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# First Language Evaluation by Native Speakers: A Preliminary Study

## *Étude préliminaire de l'évaluation de la langue maternelle des autochtones*

Martha B. Crago

Kativik School Board, Dorval, Quebec  
School of Human Communication Disorders  
McGill University

Betsy Annahatak

Kativik School Board, Dorval, Quebec

Donald G. Doehring

School of Human Communication Disorders  
McGill University

Shanley Allen

Linguistics Department  
McGill University

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### **Abstract**

Language assessment of minority language populations (native speakers of languages other than English) is an important challenge for North American speech-language pathologists. This study was carried out as a preliminary step in assessing the feasibility of using native speakers to evaluate the first language of Inuit school children in Northern Quebec. The results showed that one Inuk teacher's ratings of children's Inuktitut language samples correlated with certain language complexity indices. This finding suggests interesting possibilities for further research as well as for the use of experienced native Canadian teachers as adjuncts to speech-language pathologists in the assessment of minority language children.

### **Résumé**

*L'évaluation des connaissances linguistiques des populations minoritaires (autochtones dont la langue maternelle n'est pas l'anglais) constitue un défi de taille pour les orthophonistes nord-américains. Cette étude représente la première étape d'un processus d'évaluation des possibilités de faire appel aux autochtones afin d'évaluer la langue maternelle des enfants fréquentant les écoles inuit du Nouveau-Québec. Les résultats obtenus ont démontré que l'un des modes d'appréciation des connaissances de la langue Inuktitut utilisée par les professeurs Inuk correspondait à certains indices de complexité de la langue. Cette conclusion laisse entrevoir d'intéressantes possibilités de recherches plus approfondies et d'emploi de professeurs autochtones expérimentés comme adjoints de l'orthophoniste pour l'évaluation de ces groupes d'enfants.*

In Arctic Quebec, the majority of Inuit school children are educated exclusively in their native language until the end of the second grade. Therefore, most children under nine years of age have limited or no proficiency in English. Assessments of language disorders must be done in Inuktitut, the native language. Attempts to use translated versions of standardized tests with this population have not produced either valid or

reliable results (Crago, Hobbs, & Stairs, 1984). Furthermore, there are no non-Inuit speech-language pathologists who are able to serve this population in their native language. In addition, no Inuit in this part of Canada are at an educational level that would permit them to become certified speech-language pathologists. Thus the attempt to assess language poses a problem.

The difficulty of evaluating the first language of Inuit children is not unique. Unbiased assessment of minority language populations is a long standing dilemma in North America (Taylor, 1986). It is particularly difficult for professionals such as psychologists, educators, and speech-language pathologists, who are not conversant in the child's native language, to ascertain the existence of a language disorder in a minority child's first language. Indeed, as Juarez (1983) stated, "For monolingual minority language speakers and for those minority children for whom English is the second language, a diagnosis of language disorder or delay would be viable only in the first or stronger language" (p.61).

Lahey (1988) has written that the objectives of a language assessment are threefold: to determine the existence of a problem, to determine the goals of intervention, and to plan the procedures of intervention. It is also her contention that language is a tripartite phenomenon consisting of form, content, and function. A complete assessment of a child's language, then, should address all three of the properties of language as well as meet all three of the objectives of language assessment.

The first objective, the existence of a language problem, has traditionally been established using a norm referenced standardized test. The majority of these instruments have been standardized on North American, English speaking chil-

