).

- (1) a. Access to alternative communication mechanisms, media and forms, among which are sign language for deaf persons, oralism and the Braille system”  
(Article 47, Constitution of Ecuador 2008)
- b. Ecuadorian Sign Language is recognized as the native language and means of communication for deaf people or people with hearing disabilities.”  
(Article 80, Asamblea Nacional del Ecuador 2025)

Technically, the Constitution in (1a) does not specify LSEC; instead, it makes reference to *a sign language* as a communicative modality.<sup>2</sup> However, this approach has shifted in 2025 (1b), requiring changes in the implementation of the previous policies. That said, the National Bilingual Bicultural Educational Model for People with Hearing Disabilities (Ministerio de Educación 2019) discusses LSEC directly as well (2), and research has emerged in various domains articulating the concept discussed in other parts of the world: that knowledge of a sign

<sup>2</sup> Such a statement carries potential consequences, such as *any other sign language* (e.g. ASL, Colombian Sign Language, etc) as well as Signed Spanish.

language, and reliance on it during acquisition of the (dominant) Spanish, leads to improved outcomes for DHH Ecuadorian students (see Fletcher et al. 2024 and references therein).

- (2) "Ecuadorian Sign Language is the main element within the National Bilingual Bicultural Educational Model for People with Hearing Disabilities" (<https://educacion.gob.ec>: 44)

As part of the aforementioned efforts, LSEC is currently taught at four higher education institutions in Ecuador: Pontific Catholic University-Ecuador (PUCE, Quito), the Salesiana Polytechnic Universidad (UPS), Higher Institute of Technologies Cre-Serand University of Azuay (UDA) as well as at the Institute of the Decentralized Autonomous Government (GAD) of Pichincha. Language instruction is also delivered by some Deaf- and interpreter- lead organizations: FENASEC, Deaf Feminists of Ecuador, MILSEC, Guayaquil Community Association of the Deaf, a.o. In addition, LSEC is also taught at several Jehovah's Witness and evangelical churches around the country. Ecuador has also been training qualified interpreters. Currently, approximately 200 credentialed interpreters work in the country, with two training institutions: Pontific Catholic University-Ecuador and Instituto Tecnológico Cre-ser also in Quito. In other words, LSEC is being taught to both Deaf and hearing people in Ecuador. The question of course is what the relevant curricula are based on.

The most recent (and updated) discussion of the history of the DHH community in Ecuador is found in Bossano & Toscano (2021) – in a work that utilizes a collaborative ethnographic approach and historical re-imagining. There, the authors rely on the memories of the founders of the signing community in Ecuador – Guillermo Zurita, the founder of Ecuador's Silent Sports club and Alfredo Toro, the founder and first president of the first deaf association in Ecuador. That work notes that educational institutions in Quito (like the Instituto Enriqueta Santillán, founded in 1940, the Instituto Mariana de Jesús founded in 1952, as well as the deaf section of Colegio Eugenio Espejo, founded in 1962) brought DHH people from various provinces together; in other words, the emergence of sign language in Quito was influenced by deaf students from provinces *across* Ecuador, each contributing their own gestures and systems. These schools strongly discouraged or prohibited use of signing, favoring instead lip-reading and spoken instruction. These spaces did not depend on deaf agency; they were governed by educational systems seeking to integrate deaf students into the hearing society using oralism rather than a(ny) sign language. As a result, any social bonds formed there were temporary and unstable. Nevertheless, many deaf students resorted to secret sign communication. Further, a radical change took place with the creation of Ecuador's Silent Sports club (1966) by Guillermo Zurita, a former student from one of the aforementioned institutions, as the club became an open space for Deaf people to communicate in a viso-gestual modality. Though official forming and organizing of Deaf-initiated and -centered cultural spaces did not take place until the 1990s, this first common space by and for Deaf people allowed LSEC to emerge, develop, and transform (see e.g. Burch 2004 on ASL). With the foundation of the first deaf association "Fray Ponce de León," current Deaf People Association of Pichincha Province (APSOP) opened the first formal courses of LSEC as the first sign language interpreters. During the early 1980s, this association received North American visitors who through missionary work may have constituted an important contact with ASL (Bossano 2019).

