

A LANGUAGE-INDEPENDENT MEASURE OF COMMUNICATIVE COMPETENCE  
FOR DEAF ADOLESCENTS & ADULTS

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*Abstract*

We present a conversation/interview measure for evaluating the communicative competence of deaf adolescents and adults. We also describe (a) the rationale behind its development; (b) its independence, by design, of the subjects' language variety, channel, or intermingling of the two; and (c) its use in a study of 40 deaf adolescents, the findings of which support the reliability and validity of this "language-fair" measure of communicative competence.

*Judging language ability*

The language abilities of prelingually and prevocationally deaf persons have been the subject of an enormous amount of scrutiny. There exist numerous tests to evaluate English competence (including measures of speech, speechreading, writing, reading comprehension, and the reception of simultaneous communication), perhaps a few tests as well to evaluate Pidgin Sign English and ASL skills. However, no standardized tests have been developed to evaluate the ASL competence of prelingually deaf persons. Moreover, no reported measures have been developed to assess the language or communicative competence of deaf persons independent of the specific language code or channel used or preferred by the one tested; that is, no tests that permit the use of any language variety falling within the continuum between ASL and English represented manually or of any channel (manual, vocal, written, or any combination thereof).

The lack of such a measure is not surprising when one considers the difficulty of developing such a "language-independent" and "channel-

independent" test of competence. Nevertheless, it is a serious problem for the fields related to the study of deafness. At present, investigators, educators, and other professionals cannot reliably evaluate the total language or communicative competence of prelingually deaf children or adults. Hence, they cannot examine its role in the development, adjustment, or success of deaf persons. All that can be evaluated and examined at present is competence in a specific language, using a specified channel or channel combination. In this paper we describe an attempt to develop a "language fair" measure of communicative competence; i.e. a measure that can be used no matter what specific language or mode or combination are used by the subject tested.

### *English tests*

Over the years a great variety of tests of English have been administered to deaf children and adults (see Rodda 1982, and Johnson et al. 1980, particularly the chapters by McCaughrin & Rotunno for descriptions and listings). There are also several measures of manual and simultaneous communication, but these are largely focused on English skills (see Hatfield & Caccamise 1980 for a review). Probably the most comprehensive attempts to develop measures of communicative competence for deaf persons have resulted in test batteries with separate instruments for different components of the subjects' competence. Geffner and associates describe a test battery for young deaf school children that includes separate ratings for speech production, sign language production (not specified as English or ASL), a mode-independent and perhaps language-independent overall communication skills rating, a rating of speech reception, and a rating of speech intelligibility. They make the following argument in support of this battery:

In view of the fact that there are not tests currently available to adequately assess language, sign, and communication skills of young deaf children, these scales, while risking the element of subjectivity, may serve as a measure of ability. (Geffner et al. 1978)

Perhaps the best known battery for assessing the receptive and expressive communication skills of deaf adolescents is the (National Technical Institute for the Deaf of the Rochester, NY Institute of Technology) "Communication Profile" (Johnson 1976., Johnson & Kadunc 1980). This battery includes separate assessments of hearing (speech) discrimination, speechreading without sound, speechreading with sound, manual reception, simultaneous reception, English reading comprehension, English writing intelligibility, and speech intelligibility. Although the separate instruments may be effective ways to assess ability in these components of total competence, there are several problems with this test battery approach. The most obvious difficulty is simply that the evaluation of the components of language competence taken one at a time may not produce an accurate picture of an individual's overall competence when communicating with others. This is a case where the whole is greater than the sum of its parts. At NTID they have found, for example, that a student's achievement on the test of speechreading may differ substantially from his or her ability to communicate with speech in face-to-face encounters. A similar problem is that many of the individual tests in the battery are based on single sentences unconnected to others in the test. Because effective lipreading relies on the comprehension of context, an individual's performance on single isolated sentences may be a poor reflection of his or her skill in meaningful communication. The same may well be true of the tests of hearing discrimination, reception of manual communication, and simultaneous communication, all of which are based on the ten "Everyday Speech Sentence Lists" (Central Institute for the Deaf).

