

## **EALTA Webinar**

# **Methodological challenges developing tests of sign language proficiency**

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# Overview

- Context of Swiss German Sign Language learning and assessment
- State of research
- Methodological issues
- Summary

# Swiss context

## Three national sign languages

- German-speaking part of Switzerland: Swiss German Sign Language, *DSGS*
  - approximately 5'500 Deaf DSGS users
- French-speaking part of Switzerland: Langue des Signes Française, *LSF*
  - approximately 1'700 Deaf LSF users
- Italian-speaking part of Switzerland: Lingua Italiana dei Segni, *LIS*
  - approximately 300 Deaf LIS users

Boyes Braem, Haug & Shores, 2012

# Learning and assessment of DSGS

- Where does DSGS learning take place?
  - Course providers (adult learners, parents of deaf children)
  - University of Applied Sciences of Special Needs Education (HfH), e.g., sign language interpreting program
  - Schools for the deaf
- Where does assessment take place?
  - Institutional level, e.g., sign language interpreting program
  - Course level, e.g., end of course exam
  - No certification system (yet)

# DSGS and the CEFR

- Ongoing implementation of the CEFR for Swiss sign languages
- Support through projects like ProSigns (ECML)

# State of research and available resources

- Structure of Swiss German Sign Language (DSGS)
- Acquisition of DSGS as L1 or L2/FL
- Language resources, such as
  - Corpora, e.g., learner corpus
  - Lexicon, e.g., online lexicon
  - Reference grammar

# Swiss National Science Foundation project:

## SMILE

### Scalable Multimodal Sign Language Technology for Sign Language Learning and Assessment

(2016-19)

# Overall project goal

Development of an automatic sign language recognition system to assess vocabulary knowledge of Swiss German Sign Language (assessment scenario: L1/L2 translation test)



# Sampling of vocabulary items

- Based on approximately 3'800 lexical signs from existing teaching materials (lexical databank)
- Removing signs according a number of linguistic criteria (goal: 100 items for the automatic recognition system)

Ebling et al., 2018


# Aligning DSGS signs to the CEFR

Diese Umfrage ist momentan nicht aktiv. Sie werden sie nicht abschließen können.

Zuordnung von Gebärden zu dem GER


Was muss ein erwachsener DSGS-Lernender können, um diese Gebärde korrekt produzieren zu können?  
Mit "können" sind die verschiedenen GER-Kompetenzen weiter unten gemeint!

ARBEIT




	A1	A2	B1	B2	C1	C2
ARBEIT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GER-Kompetenzstufen\*



**A1**  
Kann sich mit einfachen, überwiegend isolierten Wendungen über Menschen und Orte äussern.



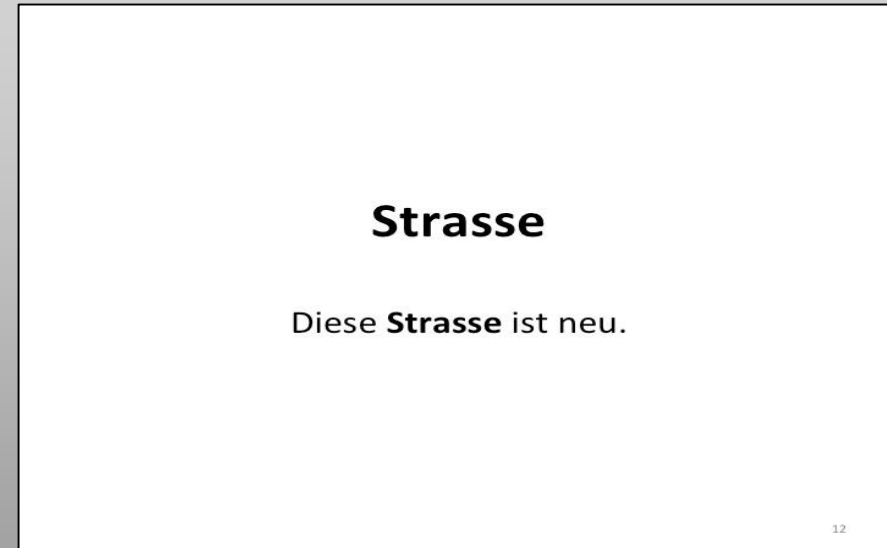
**A2**  
Kann eine einfache Beschreibung von Menschen, Lebens- oder Arbeitsbedingungen, Alltagsroutinen, Vorlieben oder Abneigungen usw. geben, und zwar in kurzen, listenhaften Abfolgen aus einfachen Wendungen und Sätzen.

- Basis: 3'800 lexical sign
- Selection of approximately 600 signs
- Judging these 600 signs (reference: CEFR Overall Production Scale, adjusted to sign languages, ProSign project)
- 11 raters

# Vocabulary size tests

- Yes/No Test for DSGS
- L1/L2 Translation Test (i.e., written German words into DSGS)
  - Scoring: right/wrong

Haug et al., 2019



Sample slide from the L1/L2 Translation Test showing the German word “Strasse” (‘street’) and the sentence “Diese Strasse ist neu.” (‘This street is new.’)