The history of documentation and description of LSEC has also not been based on deaf agency either (see Henner 20204 and Hou & Ali 2024, a.o., for the discussion of this problem).. E.g., most descriptive work had not been done either *by* or even *with* the DHH community (see

Quiroz Moreira 2015, Banet 2016, and Velásquez Manrique 2018 on description of the LSEC utilizing interpreter- or instructor-only judgements). In fact, no information on the use of signing by the DHH exists in the literature, save a handful of sources: the Gabriel Roman dictionary (2012), a SIL lexicon project (Eberle et al. 2012), three works on Spanish as L2 instruction of the Ecuadorian DHH college students (Banet et al. 2020, Banet & Matis 2024), the previously mentioned ethnographic study of narratives (Bossano 2019; Bossano & Toscano 2021), and a 2025 BA thesis examining a small corpus (Pallo 2025, based on Koulidobrova et al. 2024). At the same time, the language is being taught and discussed by the DHH and beyond it in a number of platforms – implicitly on Facebook (Fig. 2a) and explicitly by community organizations such as Deaf Feminists of Ecuador (Fig. 2b).

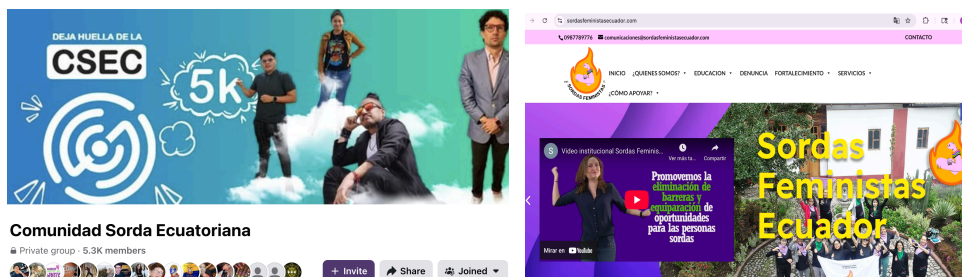


Figure 2. Community platforms for discussion and instruction of LSEC.

Fig 2a captures the main Facebook page of the Ecuadorian Deaf Community (CSEC); Fig 2b captures a screenshot of the webpage of the organization Deaf Feminists of Ecuador.

Importantly, given the lack of linguistic description of the language as used by the members of the DHH community, typical curricular decisions fall into two classes: (i) vocabulary (as based on the FENASEC-authorized dictionary, Fig. 3), and (ii) instructor intuitions about everything else, including morpho-syntax, semantics, phonology, pragmatics.

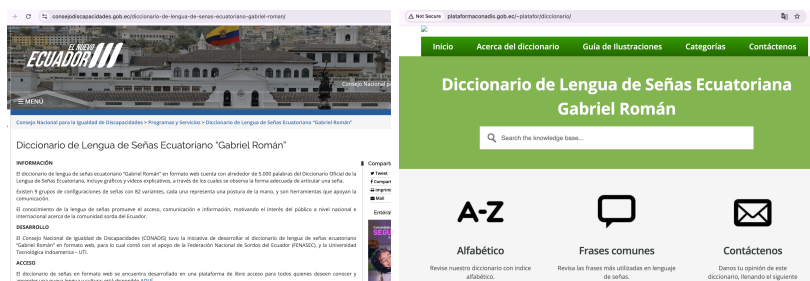


Figure 3. The official dictionary of LSEC

Yet, literature has demonstrated robustly that reliance on intuition for language instruction is problematic both for the teacher and for the learner (Wright & Bolitho 1993, Andrews 2007). Additionally, curricular intuitions (without testing) cannot be easily measured or compared; thus, any information *about* LSEC delivered for learners (including DHH children in Deaf Schools) remains unsystematic, leading to additional problems in assessment. In other words, despite the active DHH community, and a dire need for trained interpreters, only selective information about the language is actually available for language professionals. Coupled with the lack of focus on the use of language in rural and Indigenous communities as well as language variation (Adams et al. 2024), a clear need for language reclamation arises – i.e. for the Ecuadorian DHH community

more generally, and the DHH teachers in particular, to reclaim the description of LSEC; these efforts promise empowerment of the community members over the instruction (at various levels) over their own language to the deaf (e.g. DHH children) as well as hearing (e.g. interpreters-in-training) individuals. To that end, in this short paper we describe the first steps in the participatory documentation of LSEC (Israel 2019, a.o.) insofar as the research agenda is both driven and executed by the community members (Leonard 2017, Johns 2024), with the collaborative integration of community-external specialists and new signers, whose goals align with those of community members (DeMeulder 2019, Snoddon & DeMeulder 2020, a.o.; Farfan & Olko 2021). Further, we demonstrate that the variety of methodologies presented here, despite individual limitations, complement one another towards a larger understanding of the processes taking place in the language (Kimmelman et al. 2018, a.o.).

