


# Catch Them Before They Fall: A Simple Test of Sight-Word and Pseudo-Word Reading in Kannada for a Quick and Early Assessment

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## Abstract

The challenge of mastering reading is universally seen across all populations and languages. A small fraction of students all over the world, however, fail in learning to read proficiently. Early assessments can help children who are likely to get into the vicious circle of failure in mastering word reading, leading to poor academic performance and eventually to low motivation in academics and possible lifelong socioeconomic and mental health consequences. In languages such as English, there are quite a few tests available for early assessment and interventions. In India, a multilingual society, all children going to school learn to read at least in three languages, including English. Dearth of suitable assessment tools in local languages is a major impediment in clinical services and research. Here, we report an attempt at developing a quick and reliable test for assessment of decoding and sight-word reading skills in Kannada language.

## Keywords

sight-word reading, pseudo-word reading, Kannada, early assessment, primary schoolchildren

## Introduction

During the early schooling phase, the ability to master reading is undoubtedly the premier academic achievement. It prepares the children for all their educational endeavors and is a key to the possibilities that the future has in store for them (Bialystok, Luk, & Kwan, 2005). When beginning to receive formal instruction in reading, a large majority of children show no difficulty in learning how to read and write under normal conditions. However, several millions of children and adults worldwide, despite having average or above average cognitive abilities, adequate educational conditions, normal hearing and vision, have specific impairment in picking up reading (Schulte-Körne et al., 2007). Well-designed literacy assessments help identifying the problem of students in literacy development and guiding appropriate instruction needed (Black & Wiliam, 2003; Helman, 2005; Hu & Commeyras, 2008; National Council of Educational Research and Training, 2006; Shaywitz & Shaywitz, 1994; Torgesen, 2000).

India is one of the largest functionally multilingual countries in the world (Annamalai, 2001). The Report of the Education Commission (1964-1966) of Central Government of India recommended the Three-Language Formula (TLF), which necessitates all primary schools to teach three languages to pupils (Kothari, 1966). The TLF includes mother-tongue or the regional language; the official language of the

Union or the associate official language so long as it exists; and a modern Indian or foreign language not covered above and other than that used as a medium of instruction. After the approval of the parliament, it was incorporated into the National Policy on Education in 1968, and today almost all schools in India expose their students to the learning of three languages. In the state of Karnataka (where the present study was conducted), majority of the schools teach Kannada, English, and Hindi. Kannada, a Dravidian language, is the official language of Karnataka State and is spoken by about 50 to 60 million people in India. It is an agglutinative, highly inflective language, which follows subject-object-verb order canonically. Kannada orthography is an alphasyllabary, in which orthographic units (called akshara) represent syllables. It is a transparent orthography. As the grain size is larger, it has a larger set of symbols. Furthermore, it has hardly a few monosyllabic words, the most common words having two or three syllables (more details of Kannada may be seen in Prakash & Joshi, 1989, 1995). Hindi, a major

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language used all over India, belongs to the Indo-European family of languages. Both Kannada and Hindi orthographies are derived from a common source, Brahmi (Coulmas, 1989). English and the Indian writing systems have contrasting features with respect to transparency, grain size, and the orthographic principle (Padakannaya & Mohanty, 2004; Padakannaya & Ramachandra, 2011). Furthermore, different writing systems put different cognitive demands on readers, which are reflected in the way reading and spelling/spelling are acquired in those languages (Chengappa, Bhat, & Padakannaya, 2004; Padakannaya, Rekha, Vaid, & Joshi, 2002; Perfetti, 1999; Wang, Liu, & Perfetti, 2004; Ziegler & Goswami, 2006). In such multilingual settings where children are formally exposed to two or three languages simultaneously, testing needs to be done in all the languages children are learning for any assessment or diagnostic purposes.

There are several standard tests available for assessing reading ability in languages such as English that facilitate research studies and early assessment of reading skills in normal and at-risk children. However, in a multiliterate setting like India, there is dearth for such tools in local languages. There is an urgent need to develop tests in the Indian languages, which will help identify children in need for intervention. This will save them from the vicious circle of the mental trauma they would experience on account of academic difficulties. Here, we report an attempt at developing a quick and reliable measure for assessment of decoding and sight-word reading skills of higher primary and high schoolchildren in Kannada language, one of the major languages of India, in the lines of Test of Word Reading Efficiency (TOWRE) in English (Torgesen, Wagner, & Rashotte, 1999). The TOWRE, a widely used test in English, assesses sight-word efficiency and phonemic decoding efficiency by asking readers to read a list of high frequency words and another list of pseudo-words for 45 s each. The Performance on the first list provides a measure of one's sight-word reading, whereas the Performance on the second list provides an index of one's decoding ability. The present article presents a brief account of our attempt at developing a similar measure in Kannada with an assumption that development of such measures helps cross-linguistic comparisons in multilingual contexts prevailing in India.

