SEAMEO REGIONAL LANGUAGE CENTRE

Papers on Language Testing

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LITERACY COMPETENCE TESTING

by

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1. Background Information

This paper discusses the development and rationale behind the School of Australian Linguistics' basic literacy tests. It is being put forward in the hope of disseminating a means of assessing basic literacy, and of obtaining reactions from scholars and institutions with similar procedures or problems. As an anecdote, I offer the fact that I have read (in Australia and in the Philippines) newspaper articles announcing or condemning a large percentage of illiteracy. I do not believe that tests such as those described here have been applied or devised. The purported illiteracy is based on a standard of achievement far beyond anything that can be termed 'basic' (reading or writing what one can say or understand), and is further compounded by the idiosyncracies and vagaries of English spelling. Basic literacy tests have a wide range of application for languages with a phonetic (not necessarily Romanized) alphabet, and the principles discussed here apply to the testing of literacy in any language, regardless of the orthography in use.

The School of Australian Linguistics (SAL) was first proposed in 1973 by scholars such as Sarah Gudschinsky and Kenneth Hale as a means of assisting bilingual education for Australian Aboriginals and Islanders. It was thought that the training of native linguists would be more efficient and profitable than training a European linguist to the level of native fluency. The School was founded in 1974 as part of Darwin Community College, although its brief was and has been nationwide.

Certificate programmes of the School during the first year of study are dedicated to various aspects of literacy work. Each session lasts eight weeks and constitutes a self-contained 'Level' of study. Level 1 is introductory, and concentrates on units of beginning linguistics, English as a second language, language and culture, and literacy in one's own language. Level 2 leads to the Certificate of Literacy Attainment (CLA), adding phonetics to the curriculum of Level 1. Level 3 leads to the Certificate of Transcription (CTS), adding phonology, grammar, and semantics to the basic curriculum. Level 4 leads to the Certificate of Literacy Work (CLW), adding creative writing and printing and duplicating techniques.

Hence, SAL must certify that Aboriginal and Island students are literate in their own language(s). Initially, students are admitted to the School on the basis of their literacy and linguistic potential, and so they must pass a preliminary student assessment (PSA). Periodically, during their course of study, they are given literacy competence tests to explore their ability and progress in native literacy.

2. Principles and Problems

When it became clear that an objective test of literacy was needed, the staff turned to existing literature on the subject. Perhaps the reader is aware of reports or similar tests elsewhere, but a considerable amount of research revealed that most concepts of literacy were rather sophisticated, i.e., ability to read and/or produce materials of Grade 7, School-Leaving, or University-Entrance levels. Surprisingly little has been done to test basic literacy: the ability to write or read what one can say and understand. Where a language is not spelled phonetically (English, French, Chinese), certain problems obviously arise, compounded by the age, maturity, and formal educational background of a person. Otherwise, in phonetically-spelled languages, literacy testing should be simple and straightforward. But such testing must be based on the cognitive knowledge of the person being tested, i.e., be derived from his own speech and understanding.

Having abandoned -- or rather, having been abandoned by -- the literature on the subject, staff of SAL turned to common sense. Initial testing was devised by Dr Neil Chadwick, and involved transcribing a text from a cassette recorder; the results were scored for the number of words and/or syllables per minute with the percentage of accuracy. Speed was not originally a factor, and when it was, allowance had to be given for the operation of the machine.

However, at a later stage, Dr Zorc decided to revise and redesign the procedures because factors had to be considered in arriving at a test which would not prejudice results from one language to another. For example, if one scored the number of words per minute, there was a difference of from an average of 8.7 to only 4 letters per word among Aboriginal languages. If one scored the number of syllables written, there was considerable difference among languages of tolerance for consonant clusters, open vs closed syllables, and the like. [See Table 1.] There were also differences in orthographies: some made heavy use of digraphs (ng, ny, rd, rn, dj, ch, etc.) while others used diacritics (ṇ, ḍ, ḻ, ṉ, ä) or monographs (e = [i:], o = [u:]). [See Table 2.] After statistical analysis of several languages (Table 1), the concept of the 'notional word' was introduced, consisting of six symbols (letters or diacritics), and analogous to the five strokes per word used in standard typing tests. Ultimately, however, it was decided that the number of symbols (letters, diacritics, and punctuation marks) written per minute was the least prejudicial method of scoring.