**2. Research Team for reclamation.** To address the issues articulated in section 1, the research team has formed a *Knowledge Circle* (Tachine et al. 2016, a.o.), consisting of a group of researchers from different institutions and with different profiles, each contributing to the main goals of the project. The team is spearheaded by (i) a Deaf researcher and LSEC instructor, and further consists of (ii) a hearing anthropologist (a trained interpreter between LSEC, English, and Spanish), (iii) an interpreter trainer and Applied Linguist focusing on L2 instruction, (iv) an Indigenous hearing linguist in training, specializing in language reclamation, (v) a hearing Sign Language linguist with focus on theoretical approaches as well as language reclamation, and (vi) a Deaf specialist in interpreting and instruction of ASL. These six individuals (the *Core Team*) support, and are supported by, several students in the Interpreting, Anthropology, and Linguistics programs (Deaf and hearing). All research is being conducted in alignment with the Participatory Research Model (see Israel 2019 and references therein): the research questions are initiated- , the data collected, processed, and returned to the community by the DHH community members that happen to be on the Research Team. The team has engaged in several types of training (Table 1) and initiated a number of documentation/description/reclamation projects (Table 2).

	Reclamation Tools	Methodologies
1	Video recording and editing	Data elicitation
2	Language annotation: ELAN	(non-)digital data processing
3	Community collaboration/networking	Non-reliance on the dominant language(s): storyboards, etc.
4	Ethics of research (consent, IRB...)	Interview strategies

Table 1. Community researcher training

	Corpus building	Experimental
1	Existing videos in public domain	Narratives
2	An instructional library	Tagging for NLP
3	Language development	Storyboards: Syntax & Semantics
4	Other	Language attitudes

Table 2. Current reclamation projects in LSEC

In the sections below, we discuss a subset of these projects directly.

**3. Existing videos in public domain: COVID-19 mini-corpus.** This study reports on the creation of the first minable dataset – a mini corpus containing videos from the public domain.

3.1 PROCEDURE. The research team identified multiple videos (N=65) published by the FENASEC and PUCE on Facebook during the 2019-2020. The team engaged in several steps, occurring in parallel:

- Data selection

The existing data were categorized by the following criteria: (i) length (range: 2-5 min), (ii) LSEC fluency (range: 0 - 3, roughly corresponding to *none - advanced*, respectively), (iii) profile of the signer (range: hearing - deaf), (iv) gender (range: M - F), (v) topic (range: COVID-19, home, other), and (vi) approximate (impressionistic) vocabulary list. In order to control for relative uniformity, the dataset was filtered: (i) 2-4 mins, (ii) *advanced* (impressionistically), (iii) deaf, (iv) M, (v) COVID-19, and (vi) “mythbusters” and advice (“consejos”) from the World Health Organization (WHO) and World Federation of the Deaf (WFD). This selection was done by the Deaf member of the research team (LSEC instructor and an active member of the Deaf community in Ecuador) in consultation with the other core members of the team. The procedure resulted in a narrowed video set (N=10).

- ELAN training and data processing

The research team (both *core* and *support*) was trained in basic ELAN procedures (Hochgesang 2025). The filtered video set was uploaded into ELAN (Crassborn & Sloyetjes 2008), segmented (by the sign linguist), annotated in LSEC with Spanish translations (by the deaf LSEC instructor and multilingual interpreter), and coded (by the sign linguist in discussion with the core team) for several phenomena (Fig 4). Coding was based on Quer et al. (2021) and other typological works in sign linguistics.<sup>3</sup>

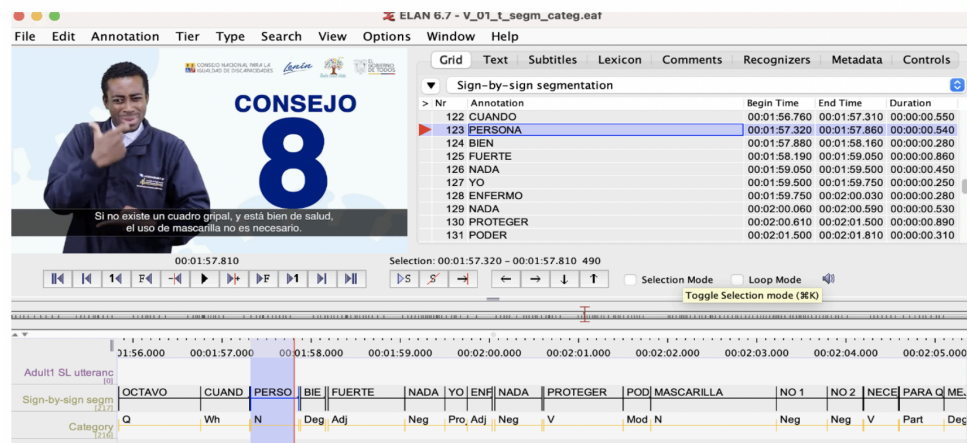


Figure 4. A screenshot of a sample video-file, segmented and coded for category.