Table 1. Subjects' Ages and Language Ratings

Subject	Age	Teacher's Language Rating	Number of Expressions in Sample	Affix/Root	Different Affix/Root	"Word"/ Utterance	Longest "Word" (Morphemes)	Longest Utterance (Morphemes)
1	5:0	4	19	1.29	1.10	1.53	6	8
2	5:1	1	20	.90	.83	2.65	5	21
3	5:3	3	36	.45	.51	1.52	5	10
4	5:9	4	25	.34	.30	1.08	5	5
5	5:11	3	28	1.35	.54	1.23	5	5
6	6:0	4	24	1.02	.98	2.87	6	23
7	6:1	5	32	1.24	1.18	4.06	6	41
8	7:1	4	26	1.44	.92	4.50	5	33
9	7:1	1	39	.66	.49	1.57	4	9
10	7:9	1	42	.96	.74	.76	5	15
11	7:10	2	40	1.57	1.12	1.05	7	7
12	9:1	2	32	1.58	.97	5.40	7	31
13	10:6	5	32	2.19	1.10	2.71	8	17
14	10:8	5	13	2.02	2.60	4.85	7	24
15	11:0	1	35	1.35	.47	1.51	5	32
16	12:6	4	37	2.06	.98	5.08	7	38

dren. This makes them inappropriate for use in the assessment of minority language children and nonstandard English speaking populations. In addition, various forms of cultural and linguistic bias in standardized tests have been well documented (Harris, 1985; Taylor & Payne, 1983; Terrell & Terrell, 1983; Vaughn-Cooke, 1986; Wolfram, 1983). As a consequence, it has been suggested that nonstandardized approaches should be used to evaluate the language of minority children (Fradd, Barona, & Santos de Barona, 1989; Harris, 1985; Holland & Forbes, 1986; Leonard & Weiss, 1983; Seymour & Miller-Jones, 1981). In fact, Holland and Forbes (1986) stated forthrightly, "to derive a complete picture of an individual's ability to use speech and language, and to comprehend the speech and language of others, observation in naturalistic contexts is a necessity" (p. 49). In other words, nonstandardized procedures ought to become the standard procedures, particularly for minority language populations.

Nonstandardized procedures for assessing language development include elicited productions and naturalistic language samples. Language samples are considered appropriate for determining the goals of language intervention (Lahey, 1988) and education (Fradd et al., 1989). Their usefulness, however, in establishing the normalcy of a child's language has been questioned for both minority and mainstream children (Lahey, 1988; Vaughn-Cooke, 1986).

Language evaluations of minority children are also influenced by who does the assessment (ASHA, 1985; Rice, 1986). The utility of untrained observers in the evaluation of minority children's language has been discussed (ASHA, 1985; Fradd et al., 1989; Rice, 1986). The American Speech-Lan-

guage-Hearing Association (1985) acknowledges the importance of using auxiliary personnel, for example, interpreters or translators, as adjuncts in the assessment of children with limited English proficiency. Such auxiliary personnel appear to be crucial to the assessment process when the speech-language pathologist does not speak the language of the child being assessed. Yet the validity of using such personnel has yet to be proven.

To begin responding to the challenge of language assessment in Arctic Quebec, we conducted a preliminary study in which we evaluated the ability of an untrained Inuk teacher to rate the form and content of the first language (L1) of Inuit school-aged children. The extent to which the teacher's ratings corresponded to certain indices of language development was determined. The purpose of this study was to evaluate the use of native teachers' ratings as a first level screening of language skills in non-English speaking children's first language.

## Method

### Subject

The subject in this experiment was an Inuk teacher. Although she had not completed secondary school, she had a Certificate in Northern Education from McGill University and had more than ten years of teaching experience in her native language. As part of her studies for her certificate, she had taken one course in normal language development. In this course, she had learned to elicit language samples, but had not been instructed in rating language samples.

## Procedure

Language samples of 16 Inuit children were assessed in this experiment. The children were between the ages of 5 and 12.6 years (see Table 1). They were all enrolled in schools under the jurisdiction of the Kativik School Board. The Kativik School Board services 14 communities in Northern Quebec with a total of approximately 2,000 children enrolled in their 14 schools. The schools are in communities which are spread over a landmass of approximately 250,000 square miles, making it the largest known school board territory in North America. In these schools, the first three primary grades are taught in the native language (Inuktitut) by Inuit teachers. English or French is introduced as a second language in third grade. Grade 3 and above are taught by southern Canadian teachers. All of the children in this study came from homes in which only Inuktitut is spoken on a regular basis and in which both parents were Inuit.