Another problem is that the battery includes no assessment of ASL competence (either receptive or expressive); nor are there measures of manual (English) or simultaneous competence. The individual tests in the battery allow the subjects no switching among different sign language varieties along the ASL to English continuum to communicate, it may be, more effectively than when they are restricted to only one variety at a time. Finally, a practical problem with using the test battery is simply the amount of time required to administer and score so many separate tests.

*An interview measure*

A different approach to assessment of signers' communicative competence has been developed by another NTID group. The Sign Communication Proficiency Interview (or SCPI, Newell et al. 1983) is described as an integrative test of functional communication skills. It uses a single interview to evaluate receptive and expressive signing communication in a context. The SCPI is based on the Foreign Service Institute's Language Proficiency Interview (LPI), an established measure for assessing competence in a foreign or second language. Both tests rate performance in a semi-structured interview on a scale from 0 to 5, with '0' indicating no functional skills in a language and '5' indicating proficiency equivalent to that of an educated native speaker. The SCPI rating is based on a consideration of the following: vocabulary, grammar, comprehension, accent, fluency, and sociolinguistic or cultural knowledge --with the first three factors weighted more heavily. The SCPI is described as appropriate for assessing any signed communication falling within the continuum from ASL through PSE, excluding only invented English sign systems based totally on spoken and/or written English.

Unlike the NTID Communications Skills Battery, the SCPI evaluates communication in context and its evaluation of skill is functional. Like the former battery, however, the SCPI was not designed to evaluate communication when subjects slip from one signing variety to another or shift between spoken and signed modes or intermix different varieties along the ASL to English continuum--even though they do this in unique but rule-governed ways to communicate more effectively. This is not to say that the SCPI cannot be used in this way but that the intention is to evaluate competence either in a single sign language variety (the interviewer and interviewed intentionally omitting voice and lip movement) or in simultaneous communication (interviewer and interviewed using only the combination of speech and sign).

*A conversation-based measure*

The Conversational Communicative Competence Scales (CCCS) were developed by a group at the University of California, San Francisco, Center on Deafness. The aim was to test the communicative competence of deaf individuals without regard to the specific language, variety, channel, and/or intermingling of any of these that an individual chooses to use. The original purpose was to explore the interrelationship of linguistic, cognitive, and psychosocial functioning in a group of deaf adolescents who were first studied as toddlers. Earlier research on these children had found that communicative competence in toddlerhood (assessed when they ranged from two and one half to four years of age) predicted language skills, intellectual achievement, and social functioning in later childhood (Schlesinger & Meadow 1976). The hypothesis for the adolescent round of the study was that the importance of early communicative competence would continue to hold true, and that linguistic, cognitive, and social functioning at adolescence would be closely intertwined.

The problem was how to evaluate the communicative competence of the deaf adolescents, who in 1982 reflected the full range of language and educational experience available to their deaf peers. In 1969, in the first round of the study, only four subjects (all profoundly deaf children with hearing parents) were enrolled in Total Communication preschool programs, with the remaining 36 in oral programs in the San Francisco Bay area. Over the thirteen years intervening, the subjects experienced a variety of changes in educational programs and language exposure. In 1982 we knew that the subjects whose competence we wished to evaluate included deaf adolescents who communicated in spoken English, some who had been exposed to only one of the invented manual English systems, some who had been exposed to different varieties of spoken and signed language combinations, and some who had been exposed to ASL. Complicating the picture even further, the length of experience with any particular language variety also varied across the subjects.

Our dilemma, then, was to evaluate the communicative competence fairly across all the subjects in such a way that the scores of different subjects using different language varieties or different languages could be compared in meaningful ways. In addition, we did not want to exclude the possibility of crediting subjects with communication skills when they switched between different languages, varieties, or modes. With this aim we could not use existing measures, which evaluate skills separately in English (manual, oral, or written) and ASL, for such measures would not take in the many language users along the continuum between ASL and English, and would leave us the problem of trying to equate scores on very different measures. Our alternative was to develop, if possible, a single measure that could be used with subjects using any variety of signing and speaking or their mix.

