A short introduction to signed languages: features, common misconceptions, and current research

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Deafness

Some basic facts:

- Most deaf children (90-95%) are born to hearing parents.
- Hearing parents typically have no access to or experience with signed languages.
- Only deaf children born into deaf families (around 5%) experience 'normal' language acquisition akin to hearing children.
- Language acquisition for all children depends on early exposure to language.
- This is not always available for deaf children.
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Deafness

The deaf experience

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- Differences in degree of hearing loss
  - mild, moderate, severe, profound
- Differences in language exposure as children
  - early exposure to signed languages, late exposure, no exposure
- Different onsets for deafness
  - from birth, later acquired hearing loss
Deafness

- Different degrees of support
  - early childhood interventions, speech and language therapists, community groups, schools, etc.

- Differences in group identity
  - hearing culture, Deaf culture, or some of both?
Learning the environmental language

Because most parents of deaf children are not deaf, many choose to integrate their children into the hearing world.

This may involve:

▶ Assistive technologies (hearing aids, cochlear implants)
▶ Specialised educational programs (these vary in degree of ‘oral’ focus)
Learing the environmental language

Cochlear implants:

- Strip of electrodes implanted into cochlea itself
- Turns sounds into electrical pulses that stimulate auditory nerve
- Processor attached magnetically to outside of skull
- Examples of CI filtered speech

(Wikimedia, Seslami)
Hearing impairments and deafness

Cochlear implants are highly controversial, and not always effective.

▶ Benefits:
  ▶ If implanted early, may vastly increase spoken language abilities
  ▶ About 30% of kids implanted early show age-appropriate language skills
  ▶ Could allow integration into main hearing culture

▶ Drawbacks:
  ▶ Major brain surgery on infants (3+ months)
  ▶ Possible risk of complications
  ▶ May not provide major benefits
  ▶ Less motivation to learn a signed language, participate in Deaf culture
Hearing impairments and deafness

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| Myth #1 | Signed languages are universal. |
Signed languages

Signs vary across languages, just like words do:

'TREE'

American SL  Danish SL  Chinese SL

Examples of different sign language pairs:
http://www.spreadthesign.com/
Origins

Where do signed languages come from?

In some cases, they generate spontaneously:

- A community has a large population of deaf individuals
- They all need a way to communicate
- A sign language is invented by the community, naturally
- As it is passed along to other users, it changes and grows into a fully functioning language
Origins

In other cases, a language is imported after contact with a community of users

▶ American Sign Language (ASL) is historically related to French Sign Language (LSF)

▶ New Zealand Sign Language and Australian Sign Language (Auslan) both evolved from British Sign Language (BSL)

Once adopted, these languages change and grow just like any natural language!
Myths

Myth #2

British Sign Language is just gestured English, or pantomime. It’s not a ‘real’ language.
Properties

Signs can be broken down into smaller parts, just like words:

- Words are composed of linear string of sounds
  - Types of sounds: vowels, consonants, etc.
  - Grouped into syllables
  - Order of sounds and syllables matter!
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▶ Words are composed of linear string of sounds
  ▶ Types of sounds: vowels, consonants, etc.
  ▶ Grouped into syllables
  ▶ Order of sounds and syllables matter!

▶ Signs are composed of simultaneously articulated features:
  ▶ Handshape
  ▶ Location in space
  ▶ A path of movement
  ▶ Palm orientation (in some cases)
Properties

Different handshapes:
Properties

A minimal pair with orientation:

'NUDE'

'RUDE'
Properties

Movement contrasts can be grammatically relevant:

- ASK [Continuative]
- ASK [Incessant]
- ASK [Durational]
- ASK [Punctual]
- ASK [Habitual]
- ASK [Iterative]

(Emmorey et al., 1995)
Spatial relationships in signed languages are quite unique!

Grammatical marking of subject / object relationships:

TEACH (me)  
TEACH (you)

(Hou & Meier, 2018)
Properties

Iconicity

The degree to which a word or sign represents some real-world semantic or physical property.

(Vinson, Thompson, Skinner & Vigliocco, 2015)
Properties

Signs and pictures can vary in iconic overlap:

Salient

Non-salient
Properties

Experiment: Does the sign match the picture?
Myths

Myth #3

Deaf children need to choose between sign or speech; they can't do both. (Or: they need to focus only on speech, signing is a distraction.)
Language acquisition

Research on this is very clear (though the issue is quite nuanced in practice):

- Delaying first language access has life long consequences
- Kids exposed to a signed language early learn it just like hearing children learn any spoken language
- Learning two languages simultaneously isn’t unusual – it’s called bilingualism
Language acquisition

Reflexive crying (from birth):
- Primarily instinctual sounds of discomfort
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- Mostly vowel sounds
Language acquisition

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Vocal play (4 - 6 months):
▶ Back consonants first ([k], [g]) then front consonants ([m], [n], [b], etc.)
Language acquisition

Babbling (6 - 10 months):

- At first with repeated *syllables* ([nununu], [dadada])
- Then wider range of sounds in combinations ([dabuga], [babaga])
Language acquisition

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First words (12 - 18 months)!
Acquiring signed languages

Deaf children:

- Do engage in vocal play, cooing and laughter
- Do not babble (in a spoken language)
  - Failure to babble in spoken language is a sign of hearing loss
  - Some parents may not find out until this point that their child is deaf
- Deaf babies exposed to a signed language do babble (in sign!)
Acquiring signed languages

First signs:

- Appear around 12 months
- Show phonological errors, just as with speech (e.g., ‘tee’ for ‘tree’)

(Meier, 1991)
Acquiring signed languages

Certain parameters are easier than others to learn:

(Siedlecki & Beonvilian, 1993)
Age of acquisition

When a signer first starts learning a signed language has lifelong effects on sign abilities!
Age of acquisition

When a signer first starts learning a signed language has lifelong effects on sign abilities!

We see behavioural differences in sign language abilities as adults:

(Mayberry & Eichen, 1991)
Age of acquisition

We also see this in sentence repetition abilities in older signers:

(Corina et al., submitted)
Age of acquisition

We see persistent differences in signing brains depending on when signers started learning their first language:

(Newman et al., 2002)
Language for all

Accessible language is critical

Without early access to an accessible language, *any* language acquisition is endangered. There are lifelong consequences to delaying first language acquisition.
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Sign languages are natural languages

They develop in the same way as spoken languages, are acquired in the same way by native speakers, and serve all same needs for a signer as a spoken language would.
Thank you!