The 16 children were selected by their 16 Inuit classroom teachers. These Inuit classroom teachers had been enrolled in a teacher training course in which they had learned to elicit language samples. As a follow-up assignment, they were told to select any child from their class and to elicit a language sample from this child. To elicit the samples, the teachers used materials or conversational approaches that they felt would result in the greatest production of language by their particular student. They encouraged the children to participate in pretend play, to describe a picture, or to retell a story. All the samples were tape-recorded.

The tape-recorded samples then were transcribed verbatim in Inuktitut by a native speaker with excellent skills in written Inuktitut. The transcriptions were written in syllabics (native writing system) and in roman orthography (English writing system). The name and sex of each child was removed from the samples, but age was left on for the rater to see.

The samples were read and rated by the native teacher described above. The rater was instructed to read the samples and assign ratings to them that best described that child's language ability for his age. It took the Inuk rater approximately 10 hours to read and rate the 16 samples. This teacher-rater felt most comfortable making her rating in words. Her comments were generally quite brief and limited to only a few words, although on a few occasions, the teacher noted her ideas in a more elaborate form. About one sample, she wrote, "This language is wrong for the child's age. Vocabulary is too weak and grammar is weak." Upon questioning, the teacher was able to make many more ideas explicit about what she found in the samples. However, for the purposes of this preliminary study, she was only instructed to assign a rating to the samples. For statistical purposes, her verbal statements, such as "weak," "very strong," and "average," were con-

verted by three non-Inuit judges into numerical scores on a 1-5 continuum, with 1 representing a low score and 5, a high score (see Table 1). The three judges agreed 100% of the time on what numbers to assign to the Inuk rater's verbal ratings.

Independent of the rating procedure, the samples were read and analyzed by a linguist who specializes in Inuktitut. The linguist took over 100 hours to read and analyze the samples. Her analysis consisted of counting grammatical morphemes, vocabulary items, and length of utterances. The samples the linguist used had no ages recorded on them.

Inuktitut, the native language of the Inuit of Northern Quebec, is a highly polysynthetic and morphophonologically complex language of the Eskimo-Aleut family in which words are constructed by adding a variety of affixes to a root. Because of its polysynthetic nature, Inuktitut can easily express in one "word" with several morphemes what would require an entire phrase or sentence in English. Inuktitut words typically consist of a noun, verb, or adverbial stem followed by 0 to 8 or more lexical and grammatical morphemes, then an obligatory inflectional affix, and finally optional enclitics.

Nominals are obligatorily inflected for case and number, and for person and number of possessor if applicable. Adjectival and other modifiers of the nominal which constitute separate words (i.e. not bound morphemes) are treated as nominals and take the same person and number inflections as those on the nominal which they modify. Verbal inflections include information on verb modality as well as both subject and object. Word order is generally assumed to be SOV, though flexibility for discourse purposes and omission of overt subjects and objects are quite common. Morpheme order within words and word order within phrases is fairly rigid.

The following two examples show how Inuktitut utterances are composed. The first and simplest utterance means *I see a caribou*.

R	A	R	A
tuktu	- mik	taku	- vunga
(caribou - object)		(see - 1st person singular)	

*Tuktu* and *taku* are the roots (R) on which the affixes (A) *mik* and *vunga* are added. Though commonly used terminology varies, we will describe the entire statement as an utterance; each of the two subsections as words, and the two parts of the words marked by hyphens as morphemes.

The next more complicated example, *Nutarait ilinniatitaugiaqarput atuarsigunnasititaulutillu al-larunnasititaulutillu uqausirsaminnik*, means "It is essential for children to learn how to read and write what they are saying." In this utterance, there are five words. The mor-

phemes in these "words" are delineated below by hyphens and glossed linguistically.

nutaraq - it  
(child-plural)

ili - niaq - ti - jau - giaqaq - put  
(learn-strive-one who-passive-must-3rd sing. subject)

atuarsi - gunnaq - siti - jau - lutit - lu  
(read-be able to-very well-passive-2nd sing. subject-and)

allaq - gunnaq - siti - jau - lutit - lu  
(write-be able to-very well-passive-2nd sing. subject-and)

uqausiq - tsaq - minnik  
(word-material for-4th plural possessive [their])