#### *The interview protocol: SSSC*

Like the developers of the SCPI, we chose to use a structured interview-conversation format for our communication evaluation. A copy of the interview protocol can be found in the Appendix, but the guiding principles in developing the interview will be discussed here.

First, because the objective is to elicit the best communicative abilities of each subject regardless of his or her language preference(s), the interviewer must be fluent and comfortable using any of the manual-spoken language varieties along the ASL to English continuum that any subject might choose to use. Part of the interviewer's task is to encourage each subject to use whatever channel(s) and language variety or mixture of these that will enable him or her to communicate most clearly and completely. This is to be accomplished not only through explicit instruction to this effect but also by the interviewer's matching his or her own expressive language to that of the subject.

Second, the conversation is structured as a true dialogue, with the subject specifically requested to ask questions of the interviewer as well as respond to the questions asked. This two-way, back and forth structure serves several purposes; the "chat" context helps put the

subject at ease; it offers a broader opportunity to assess the subject's comprehension of the interviewer's statements and questions; and it allows the interviewer a chance to model the type of response (in terms of structure and content) expected of the subject.

Third, because the interview is to evaluate communicative competence and not knowledge, the range of topics covered in the conversation should be ones that are familiar to the subject.

Fourth, the conversation is designed also to tap a range of linguistic functions. Our protocol specifically asks each subject to describe, explain, tell an anecdote, offer an opinion and justify it, argue, and question. Similarly, the interview is structured to elicit a range of grammatical constructions, starting with simple phrases or sentences and moving towards requiring more complex constructions. The subjects are first asked to describe their own houses and make a few statements about a topic they are given at random, but towards the end of the interview they are asked to justify their expressed opinions about issues like gun control and whether deaf persons should be allowed to join the army.

There is also a rationale behind other components of the interview. The subjects are asked to tell about an accident they have experienced or to relate a funny story, in order to elicit language that has most likely been organized and rehearsed before. (It is rare that a person does not tell the story of an accident, for example, over and over again.) Another section of the interview asks the subjects to discuss some rule at home or school that they might like to change. They are also asked in this section to present their argument for changing the rule as if they were addressing their parent or teacher or principal. This allows some opportunity, albeit contrived, for the subject to use a more formal register [see article by Shaw in this issue] than the one they might be using for their chat about past incidents.

#### *Scoring*

First a descriptive (not evaluative) rating was made for ASL *versus* English usage, using five anchor points:

- A. This person is using ASL; there is very little or no English.
- B. This person is using mostly ASL; there is some very obvious English mixed with the ASL.
- C. This person is using a mixture of ASL and English; it is difficult to say which language the person is using.
- D. This person is mostly using English, but there are some ASL aspects mixed with the English.
- E. This person is using English; there is very little or no ASL.

Next, three separate scales are employed for evaluative rating of proficiency in the conversation: (A) communicative competence, (B) linguistic competence, and (C) organizational ability. The scale of **communicative competence**, in turn, is composed of four subscales:

1. quantity of information understood by the subject
2. quantity of information understood by the evaluator
3. ease in understanding the subject
4. fluency

The scale of **linguistic competence** is also composed of four subscales:

1. correctness of grammar usage
2. range of grammar usage
3. correctness of vocabulary
4. range of vocabulary

In addition, two other linguistic subscales were originally developed to evaluate sign and speech production, one for correctness and one for clarity. These subscales were ultimately deleted from the evaluation of linguistic competence, see below. The remaining scale of **organizational ability** is a single scale with the following factors contributing to a final rating: cohesion, pertinence, logic, and elaboration.