Most students who come to SAL are accustomed to printing rather than cursive longhand. Hence, speed per se could and need not be a criterion of literacy attainment. Accuracy appeared to be the prime factor, and this was borne out in tests: texts generated that were within or above a margin of 80% accuracy were fully legible to other speakers of the same language; texts below that mark proved difficult to decipher. Hence, 20% error was the maximum tolerated in the recognition of basic literacy. A bottom score of twenty symbols per minute was ultimately set as a minimum time standard. Table 3 sets out sample scores to date, showing that most students achieve well beyond these expectations. Faster speeds and a lower margin of error have been set for higher certificates, since transcription and literacy work (story and book production) require greater efficiency, speed, and accuracy. Note that the scores tend to group nicely together around or above the minimum standards. Three instances (set off in parentheses) show a marginal deviation from the expectation, and the student was awarded the standard indicated on the basis of performance in the classroom/lecture situation.

Language	Average Letters/Word	Average Syllables/Word	Notional to Language Words
Nunggubuyu	8.7	3.6	1.45
Wangurri	7.3	2.9	1.21
Gumatj (Yolṇu)	7.2	2.7	1.19
Rirrat jiṇu (Yolṇu)	7.1	2.6	1.18
W Torres Straits	6.9	2.7	1.15
Gupapuyṇu (Yolṇu)	6.4	2.5	1.06
Djambarrpuyṇu	6.2	2.3	1.03
Eastern Aranda	5.8	3.1	.96
Gälpu (Yolṇu)	5.6	2.1	.93
Ritharrṇu (Yolṇu)	5.4	2.2	.90
Liyagawumirr (Yolṇu)	5.3	1.7	.88
Western Aranda	4.9	2.5	.81
Kriol	4.0	1.5	.66

Table 1 Language Ratios (Letters and Syllables Per Word, Obtained from Tests Actually Taken)

[t^y]	:	Yolṇu, Kriol tj, Nuggubuyu, Warlpiri j, Burarra ch, Aranda ty, Kunwinjku d + dj
[ñ]	:	Kunwinjku nj, Yolṇu, Kriol, Warlpiri, Burarra, Aranda ny
[ḍ]	:	Yolṇu, Nunggubuyu d, Warlpiri, Kriol, Aranda rd
[ṛ]	:	most languages r
[ř]	:	most languages rr
[a:]	:	Nunggubuyu aa, Yolṇu ä, Kriol a
[u:]	:	Nunggubuyu uu, Yolṇu o, Kriol u
[ṇ]	:	Yolṇu ṇ, most other languages ng

Table 2 Some Samples of Australian Orthographic Conventions

Another problem that arose was the testing of potential for literacy among prospective students. This led to the Preliminary Student Assessment (discussed in section 4). Although only tangentially relevant to literacy competence testing procedures, the development of this test may prove of interest to scholars, teachers, or organizations with similar problems.

3. The SAL Literacy Competence Test

The testing procedure now in use scores the mechanical aspects of literacy (not the creative elements). Records are maintained for each test [see Table 4] to gauge a student's progress: date, notional words per minute, actual language words per minute, syllables per minute, symbols per minute, and the percentage of error. Only the latter two have proven acceptable as a means of judging whether the minimum standard has been achieved (section 2 and Table 3).

Two methods are in use for delivering the test. One method involves the transcription of a brief language text from dictation or a tape recording. Dictation works for individual testing, or where students are of approximately equal ability -- otherwise repetition for one may slow down another. Transcription from a tape recorder is useful where the mechanics of running a dictaphone or cassette player have been mastered -- unnecessary time and points can be lost in replaying a given segment, or where the recording is not absolutely clear and understandable to a native speaker.

The other method gives simple English stories for translation [see Table 5]; these usually have been developed by the students themselves. The story is presented and the students copy it down with space in between lines for their own language. There is a general discussion of the story and the various translations possible. Each student is encouraged to give an oral translation of the story to ensure that his/her writing speed will not be hampered by difficulties with the translation or understanding of the text. When the lecturer and students are satisfied that they can write fluently, the group begins in tandem, and each student is timed upon completion of the assignment. In either method, a maximum of five minutes is considered sufficient to gain a good sample of the student's ability to write his/her own language.