At the time this study took place, no acquisitional data for Inuktitut existed. As a consequence, there was no information available about what linguistic measures might be expected to change developmentally. The linguist, therefore, chose what she intuitively felt might be meaningful measures to quantify the data without any firm knowledge about what developmental changes normally occur in the acquisition of Inuktitut. The samples were quantified in terms of five diverse Inuktitut language measures of grammatical complexity and length (see Table 1): (1) word/utterance ratio, (2) longest utterance in morphemes, (3) longest word in morphemes, (4) affix/root ratio, and (5) different affix/root ratio (the number of different affixes that a child uses with a given root).

Direct comparisons of quantifiable English language variables and Inuktitut language variables are not possible since the two languages are so different. In fact, it has been noted in two non-developmental studies that measures such as mean length of utterance (MLU) and type-token ratio (TTR), commonly used to assess development of linguistic complexity in English and similar languages, are essentially inappropriate for languages like Inuktitut without adjustment to account for polysynthetic structure. Fortescue (1985), in his study of the morphology of a 2-year-old Greenlandic boy, emphasizes the predominance of morphological complexity within words in Inuit languages, as well as the corresponding centrality of one word utterances in both adult and child speech; neither is true of English. Thus he suggests morpheme/word ratio as a much more appropriate measure of linguistic complexity in languages like Inuktitut, and also suggests calculating the number of affixes in productive use within the transcript. Wilman (1988), in his study of the vocabulary of 23 six-year-old Inuit children in Arctic Bay, NWT, supports Fortescue's assessment. He measures linguistic complexity in his data by MLU, TTR, and longest utterance, but strongly emphasizes the need to calculate each of these on the basis of morphemes rather

Table 2. Correlations of Teacher's Ratings to Age and Linguistic Measures

	Teacher's Rating
Age	.09
Affix/Root	.75**
Different Affix/Root	.36
"Word"/Utterance	.46
Longest "Word"	.56*
Largest Utterance	.49

\*  $p < .05$ . \*\*  $p < .01$ .

than words. Tables comparing calculation by words and morphemes clearly illustrate his argument. Suggestions from Fortescue and Wilman are reflected in our measures (1), (2), (3), and (4).

## Results

The data consisted of the teacher's ratings of the language samples and the five language measures derived from the linguist's analysis of the samples, as shown in Table 1. According to the teacher's ratings, there was a wide range of language ability among the 16 children. The rated abilities did not increase systematically with age, indicating that the teacher was not simply using age in making her ratings. There was also considerable variability in the linguistic measures, with some tendency for an increase with age for some measures.

Non-parametric Spearman Rank-Order correlations ( $\rho$ ) between the teacher's ratings, and the age and language measures are shown in Table 2. There were moderate to relatively high correlations between the teacher's ratings and all of the language measures except longest utterance, with two of the correlations reaching statistical significance. The correlations between the teacher's ratings and the linguistic ratings could not be attributed to a joint correlation with age, because the teacher's ratings were essentially uncorrelated with age ( $\rho = .09$ ).

To further evaluate age differences, correlations between the teacher's ratings and the five language measures were calculated separately for younger and older age groups. The groups were made as equal in size as possible. A young group of seven children was composed of children 5:0 to 6:1, and an older group of nine children was composed of children 7:1 to 12:6. With such small groups, very large correlations are needed for statistical significance. Nevertheless, the pattern of such correlations can show overall trends.

The correlations between the teacher's ratings and the linguistic measures for the two age groups are shown in Table 3. Although there were no significant correlations for the younger group of seven children, the pattern of correlations is striking. All of the correlations were relatively low except for longest word ( $r = .67$ ). For the nine older children the pattern of correlations was quite different. The teacher's ratings were correlated significantly with affix/root and different affix/root, and the correlations were relatively high for words/utterance and longest word. The correlation with longest utterance was the lowest. These findings suggest that it is possible that teacher ratings were based more on some linguistic variables than others and that the parameters used by the teacher in making her ratings differed for different age children.