It is evident that the ratings for the scale of communicative competence are at the level of the conversation, those for the scale of linguistic competence are at the sentence and word level, and those for organizational ability at the level of paragraph or topic. Four anchor

points are used to describe performance on each of these evaluative subscales, ranging from a low of many errors or problems or "restricted" range to a high of no meaningful errors or difficulties, or a broad range. For example, the descriptors for the anchor points of two different subscales are presented below:

#### Communicative Competence, Fluency:

1. Many hesitations; responses few and short; person unable to carry on any kind of extended conversation
2. Many hesitations; person has noticeable difficulty keeping a flow of communication
3. A few hesitations; person is generally at ease signing/speaking
4. No hesitations; person is totally at ease signing/speaking

#### Linguistic Competence, Range of Vocabulary Usage:

1. Uses only basic, limited set of vocabulary items; some difficulty in communication possible therefore
2. Vocabulary knowledge is somewhat limited; much repetition of similar vocabulary items
3. Generally displays an adequate range of vocabulary items
4. Displays a broad range of varied vocabulary items

Raters are asked first for a gross score on each subscale, for which they are required to assign one of the four anchor points. This requirement forces raters to put each subject on either the positive or the negative side of the scale; there is no middle rating. Raters are also asked to assign a fine score for each subscale, which enables them to assign values midway between anchor points if they feel these will be more accurate.

The two other subscales originally developed for evaluating linguistic competence, in correctness and in clarity of production, were later dropped because it seemed that these "phonological" subscales would favor those subjects using manual expression over those relying entirely on spoken English; i.e. deaf speech is expected to be less correct and clear than that of hearing speakers, but deaf signing is not--in fact, deaf signing defines the standard of achievement. We discovered this intuition was well founded after all subjects were scored on the original two phonology subscales. As is reported later, the signers as a group did

score higher on these two than did the mainly speaking subjects. Since the goal of this measure was to evaluate language competence fairly across the language varieties used by deaf Americans, we feel that ratings on the two phonology subscales should not be included in the final linguistic competence score.

### *Applying the measure*

The conversation instrument as described was used to measure the communicative competence of subjects in the adolescent round of the longitudinal study introduced above. Thirty-nine of the original 40 subjects participated in this round of the study. Each subject came to the UCSF Center on Deafness with at least one parent for two full days of assessment. The measures used with each subject can be found listed in Table 1. The conversation measure was scheduled to occur in the early afternoon of the first day of assessment. This time was selected because it was early enough in the strenuous two-day assessment period that the subjects would not be worn out and also late enough so that the subjects had time to get to know the interviewer. The interviewer also was guide or host throughout the assessment period, so that by the time of the interview she had a good idea of how best to adjust her own communication to each subject. The interviewer for all subjects is a member of the research staff possessed of the unique combination of skills and experience required for the task: she is the hearing daughter of deaf parents, holds a Comprehensive Skills Certificate from the Registry of Interpreters for the Deaf, and has over 16 years of professional interpreting experience. She also had the experience necessary for establishing rapport with the subjects: she has had many years experience with deaf school children in a residential school and has had graduate training in counseling psychology.

### A. Communicative Functioning

1. Conversation Measure, including scales for:
  - a. Linguistic Competence
  - b. Communicative Competence
  - c. Organizational Ability
2. Reading Achievement (Stanford Achievement Test)
3. Written English Syntax
4. Story Recall
- 5.\* Language-variety Familiarity (ASL, Signed English, SEE, Spoken English)
- 6.\* Speech Intelligibility

### B. Cognitive Functioning

1. Intelligence, including:
  - a. WISC-R Performance Scale
  - b. WISC-R Verbal Subscales: Information, Similarities, Comprehension
2. Reasoning (Piaget's Pendulum Problem)
- 3.\* School Achievement (Grade)

### C. Psychosocial Functioning

1. Self Image (Meadow Pictorial Scale)
- \* 2. Socioemotional Adjustment (Meadow-Kendall Scales)
3. Impulsivity (Rorschach, Draw-a-Line, Porteus Maze)
4. Quality of Mother-Adolescent Interaction

TABLE 1. LIST OF MEASURES USED WITH 39 SUBJECTS.