“When the person is very strong and does not get sick, there is no need for protection [...]”

<sup>3</sup> We are aware that this issue is not trivial (Kimmelman et al. . At each juncture, the relevant items were subjected to basic syntactic tests; when the test failed to produce a reliable result, the lexical item in the dataset was coded as “other”

Finally, each sign was coded for comparison with ASL: whether the sign appeared identical between the two languages, differing in one or more features (as in handshape (HS), orientation (ORI), movement (MOV), handedness (HAND), and multiple (MULTI)) or completely unrelated – with no visible connection between the two languages.

3.2 RESULTS. Even though the findings are preliminary, the dataset revealed several phenomena (as in Quer et al. 2021):

- Variation in form of some lexical elements, e.g. pronominals signaling 1SG and 2SG (3)-(4)
- SV(O) word order (5)-(6)
- Compounds with both head-modifier (CENTER HEALTH (6), ASSOCIATION WORLD (7)) and modifier-head (OFFICE JOB (8))
- Adjectival modification: 95% of adjectives and other modifiers are postnominal (TIME EXACT (5), BUS DIFFERENT+ (8)) though not with heavy NPs or compounds (DIFFERENT ASSOCIATION WORLD (7)); possessives are prenominal (POSS3 RESPONSIBILITY (8))
- Reduplication/pluractionals (+), possible for various grammatical categories – verbs (ADVISE+ (5)), adjectives (DIFFERENT+ (6))
- Argument omission (OLDER-ADULT or IX 'they' (9))
- Doubling across lexical items (NOTHING (10a), SICK (10b)).

(3) 2SG ‘you’



(4) 1SG ‘I’

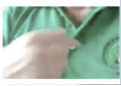
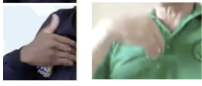


Handshape	IX1	B-bent	baby-O
1-handed			
2-handed			

Table 3. Observed forms for 1sg

(5) IXa-circ NEED INTERPRET SIGN TIME EXACT  
‘They need to interpret signs at the exact time’



‘You go to the health center’

- (7) WFD-a WASLI-b ADVISE+ DIFFERENT ASSOCIATION WORLD [...] ‘WFD and WASLI have been advising different world associations over and over [...]’
- (8) WH POSS-3 HOUSE OR OFFICE JOB DIFFERENT+ BUS DIFFERENT+ POSS-3 RESPONSIBILITY [...] ‘[...] whether in one’s house or in a different office job, or on different busses, it is one’s responsibility [...]’
- (9)



‘As for older adults, (they) are vulnerable and worried. Well/so, (they) should take care to remain inside the house. If (they) go out, (they) might get sick. (They) should quarantine and maintain clean spaces.’

- (10) a. NOTHING IX-1 SICK NOTHING  
 ‘I am not sick at all[emph]’ (V-01; 00.02.004)
- b. IX-circ DIE SICK DIE  
 ‘Really[emph], you<sub>gen</sub> can get sick and die of this’ (V-03; 00.01.32.960)

A number of other phenomena were observed as well, such as constructed action, number incorporation, subject-pronoun copy, i.a.

Further, comparative analysis of the lexical items in this particular dataset (vs., for instance, what is reported in Eberle et al. 2012) yielded the following: within this mini-corpus, 59% of lexical items appear the same as their corresponding signs in ASL. However, many more signs are “similar,” differing from their ASL counterpart in handshape only (HS diff), orientation only (ORI diff), movement only (MOV diff), handedness (HAND only), and multiple parameters (MULTI diff); Fig 5.