In grading the tests, the student usually is made to read back what was written. The lecturer checks for errors in spelling, punctuation, diacritics, syllabification, etc. By reading back what he has written, the student's ability at reading is also ascertained. The total number of symbols (letters, diacritics, and punctuation) are tallied, then divided by the time to arrive at a score of symbols per minute. The total number of errors is then divided by the total number of symbols to arrive at the percentage of error. Other statistics gathered are: the total number of actual language words written, divided by the time (language words per minute); the total number of syllables written, divided by the time (syllables per minute); and the total number of symbols written, divided by six, and then divided by the time (notional words per minute). Results from the two different methods vary considerably, but the overall standard achieved is generally the same. Some students appear to do better on the transcription method, others on the translation method. Dr Chadwick has run both testing methods on a group of students, and the results are presented

Symbols/Minute	Error Rate	Standard Achieved
89.0	.01	CLW
84.5	.05	CLW
76.0	.02	CLW
73.0	.00	CLW
68.0	.01	CLW
65.7	.06	(CLW)
61.6	.05	CLW
59.5	.05	CLW
57.6	.01	CLW
53.2	.01	CLW
50.7	.03	CLW
47.3	.04	CLW
41.1	.06	(CLW)
37.6	.15	(CLW)
36.8	.02	CTS
36.6	.07	CTS
35.6	.07	CTS
34.2	.06	CTS
32.5	.10	CTS
31.9	.00	CTS
32.2	.07	CTS
29.6	.11	CLA
26.5	.07	CLA
25.7	.00	CLA
26.3	.04	CLA
26.0	.10	CLA
23.8	.17	CLA
20.8	.17	CLA
31.6	.38	Fail
23.4	.26	Fail
23.0	.37	Fail
19.6	.23	Fail
19.2	.14	Fail
19.5	.49	Fail
18.0	.31	Fail
17.3	.17	Fail
13.7	.12	Fail

Minimum Standards	Symbols/Minute	Error
Certificate of Literacy Attainment (CLA)	20	.20
Certificate of Transcription (CTS)	30	.10
Certificate of Literacy Work (CLW)	40	.05

Table 3 Sample of Writing Test Scores, and Standards Achieved

Name: .....

Language: .....

Test No.							
Date:							
Notional Word/Minute							
Language Word/Minute							
Syllables/Minute							
Symbols/Minute							
% Error							

Table 4 Writing Test Score Sheet (Sample)

1. How are you brother? Very good! And you?
   Where are you going?
   Fishing with my spears. Do you want to come along?

2. Two old men went to the (point/waterhole/river) fishing. One man caught a barramundi, the other caught a bream. They cooked those fish and ate them. Then they went home.

3. The boys went out bush. They saw three turtle eggs. (Then) they cooked them and ate them. Then they went home, and told their mothers.

4. Once upon a time, I went to the water(hole), and I saw a woman with her baby. She was fishing. Once she didn't mind her little boy, and it fell into the water. I jumped in after him and pulled him out. The woman was very glad and gave me two big fish. I went home and gave them to my uncle, and told him the story.

5. Last night I was walking home with my friend, and we saw a wallaby. I picked up a stone and hit the wallaby, smashing its skull. We brought it home and cut it open.

6. My grandfather and I went out bush. He showed me (wild apple) and (small berries). He showed me how to hunt wallaby. He sneaked up on one; he kept behind the trees. Then he threw his spear and killed it. We cooked the meat, and then took it and the other food home.

Table 5 Writing Test (Translation Method)

in Table 6. The differences appear to correlate with a student's particular abilities at translation or transcription, so that poor scores reflect problems associated with the method used (understanding if translation, mechanics if transcription, etc.). Students generally feel less rushed by the translation method, and hence generally make fewer errors than by the transcription method. If a student feels he/she has had particular difficulty with any given test or method, he/she may apply for re-testing. In any event, a student's overall award is based on his best score in the entire series of tests. In this regard, it is perhaps important to note that regression is the exception, not the rule.

4. The SAL Preliminary Student Assessment

Since lectures are in English and an indication of a student's aptitude at literacy and linguistics was needed, SAL required a brief but strongly predictive admission test. The one devised [see Table 7] has four sections: reading of 'nonsense' syllables to test linguistic aptitude (phonetic reading, 1 - 30), reading of English sentences (31 - 40) with a high load of function words, writing down of five English words of average difficulty, and writing down of five Aboriginal words (representing sounds that occur in most Aboriginal languages). Originally a score of 35/50 was required for admission; due to increased competition this has been raised to 40/50.