\* Not included in present analysis

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The task was described to each subject as an informal conversation, a "chat" that would run about 45 minutes. Each interview was videotaped to produce a split-screen image, one of the subject, the other of the interviewer. All interviews were scored by a trained rater, also an interpreter (CSC), with 6 years professional experience. In addition, for purposes of evaluating reliability of the scoring, two other raters scored separate subsets of ten interviews each.

The scores of the 39 subjects evaluated with the conversation measure ranged in the linguistic competence scale from 1.5 to 4, in the communicative competence scale from 1.75 to 4, and for the organizational ability scale from 1 to 4. Five subjects were judged to be using ASL ('A' on the ASL-English dimension), 7 judged 'B', 3 judged 'C', 6 judged 'D', and 18 judged 'E' (i.e. using only English).

### *Reliability*

Each of the two additional scorers rated ten of the videotaped interviews for reliability. One was a prelingually deaf adult with professional sign language experience, a teacher of ASL at a local college. The second was actually the interviewer herself, but she was not asked to score the videotapes for reliability until more than a year after the interviews took place. The first rater scored videotapes of ten subjects who did not use their voices (using instead ASL or a form of manually encoded English); the second rater scored ten tapes selected at random (i.e. scored both manual-only and speaking subjects). The inter-rater agreement between the first reliability rater and the original scorer ranged between 0.58 and 0.76 on the communicative competence subscale ratings, and between 0.52 and 0.81 on the linguistic competence subscale scores. Agreement between the second rater and herself more than a year earlier was higher: 0.83 to 0.97 on all the subscale scores. Different subscales were used by the two raters for the evaluation of organizational ability, and so these scores cannot be compared.

### *Validity*

There is support for the validity of the conversation/interview as a measure of communicative competence in the pattern of relationships found between the scores on this measure and the other instruments used in this study. A full discussion of these relationships has been reported elsewhere (Lou 1986); only a summary will be presented here. The conversation scales of linguistic competence, communicative competence, and organizational ability show fairly strong relationships to the other verbal measures used, particularly to the three WISC-R verbal subscales, reading comprehension, verbal recall, and written English syntax. The correlations between organizational ability and these other language measures are highest, ranging from 0.44 to 0.64. These are followed by correlations between linguistic competence and the other language measures ( $r = 0.26-0.38$ ). At the same time, the conversation scale scores show nonsignificant relationships to various social and psychological measures and to the nonverbal cognitive measures; i.e. the WISC-R Performance Scale. This certainly seems to suggest that despite differences among them, the scales of the conversation/interview measure are tapping something related to linguistic and linguistic-cognitive functioning.

### *Language independence*

A separate issue of validity for this measure is that of language fairness or independence. As a language measure does it accomplish what it was intended to do? Does it evaluate the communicative competence of deaf subjects separately from the language, language variety, and channel the subjects chooses to use during the assessment? Is it a fair measure of language competence regardless of which specific language variety is used for the evaluation? In this sense, as with the attempt to develop culture-fair intelligence tests, is this a language-fair measure of communicative ability?

We have some evidence suggesting it is. If the data are examined in terms of two language groups--those subjects using only using English

and those subjects using something else--some interesting findings emerge. When the English subgroup is comprised of those subjects receiving ratings of 'E' on the ASL-English dimension, and the Mixed subgroup is comprised of the remaining subjects--those rated "A" (ASL only) 'B', 'C', and 'D'--then 18 subjects fall into the English subgroup and 21 in the Mixed subgroup. Using *t*-test statistics to compare the two groups, we found no significant differences in mean scores on any of the nine subscales of the conversation measure. There were significant differences only for the two "phonology" subscales, which were rated but subsequently eliminated from the linguistic competence scale for reasons presented above.<sup>1</sup> The difference in mean scores needed to show a significant difference between the two subgroups was also calculated for each subscale. The difference required for a significant difference at the 0.05 level was about 0.5, while for a difference at the 0.01 level, it was about 0.7.