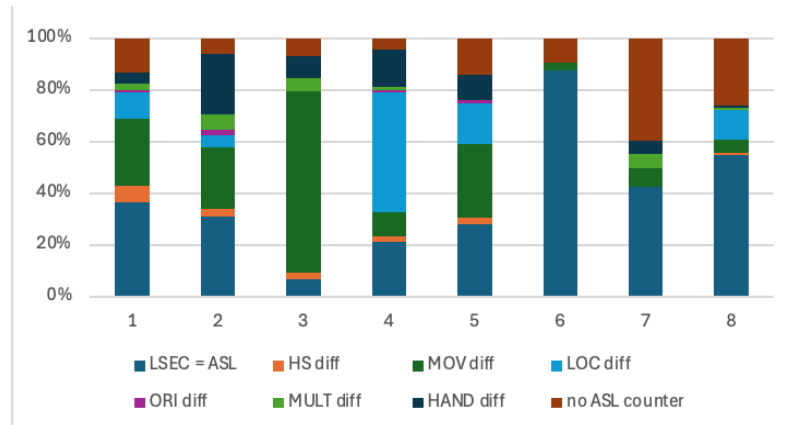


Figure 5. Raw comparison between ASL and LSEC lexical items within the COVID-19 mini-corpus. Each column corresponds to a file (one signer). Item analysis in progress

Analyses continue.

**4. An instructional library and the first-pass tagging for NLP.** In addition to the project in section 3, and in light of the dire need for evidence-based instructional materials as well as for the model-training in computational terms (given the shortage of qualified interpreters), the research team has initiated a collaboration with an NLP team at the Ecuadorian Corporation for the Development of Research and the Academy (CEDIA; Salamea Palacio et al., in press), with two main goals: creation of an (a) “utterance library” (an instructional library representative of LSEC more generally, aligned with the Common European Reference Framework (Leeson et al. 2016, a.o.), and to be accessible by LSEC) and (b) a taggable dataset compatible with a variety of procedures in computational modeling with the aim for autosegmentation of videofiles as well as sign-to-speech/-text recognition. The advantage of such a dataset is that its goal is not to approximate an illusory “native signer” (Zorzi et al. 2022, Namboodiripad et al. 2026) but, rather, focus only on the “can-do” statements (Hou & Namboodiripad 2025, Koulidobrova & Chen Pichler 2021). In that respect, the utterance library contains vocabulary items at various levels of frequency (impressionistically), resulting in a range of clause-type strings compatible with procedures related to auto-capture and model training (Börstel 2014, et seq.).

4.1 PROCEDURE. A dataset was developed based on various criteria: (i) predicate types (plain, agreeing: person and spatial), (ii) vocabulary alignment to the CEFR criteria, (iii) number of events. The final dataset includes 500 one-event utterances produced by 5 deaf signers across different profiles (M, F; Afro-Indigenous-, Indigenous-, and European-dissent; ages 25-40); Deaf-of-Deaf). In preparation, the research team engaged in several steps (often in parallel to one another:

- Predicates and related events corresponding to the A1-A2 levels in CEFR were identified and binned into different types by the sign linguist (*plain, agreeing, spatial*; by Deaf LSEC instructors and students in collaboration with the sign linguist).
- Each participant was furnished with a card demonstrating the target sign as well as a number of potential objects and was asked to create a sentence utilizing the cards (Fig 6).



Figure 6. Samples of cards provided to the participants (signs for verbs on the left and for potential nouns on the right)

- In order to avoid cross-linguistic interaction and interlocutor accommodation effects (see Stamp et al. 2016 and references therein), Deaf members of the research team were trained in data elicitation procedures. Thus, deaf participants interacted only with the deaf experimenters during the study.
- The resulting utterances were segmented, transcribed, and translated by hearing and deaf members of the research team, as well as manipulated by the computational team using Mediapipe (Salamea-Palacios et al. 2025, i.a.), Fig 7.



Figure 7. A screenshot the resulting dataset

4.2 RESULTS. The data are currently being processed and analyses continue. However, several patterns emerge:

- A large number of utterances contains null arguments ( $N = 435$  (.87)). In 2-/3-place predicate constructions, when the subject/agent arguments are omitted, the word-order may be OV (11); when it is present, it is SVO (12).
- (11) OFFICE BOOK+ READ  
‘(She) was reading books in the office’
- (12) IX1 LATER FINISH EAT ORANGE STORE  
‘I will have have eaten have eaten the orange in the store [...]’
- In line with the results of the previous study, we also observe reduplication-like behaviors with nouns (11) and verbs (13), doubling (13), multiple versions of 1SG (14), pre-nominal possessives and post-nominal adjectives (15a-b, respectively), role-shift (16).