## Discussion

The findings of the present study suggest that an Inuk teacher with no formal academic training in language development can rate language samples of school-aged children in a way that corresponds to certain language measures. However, the language measures that were correlated most highly with the teacher's ratings were quite different for 5-7 year olds than for 9-12 year olds. These findings suggest a need for further evaluation of how or on what basis native teachers rate children's utterances and how these criteria change with the child's age.

While the findings of this study are very preliminary, they, nevertheless, underline the necessity of future research into the acquisition of Inuktitut. The meaning of the measures used in this study is unclear. In English-speaking children, the length of an utterance in morphemes is developmentally sensitive only up to five years of age (Chapman, 1981). Scott (1988) has described how the length of children's sentences shows a slow but steady increase up to the age of 19 years of age. However, in children over nine years of age, sentence length varies according to context and does not fully reflect a child's grammatical competence. The measures used in this study have length and complexity combined together, which is similar to the syntactic elaboration measures used by Hass and Wepman (1974). Because degree of embeddedness was found by Hass and Wepman to be a developmentally sensitive measure of language produced by children five through thirteen years of age, it may also be that measures in the present study also reflect developmental trends.

This study points the way to meaningful future research. As mentioned above, an acquisitional study of Inuktitut is very pertinent and is, indeed, under way at McGill University. Furthermore, research to confirm and establish the reliability and validity of the present study is also indicated by the preliminary results of this first effort. One possibility would be to have a number of teachers rate a smaller number of

**Table 3. Correlations Between Teacher's Ratings and Linguistic Measures for Two Different Age Groups**

	Teacher's Rating (Younger Group)	Teacher's Rating (Older Group)
Affix/Root	.16	.84**
Different Affix/Root	.29	.68*
"Word"/Utterance	.23	.64
Longest "Word"	.67	.65
Longest Utterance	.23	.31
* $p < .05$ . ** $p < .01$ .		

samples. Another would be to have teachers assign ages to age-blinded samples to see if the samples are, in fact, developmentally indicative. Still another possibility would be to have teacher-raters describe in more detail what they find in the samples. Some of their intuitive analyses might point the way to more meaningful and more developmentally sound measures.

In the present study, the rater assessed the language samples globally with regard to form, content, and use. Unfortunately, the limits of the research meant that the pragmatic aspects of language were not meaningfully teased apart and related to the study of language form. Since measurements of children's language form that strip it of its communicative function are not highly meaningful, further research is needed that investigates the appropriateness of language form and content to specific communicative contexts. Moreover, future research would be improved if it was based on language samples that were more complete than the ones used in this study. Eliciting better and more representative samples, then, is an additional area to be addressed in research with this population.

Despite the limitations and preliminary nature of the present study, the findings indicate that an Inuk teacher with no formal academic training in language development can evaluate school-aged children's language samples in such a way that her ratings could be used to identify variation along a language continuum. Whether or not such a teacher could recognize and label language impairment as we understand it in our culture is another area for further study.

The use of a native teacher as a rater is time- and cost-efficient. More importantly, the procedure of using minority language children's classroom teachers to elicit language samples and a native teacher to make a first level screening by rating the samples eliminates all four of the forms of bias that Taylor and Payne (1983) described. The appropriate collaboration of speech-language pathologists with native speakers, like the one described in this study, appears to have potential in the search for more culturally and linguistically unbiased

assessment measures for minority language children. The potential of such native teachers may well be able to exceed what has been described as "translators and interpreters" in the ASHA (1985) position paper on the clinical management of communicatively handicapped minority language populations.

In conclusion, our study indicates two important future directions for minority language assessment in Canada: 1) continuing the research efforts that will establish better efficacy and effectiveness of assessment with these populations and 2) increasing the involvement of personnel from the minority language children's speech community in the assessment process.

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Address all correspondence to: Dr. Martha Crago, McGill University, School of Human Communication Disorders, 1266 Pine Avenue West, Montreal, Quebec, H3G 1A8, Telephone: (514) 398-3878

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