In scoring this test, similar errors are not counted negatively more than once. In the reading of syllables, allowance is given for one's own language bias, so that pronouncing 'ki' as [gi] would not yield a negative score if the contrast did not obtain; similarly, being systematic is important, so that reading 'ngi' consistently as [ŋi], [n#gi], or [nəgi] at items 5, 15, and 26 would be acceptable.

In reading the English sentences attention is paid to pronunciation of final '-s', correct word order (Is he .../He is ...), question vs statement intonation, and recognition of a new word (probably 'linguistics'). In writing English words, exposure to some formal education is checked on relatively simple words ('bush', 'has', 'soft') as well as memory for unphonetic spelling ('night' and 'women').

In writing down Aboriginal words, one is testing the ability to 'hear' sounds important to native languages, such as the velar nasal [ŋ], tense/lax [k-/g-] and retroflex/non-retroflex [-l-/-l-] distinctions, and the ability to 'leave behind' English spelling, e.g., Aranda [kə́lə]/ English 'colour'. Any reasonable approximation of the sounds is acceptable: 'marloo', 'marlu', 'malu', 'maarloo', etc. for #46, 'kala', 'cala', 'kula', etc. for #47.

Despite the brevity of the test, there has been a high correlation of performance on the test with performance at SAL, and to date no need for a revised measure has been felt.

Transcription Method (Recording)			Translation from English Story		
Symbols/ Minute	Error	Standard	Symbols/ Minute	Error	Standard
56	.04	CLW	*66	.03	CLW
*65	.06	(CLW)	47	.08	(CLW)
*61	.08	(CLW)	42	.06	(CLW)
*58	.07	(CLW)	42	.02	CLW
44	.00	CLW	*52	.04	CLW
*39	.08	CTS	21	.10	CLA
33	.22	(CLA)	*28	.12	CLA

* Best score

Table 6 Results of Both Types of Writing Tests (June 1979)

READ THE FOLLOWING:

1.	na	11.	lana	21.	nam
2.	la	12.	nana	22.	muk
3.	mu	13.	mama	23.	tik
4.	pa	14.	pupu	24.	tuk
5.	ki	15.	ngipu	25.	pun
6.	ngi	16.	tawu	26.	ngipun
7.	ta	17.	kiwi	27.	namuk
8.	ki	18.	tawi	28.	tuktuk
9.	wu	19.	tiwi	29.	manuk
10.	ya	20.	yawu	30.	tapun
xa.	nu	xb.	nula	xc.	nipi

31. We went hunting yesterday.
32. She saw three kangaroos.
33. They cooked a turtle.
34. Do you drink beer?
35. I laughed at his jokes.
36. Is he a teacher?
37. Where will you go tonight?
38. Two more will be coming tomorrow.
39. The others aren't here yet.
40. We will be studying linguistics at Batchelor.

WRITE DOWN THE WORDS SAID TO YOU:

41. bush — [They went out bush.]
42. night — [Soon it will be night.]
43. women — [There are three women over there.]
44. has — [He has some money.]
45. soft — [The pillow is very soft.]

46. málu — Yolngu matha 'father', Warlpiri 'kangaroo'.
47. kálə — Aranda 'finished, done'.
48. yámini — Alawa 'big'.
49. gúya — Yolngu matha 'fish'.
50. náyim — Ngangikurunggurr 'she'.

Table 7 SAL Preliminary Student Assessment

5. Postscript

This information is presented in the hope of encouraging similar testing procedures among the national and indigenous languages of the SEAMEO region. It is strongly recommended that the assessment of basic literacy achievements be in the native language of the person tested and on an individual basis wherever possible. Where native literacy is not now being practiced, one might well ask "should it not be?" The maxims of Sarah Gudschinsky should be taken to heart: "Never let anyone talk you out of this basic principle. You learn how to read only once ... Our definition of a literate person includes a deeply important basic principle: that a person can only learn to read in a language he understands" (1973. A Manual of Literacy for Preliterate Peoples, p.6. SIL, Ukarumpa).