(13) a. IX1 THINK WH IX1 NEED BETTER SAVE MONEY SAVE ([CEDIA\\_PV\\_AHORRAR\\_ANG.MP4](#))  
'I am thinking where is the better place for me to save some money'

b. LOOK-FOR+ WHAT BOOK LOOK-FOR+ ([CEDIA\\_PV\\_BUSCAR\\_SOL\\_6.MP4](#))  
'What book are you looking for?'

(14) 1SG 'I'

bent-B



([CEDIA\\_PV\\_EXTRAÑAR\\_ANG.MP4](#))

b. baby-O



([CEDIA\\_PV\\_ESTUDIAR\\_HEN\\_5.MP4](#))

(15) a. POSS1

CASA

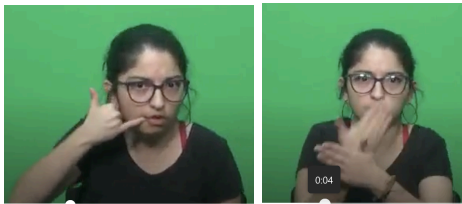


'My house'

([CEDIA\\_AV\\_VENDER\\_HEN.MP4](#))

b. TELEPHONE

NEW



'New telephone'

([CEDIA\\_AV\\_VENDER\\_SOL.MP4](#))

(16) IX2 MAKE CAN WANT HELP

YES

ACCEPT



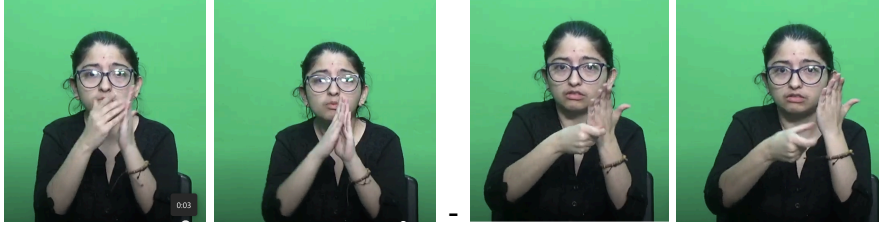
'A: You can do this. Want help? B: Yes, I accept'

([CEDIA\\_AV\\_AYUDAR\\_HEN.MP4](#))

- Over 15% of signs are bi-morphemic (17).

(17) BOOK 'book'

([CEDIA\\_ESTUDIAR\\_SOL2](#))



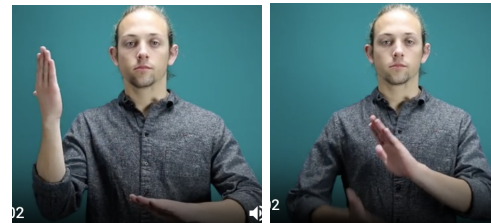
- A number of lexical items appear to look identical to their ASL counterparts (18a), though quite a few differ in at least one ‘parameter’ (18b), and many bear no resemblance to the same sign in ASL (18c). This includes but not limited to ‘iconic’ and depictive lexical items (Power 2022).<sup>4</sup>

(18) a. GO ‘go’  
i. LSEC



([CEDIA\\_AV\\_ACOMPAÑAR\\_ANG\\_2.MP4](#))

ii. ASL



(<http://aslsignbank...y/gloss/286.html>)

b. WITH ‘with/accompany’  
i. LSEC



([CEDIA\\_AV\\_ACOMPAÑAR\\_ANG.MP4](#))

ii. ASL



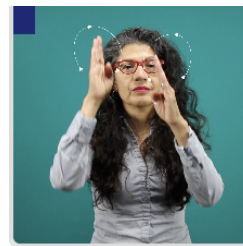
(<http://aslsignbank...y/gloss/323.html>)

c. WORRY ‘worry’  
i. LSEC



([CEDIA\\_AV\\_ACOMPAÑAR\\_ANG.MP4](#))

ii. ASL



(<http://aslsignbank...ry/gloss/850.html>)

Analyses continue.

<sup>4</sup> These data are currently undergoing synchronic and diachronic analysis, since the research team has observed several signs which might be classified as “old ASL.”

**5. Language development, syntax-semantics: Storyboards.** In an attempt to capture language use in a more natural form, as well as test the hypotheses arising from the observations in the studies reported in sections 3-4, the research team has also implemented the “Storyboard elicitation” techniques (Bochnak & Matthewson 2020, a.o.).

