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**American Sign Language Assessment Instrument**

The American Sign Language Assessment Instrument (ASLAI) has been developed at the Center of the Study of Communication and the Deaf at Boston University (Hoffmeister 1994, 1999a, 1999b). Each of its measures intends to assess a level of development for a particular ASL structure. The ASLAI has been used within the framework of a larger research project investigating the relationship of ASL as the first language and English (literacy) as the second language in deaf children.

Similar to the TASL, the ASLAI provides an in-depth investigation into specific linguistic structures through its eight measures. So far, the ASLAI has been used with 81 deaf students aged 8 to 16. The data analysis of 60 more deaf students is currently underway.

The ASLAI assesses both language production and comprehension. It consists of eight measures. The ASL expressive tests are:

*(1) Real Object (RO) - dynamic:* The goal of the RO and the (2) VMPA tasks are to assess classifiers, their arrangement in space, and their use with verbs of motion and plurals in ASL. Plurals can be influenced according to whether the noun or classifier is a mass or count noun. The RO is required from the children to respond to numerous tasks. The results will indicate the children's knowledge of classifiers, including instrument, body part, primary and secondary objects (and their relationship), pluralization, and perspective and scale of reference. The RO test especially measures the expression of plurals and the arrangement of classifiers in space.

*(2) Verbs of Motion and Production (verbs of motion and location), test A (VMPA) - dynamic:* This measure is adapted from Ted Supalla's et al ASL Test Battery (1995, in press). It measures the expressive use of classifiers within verbs of motion in ASL. Different types of classifiers are depicted and combined with different verbs of motion in ASL. Some classifiers are not allowed to vary in their form, such as semantic classifiers. Classifiers that do vary in form according to the particular noun they depict, such as size and shape specifiers, are combined with different verbs of motion in ASL. Hence, this is a task that depicts how different noun and verb combinations may be produced in ASL.

*(3) Same Time/While (ST/W) complex sentences - dynamic:* This task consists of two and/or three simultaneously occurring events. To accurately depict these events, deaf children must rely on advanced syntactic and morphological processes in ASL. Required responses consist of sentence coordination and subordination. This task differentiates the deaf children who have advanced knowledge in ASL and those who do not.

*(4) Narrative Production 1 (RTS) - dynamic & Narrative Production 2 (BN) - static:* Two types of story stimuli are presented in the narratives task. The dynamic story consist of the cartoon "The Tortoise and the Hare". After watching the cartoon, the children are expected to produce an ASL narrative, retelling the story. The cartoon was chosen to reduce the influence of background knowledge and to encourage the use of a variety of ASL language functions: semantic classifiers to depict the characters, verbs of motion, role shifting, and narrator perspective vs. character perspective.

The second narrative task involves deaf children responding to a sequence of pictures that depict a story theme. The pictures are presented to the children for two minutes. They are then removed, and the children are requested to retell the story to the assessor.

*(5) Complex Sentences - static:* The Relative Clause Task (RCT) was based on a test developed by de Villier (1988), utilizing three set of pictures. It consists of stimuli designed to elicit the use of relative clause structures in ASL and English. The deaf child is required to explain to the assessor what the picture sets. This requires either coordinates (lower linguistic level), embedded structures (higher linguistic level), or the use of topicalization (higher linguistic level).

*The ASL receptive tests are:*

The receptive tasks have been developed to more closely represent tasks found on typical standardized tests. The receptive tasks measure knowledge of synonyms, antonyms, and plurals in ASL. The receptive tasks are constructed in a multiple choice structure.

*(1) Synonyms & (2) Antonyms:* These receptive tasks consist of a videotaped presentation of a signed stimulus item followed by four choices. Children are asked to select which choice best reflects either a synonym or an antonym. These tasks look for lexical knowledge, word meaning, semantic mapping, memory, and knowledge of this academic task.

*(3) Plurals and Arrangement - static:* This receptive task utilizes a videotaped presentation of numerous multiple choice items. Subjects are shown a series of pictures with four sign choices. They are required to choose that which best represents the stimulus items shown on the video display. Items are depicted that require plural quantifiers, plural classifiers, and other plural processes in a signed language.

The staff at Boston University's Center for the Study of Communication and the Deaf is currently developing a set of receptive tests to examine complex sentences in ASL. This measure will test subject-object agreement (spatial and eye gaze), verb inflection, rhetorical questions, topicalization, role shift, and negation (Hoffmeister 1999b).