## Selbstüberprüfung von Vokabelwissen der Deutschschweizerischen Gebärdensprache (DSGS)

Zwischengespeicherte Umfrage laden    Umfrage verlassen und Antworten löschen

# Selbstüberprüfung von Vokabelwissen der Deutschschweizerischen Gebärdensprache (DSGS)

Liebe DSGS-Lernende

Willkommen zu der Selbstüberprüfung Ihres DSGS-Vokabelwissens. Im Folgenden sehen Sie pro Seite eine DSGS-Gebärde. Sie sollen angeben, ob Sie die DSGS-Gebärde kennen ("Ja") oder nicht kennen ("Nein"). **Achten Sie dabei nicht nur auf das Mundbild, sondern auf das Zusammenspiel von dem Mundbild und den Aktivitäten der Hände.**

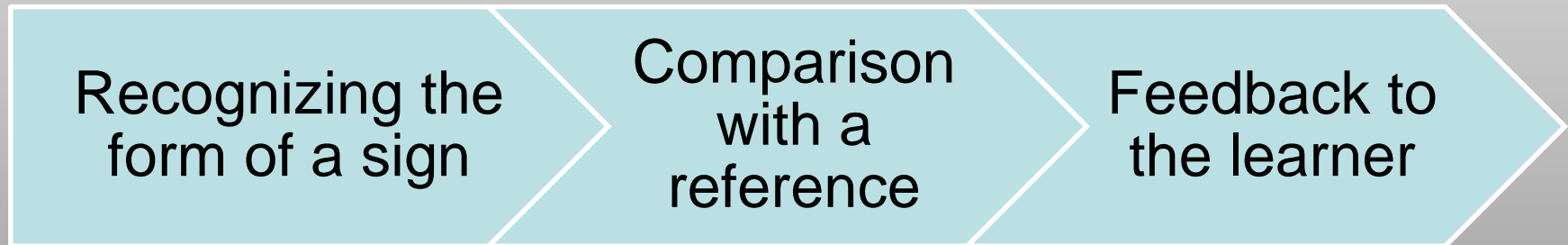
Bei dieser Selbstüberprüfung geht es **nicht** um eine Note oder Punktezahl am Ende, es geht nur um Ihre eigene Einschätzung. Diese Selbstüberprüfung führen Sie alleine durch. Das Ganze dauert rund 20 Minuten.

Vielen Dank für Ihre Teilnahme.

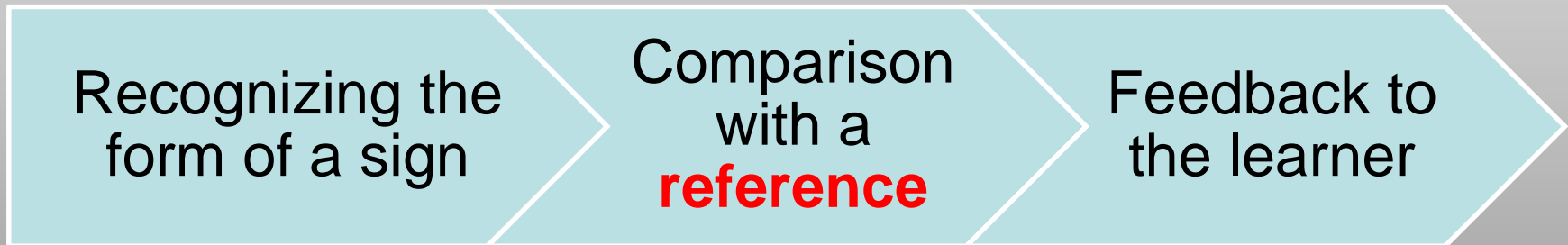
Tobias Haug

Weiter

# Automatic sign language recognition



# Reference for DSGS signs?



# What is a „correctly“ produced sign?

- Data collection of L1 and L2 DSGS users ( $N = 40$ )
- Results
  - Six different categories
  - Four categories were classified as „right“, two as „wrong“
- Informed the development of the criterion of correctness for the L1/L2 Translation Test



Ebling et al., 2018

# Investigating inter-rater disagreement

- Background
  - L1/L2 Translation Test with 20 DSGS adult learners
  - Rated by two judges
  - Scoring criteria: right/wrong
- Disagreement of raters (Rasch analysis)
  - Interview with two judges
- Results
  - How strictly the judges interpreted the criterion of correctness



## Validity: Lack of other DSGS tests

- Often lack of tests that evaluate the same/similar construct to assess criterion-related validity
- Use of variables to explain test performance (here: testing of children)
  - Chronological age
  - Age of access to a sign language
  - Use of a sign language at home
- Testing of adults
  - Number of courses attended
  - Self-assessment of sign language competence
  - Contexts of learning a sign language

# Sentence Repetition Test for DSGS

- 40 DSGS sentences of different length and complexity
- Sample: 46 Deaf children (6-16 years old)
- Scoring instrument
- Validity
  - Comparison with production of adults (N = 14)
  - Comparison with a different DSGS test



Haug et al., submitted

# Comparison of linguistic structures

British Sign Language	German Sign Language	Status
Spatial verb morphology	Spatial verb morphology	Comparable structures available, but also language-specific differences (e.g., PAM in verb agreement)
Number and distribution	Number and distribution	Comparable structures available, but also language-specific differences (e.g., simple reduplication at same location of noun sign like HAUS++)
Negation	Negation	Comparable structures available, but also language-specific differences (e.g., change of movement in sign like KANN-NICHT to express negation)
SASSes	SASSes	Comparable structures available / “identical”
Handling classifiers	Handling classifiers	Comparable structures available / “identical”
Noun/verb distinction		Exact linguistic status not determined in DGS

Haug, 2011

# Summary

- What are the challenges?
- How could they be solved?
- Future issues/developments
- Work with members of your local Deaf Community

... thanks to all my deaf and hearing colleagues in Switzerland and around the globe who have been involved or contributed to the different projects that were presented today

Thanks for your attention

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# References

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