5.1 PROCEDURE. Several storyboards are currently being utilized with the goal of analysis in both syntax, semantics, phonology, etc., as well as the changes in linguistic development (<https://totemfieldstoryboards.org/>). Among these are the Animal Party (Littell 2010), Mouse Story (TFS 2010), and the Chameleon Story (TFS 2012b). These boards directly elicit a) the word order, b) modal expressions (epistemic deontic), c) wh- and focus, and d) other phenomena, such as embedding, anaphoric shifts, constructed action, etc.

To date, data have been collected from five participants – all Deaf, born and raised in Deaf families, all early acquirers of LSEC, and all active members of the Ecuadorian DHH community. The elicitation paradigm was introduced to participants in LSEC by a Deaf member of the research team; no hearing non-signing members were present. The description of the current (albeit still expanding) dataset is in Table 4

	Story	Nu of participants	Gender (M/F)	Ling Tags
1	Animal Party	4	2/2	Clefts, intonation, focus, questions
2	Mouse	1	1/0	Possibility, epistemic modals, questions, animals
3	Chameleon	2	1/1	Aspect, mobility, circumstantial modals, colors

Table 4. Existing storyboard-based dataset in LSEC

5.1 RESULTS. The data in Table 4 remain under analysis. However, several observations can be made directly, even from the preliminary (limited) results.

- Different types of predicates are observed: plain (19a), agreeing for person/phi (19b), and spatially (19c)

(19) a. NEED ‘need’

([CEDIA\\_AV\\_NECESITAR\\_ANG.MP4](#))



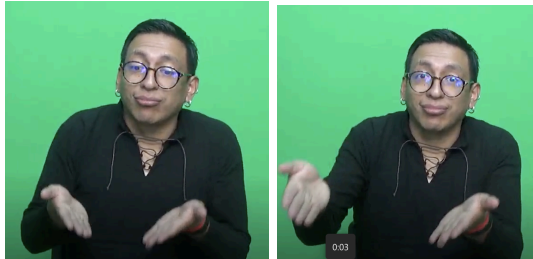
b. HATE ‘hate’

([CEDIA\\_AV\\_ODIAR\\_ANG.MP4](#))



c. GIVE ‘give/receive’

(CEDIA\_AV\_DAR\_FRACH.MP4)



- 99% of utterances are SV (20). Constructed action/role shift is observed robustly; see the shift in space between the squirrel (right) and the crab (left) in (21)).
- Interrogative markers (PU and WHAT) occur either both clause-intially and finally (viz. doubled) (20) or only finally (21).

(20)

IX-PU	CRAB	IX-PU	SNAKE
 00:00:31.090 body   body-shift   PU   CRAB   IX-PU-I	 00:00:31.910 body   body-shift   PU   CRAB   IX-PU-I	 00:00:33.060 body   body-shift   PU   CRAB   IX-PU-I	 00:00:34.450 IX-PU-I   SNAKE   DRINK+
DRINK	DRINK	PU[=WHAT]	
 00:00:35.910 IX-PU-I   SNAKE   DRINK+	 00:00:36.270 IX-PU-I   SNAKE   DRINK+	 00:00:36.780 IX-PU-I   SNAKE   DRINK+   PU	

(21) SQUIRREL



LET'S



PARTY



CRAB



HMMM



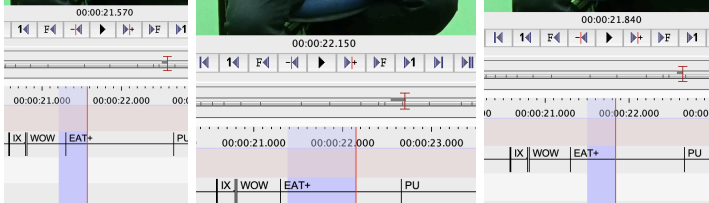
WHAT



‘Squirrel has gathered animals. Hey, let’s party! The crab is like “Hmmm.” The squirrel is like “What?”’

- No tense or any other potentially obligatory markings (e.g. definiteness/specificity, or plurality) has been observed. However, verb repetitions (pluractionality or aspect modification elsewhere) are apparent (22); see also DRINK in (20):

(22) EAT.PL (a.k.a. EAT+) ‘Stuffing his face’



- Although analyses continue, across the *current* dataset, we observe zero use of wh-items beyond WHAT and its potential variants; instead, utterances demonstrate various articulations of PALM-UP (a.k.a. PU) in a variety of contexts (Cooperride et al. 2018, Lepeut & Shaw 2025): one- and two-handed; open-hand, bent-B- and IX-handshapes, co-articulated with the various non-manual expressions (23).