The ASLAI consists of eight measures. Each measure is to indicate a level of development for a particular linguistic ASL component. The measures have been constructed with the underlying premise that ASL is a visual language and depends on visual properties. Each of the measures have also been developed with the focus on two major components of language learning, conversational knowledge, and metalinguistic knowledge. The development of conversational and metalinguistic knowledge in deaf children is critical for their academic success.

The ASLAI consists of testing input that uses a presentation methodology that includes moving visual input (dynamic) as stimulus items, such as cartoons stories without any vocal interaction, as well as stories depicted by a sequence of pictures (static). Even if not explicitly mentioned what the background of the selected linguistic aspects of ASL are, it can be assumed that they based on linguistic research of ASL.

The reported psychometric properties apply for the receptive tasks and the narrative tasks (expressive task). All the ASLAI receptive tasks have been videotaped, pilot-tested, and preliminary psychometric testing has been conducted. All tasks have been developed using a

team of native ASL users who were knowledgeable about language development and were able to suggest exhaustive and representative content for each test. Each assessment was developed with 50 original items and was field-tested on a group of ten deaf adults. Only items that showed at least a 90% agreement among the deaf respondents were retained in the item pool. The final number of items in each test is as follows: Antonyms, 15 items; Synonyms, 21 items; Plural, 27 items.

After the final development, the assessment was used with 81 deaf students, aged 8 to 16. Item analysis was run on the Synonym, Antonym, and Plural test to examine response pattern, difficulty level of items, and how well items allow to discriminate among various groups of deaf children. Currently, the data of 60 additional deaf children will be analyzed (Hoffmeister, 1999b).

The test for internal consistency (reliability coefficient; Synonyms: .86; Antonyms: .80; Plural: .55) and Split-half reliability (Synonyms: .83; Antonyms: .80; Plural: .51) were conducted on the three receptive tasks. The results allow further refinement of the assessments, eliminating items which do not correlate well with overall performance or which are not sufficiently difficult. Further analysis will be conducted in order to reduce the number of questions.

For the narrative task, a rating sheet was developed that uses a Likert scale determining three types of group scoring in addition to individual component scores. The three group scores are: (1) Story Structure, (2) ASL Skills, and (3) Overall Story rating. This scoring allows the rating of individual and general components of story telling. Trained scorers rated the Narrative test with a .90 inter-rater reliability for both deaf and hearing raters.

The content validity is ensured by using a group of experts to develop the items and to eliminate items for which the deaf adults could not come to an agreement. Evidence for convergent and discrimination validity (concurrent validity) was drawn from correlating performance of the ASLAI, the Stanford Achievement Test (SAT) and the Rhode Island Test of Language Structure (RITLS).

Finally, performance on the ASL assessment tasks has been demonstrated to correlate highly with age, which means that the tests show promise for discriminating age-related language development in deaf children. Future goals of the ASLAI are (1) to obtain an age level norm for each of the ASLAI tasks and (2) to obtain a measure which would enable us to determine if a child has a language problem in ASL (R. Hoffmeister, personal communication, November 6, 2000).

Psychometric analyses of the (1) Real Objects task, (2) Verbs of Motion and Production task, (3) ST/W complex sentence task, and (4) the complex sentence/Relative Clause task will be conducted soon (R. Hoffmeister, personal communication, December 15, 1999).

Both the expressive and the receptive tasks take approximately 30 minutes each. Analysis of the receptive tasks is fairly efficient, whereas the analysis of the expressive tasks takes up to 20 hours per child to be analyzed (R. Hoffmeister, personal communication, December 15, 1999). The ASLAI is not available.

Among the *strengths* of the ASLAI are that(1) the psychometric analysis for the receptive tasks is good (2) it has been developed for research purpose, (3) it has been developed in

cooperation with deaf experts, (4) it tests specific linguistic structures, and (5) the its future goal is to be used as an assessment for deaf children.

Among the w*eaknesses* of the ASLAI are that (1) it can not (yet) be used for an assessment/baseline assessment in an educational setting because it is too long to conduct and analyze (2) the psychometric analysis of expressive tasks are missing, and (3) it focuses on older age ranges (older than 8) only.

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