The lack of significant difference between subgroups that are distinguished by at least one major difference in language variety can be interpreted in either of two ways. First, it could mean that the language measure is fair regardless of which language variety a deaf subject uses for the conversation, and thus the scores of subjects are comparable whether they fall into the strict-English subgroup or into the Mixed subgroup. Alternatively, it might be the case that the members of the two subgroups are not actually equal in language and communicative competence but that the measure unfairly equalizes them in evaluation. The data mentioned in support of the validity of the measure, however, suggests that the latter interpretation is unlikely.

<sup>1</sup> The decision to delete these two subscales as unfair to the oral deaf subjects is supported by the finding of significantly higher ratings for the Mixed subgroup than the English only subgroup ( $M = 3.87$ ,  $M = 2.89$ ) on the Correctness subscale ( $t = 3.94$ ,  $p < 0.01$ ) and on the Clarity of Production subscale ( $M = 3.19$ ;  $M = 2.64$ ) ( $t = 3.13$ ,  $p < 0.01$ ).

### Conclusion

The conversation measure described here has been used with good result in a study of deaf adolescents with a much mixed and varied language background. It was developed in order to evaluate the communicative competence of these subjects independently of the specific language variety, channel, or mixture with which a subject might communicate most effectively. We have reported some evidence suggesting that the measure does in fact evaluate skills at least closely related to other language and verbal-cognitive skills. We have also presented some evidence supporting the suggestion that the measure is "language-fair" or language-independent. At the same time, it must be made very clear that this is a preliminary report on this measure. Much work remains to be done if this is to be accepted as a truly valid and "language-fair" measure of communicative competence. Some of the work needed includes: application of the instrument with a broader subject sample including deaf adults and native ASL users, examination of the cohesiveness and interrelationships among subscales by use of factor analytic techniques, and refinement of the anchor points for the subscales.

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## INTERVIEW PROTOCOL FOR THE CCCS

**Introduction**

We're going to talk a little now, so we can learn more about each other. I'm interested in you and what you like to do. So I'll ask you some questions, and you can ask me questions if you want, OK?  
 If you don't feel like answering a question, that's OK; you don't have to. Do you want to ask me anything before we start?

**House description**

Let's start by your telling me about your house. What does your house look like? Can you describe it to me? Outside? Inside?  
 What does your room look like?  
 That's different from my house. My house is . . .  
 What do you like to do when you are home?

**Activity description**

Do you have something that you are really good at doing--that you're an expert at?  
 Can you tell me how to do that?

**Personal incident**

Have you ever had a really bad accident? Can you describe that to me? (Or, describe the funniest thing. . .)

**Short topics**

OK; as a change I'm going to give you a topic and you talk a short time about it.  
 You can give me a topic too. We'll take turns. Do you want to start first or shall I?  
 Possible topics:    pets          cats          dogs          sports  
                          hobbies        friends        TV, movies    books

***Serious Topics: Personal opinion***

--I'd like to ask your opinion on a couple of topics. (Choose two only.) You heard about President Reagan and the Pope and President Sadat being shot? What do you think should be done to prevent people from being shot (about gun control)?

--Do you think women should be included in the draft?

--Do you think deaf people should be allowed in the army?

***Rules***

Someday you'll probably be a parent and have children too; right? Well, I'd like you to imagine now that you are a parent and that you have a child that is the same age as you. (How old are you now?) OK; your child is now --- years old, same as you. What kind of rules would you make for him or her?

Why do you choose those rules?

How about at home (or school) for you now? What kind of rules do your parents (teachers, principal) have for you?

Do you agree with those rules? Why (not)?

Are there any (or which rule) would you like to change?

OK; let's say that your parents are willing to listen to your reasons to change that rule. What would you say to them to convince them to change that rule? (Pretend I'm your parent, or teacher, and you try to get me to change that rule).

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