(23) PALM-UP (PU)

a. One-handed: bent-B



open-IX



b. Two-handed:



Analyses continue.

**6. Discussion and future research.** While results of the studies described in previous sections are preliminary, a particular picture emerges. Across studies:

- The word order is (primarily) SV(O). This does not align with the oft-taught, and intuition based, claims about the structure of LSEC utterances, which claim (and base didactic materials on) the *Time/Location* + *S* + *O* + *V* (e.g. <https://www.sordasfeministasecuador.com/>). Future research is needed.
- A number of linguistic phenomena attested in other sign languages are also observable in LSEC directly (reduplication-like behaviours, doubling, role-shift, argument omission, proliferation of PALM-UP utilized in various contexts, non-manual markings, different expressions of negation, i.a.). Future research is needed.
- A number of the LSEC lexical items in at least one dataset appear identical to their ASL counterparts (to date), perhaps revealing the common history and languages in contact, as well as potential for future research related to diachronic and synchronic analyses of LSEC and its vocabulary. Future research is needed.
- Despite its similarity with other sign languages and (demonstrably) ASL, certain aspects of LSEC appear unique, among which is the number of bimorphemic lexical items in a small corpus. Further research is needed.

- Because the results above appear reasonably uniform across the studies with widely different methodologies, the information articulated above is already utilizable for language instruction to new signers (both DHH and hearing) and implementable into a larger curricular design (pre-K-adult) as evidence-based descriptions of LSEC.

In earlier sections, we described several studies, initiated by and coordinated by collaborating community researchers; all are taking place in parallel. Thus, future directions clearly include completion of the aforementioned projects (sections 3-5), with direct examination of the contribution of various variables (including language attitudes) to the overall study of LSEC, as well as more focused theoretical and applied studies that these projects generate. That said, the team has identified several immediate steps, most of which also in parallel. First, the existing data are being subjected to theoretical analyses: syntax, semantics, phonology, morphology. For instance, in terms of morpho-phonology, several members of the team examine a variety of articulations of 1SG as in (3), (14) (Pallo 2025) as well as compounding strategies as in (6), (7) (e.g. Tkachman & Meir 2018). Second, both syntax and semantics of clause types, including interrogatives (as in Dayal 2025), is being examined by another member of the research team (Koulidobrova & Guzman, in prep). Third, and spearheaded by the two Deaf members of the team, questions related to language attitudes, including linguistic purism, are being discussed directly (Bossano et al., in prep). Fourth, the team continues to examine LSEC diachronically, reflecting on its history of contact with ASL and other sign languages (Aguirre et al., in prep). Finally, the team has engaged in examination of language practices in rural and Indigenous communities, guided by the methodologies discussed elsewhere (e.g. Coppola 2020, a.o.). Importantly, all of the aforementioned projects aim to remain participatory in nature, reflecting on the lessons elsewhere (McKee et al. 2012, among others).

Several other phenomena observed across studies have either not been discussed here or mentioned only in passing; they await further testing.

**7. Conclusion.** The project described above has several main objectives: (a) training community researchers to document their own language for their own purposes (Johnson 2004, Hochgesang et al. 2023); (b) working towards a basic linguistic description of LSEC (utilizable for teachers, parents, and children), (c) ensuring open and accessible materials (Hochgesang 2025). These objectives are being met across several studies.

Further, we aimed to demonstrate that while much of what happens in LSEC instruction is intuition based, this is not sufficient. In fact, linguistic analyses are necessary and possible even in small corpora and a short period of time. Indeed, language instruction should and can be evidence-based, even in constrained conditions.

Finally, the studies discussed above contribute to the fight against linguistic and social discrimination of the DHH community members: (a) in order to be recognized as one of the languages of Ecuador not only legislatively but also in communities (both *de jure* and *de facto*) and, thus, propagated in schools, LSEC must be described; (b) linguistic attitudes in the media and the Ecuadorian society more generally must be examined and discussed openly; (c) outcomes of (a)-(b) above have a strong potential to affect language planning in Ecuador in changing legislation to include LSEC across public spheres (as in Asamblea Nacional del Ecuador 2025) but also its varieties (as in Eberle et al. 2012); (d) further research is necessary in order to establish the nature of language contact with Spanish, Kichwa, Waorani, other spoken

and sign languages in Ecuador and beyond (e.g. ASL but also Colombian and Venezuelan Sign Languages, a.o). The work continues.

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