## Method

### Participants

Fifty (30 boys and 20 girls) students, studying in an English-medium school and taught Kannada and English from the first-grade level, participated in the study. Their age ranged from 10 to 18 years. Twenty-six of them were studying at the middle school level (Grades 5-8), and 24 were from the secondary to the higher secondary level (Grades 8-12) as per the Indian school system.

Their inclusion in the study was based on the class teachers' checklist report endorsing that children were average or higher than average performers with consistency in academics

and did not have any observable physical or psychological/behavioral/emotional problems on record. All of them belonged to middle or high socioeconomic families.

### Procedure

The first phase involved preparing a list of words for sight-word efficiency (*drishti pada* in Kannada) and pseudo-words (*husi pada* in Kannada) for phonological decoding efficiency sections of the proposed Kannada test. The first author went through Kannada language textbooks of Grade Levels 1 through 5, made a list of words and frequency of their appearing in the textbooks. These words were arranged according to their frequency, that is, words of high frequency were placed at the beginning of the list, followed by words that were less frequent (the frequency ranged from 1 to 117). Following this, we performed a median split and considered the words above the median for the proposed list for sight-word reading. Of this list, we prepared two separate lists A and B of 72 words matching for frequency and mixing words of varied lengths and syllables in complexity. The mean frequency of words in Lists A and B was comparable (13.6 and 17.9), and the difference was not statistically significant. Both the lists were serially rearranged in the order of increasing frequency of words. Furthermore, two experienced primary school Kannada language teachers ranked the words based on their perception of how familiar the words were to schoolchildren. There was a very significant correlation between the raters (.95 and .93, respectively, on Lists A and B).

Two lists of 62 pseudo-words each were prepared for assessing phonological decoding skill. Pseudo-words (*husi pada*) were prepared by substituting a phoneme or a syllable of a real word by another without violating the orthographic rules of Kannada language. The composition and arrangement of pseudo-words within the lists were similar to those of sight-word (*drishti pada*) lists, that is, they were arranged in an increasing order of length and syllable/akshara complexity. Thus, at the end of the first phase, we had two lists (A and B), each for assessing sight-word reading skill and pseudo-word reading skill. The whole process of preparing the final list of words along with two helpers took about a month's time.

### Reliability Measures

A new group of 10 students (6 girls and 4 boys) from a higher primary school participated in this part of the study aimed at checking the odd-even reliability and reliability coefficient for the whole test. Every participant was asked to read the lists of words arranged column wise on a sheet of paper, as quickly and accurately as possible on saying "start" until told to stop. They were instructed that they should skip words found difficult and proceed with the subsequent ones. The number of words correctly read in 45 s, and the total number of words read as well as the time taken to read the whole list was noted down. The order of administration of lists was randomized to control the order effect. The odd-even reliability

**Table 1.** Odd–Even Reliability and Reliability Coefficient of the Whole Test.

Subtest	Coefficient of odd–even reliability	Reliability coefficient of the whole test
Drishti pada A	.92	.96
Drishti pada B	.95	.97
Husi pada A	.96	.98
Husi pada B	.97	.98

**Table 2.** Test–Retest Reliability Measures.

Subtest	Form	First testing		Second testing		$r_{AB}$
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Drishti (sight)	A	50.38	13.46	50.10	11.73	.98
Pada	B	52.02	12.04	51.02	10.98	.98
Husi (pseudo)	A	43.22	9.40	44.14	7.55	.91
Pada	B	43.00	8.49	43.06	7.20	.90
Total word	A	93.06	20.87	94.24	17.73	.97
Reading efficiency	B	95.02	19.31	94.08	16.63	.97

**Table 3.** Correlations Between Parallel Forms A and B.

	Pre-test		Post-test	
	$r_{AB}$	Significance	$r_{AB}$	Significance
Words read in 45 s				
PDE	.84	.0001	.81	.0001
SWE	.84	.0001	.84	.0001
Total words read				
PDE	.83	.0001	.72	.0001
SWE	.78	.0001	.63	.0001

Note. SWE = Sight Word Efficiency; PDE = Phonemic Decoding Efficiency.

and reliability coefficient for the whole test for sight-word and pseudo-word lists are presented in Table 1. All the measures exhibited a very high degree of reliability and internal consistency.

The stability-over-time or test–retest reliability was determined by administering these tests to a group of 50 children (30 boys and 20 girls from Grade Levels 4 through 12) twice with a gap of 2 weeks between testing sessions. The obtained mean, standard deviations, and correlation coefficient values of the pre- and post-test scores are shown in Table 2. The magnitude of the correlation coefficient values was .91 and above, which definitely meet the required criterion of .90 for such purposes (Nunnally & Bernstein, 1994). The alternate forms, used to assess sight-word and pseudo-word reading, were also found to be highly correlated (see Table 3).

### Validity

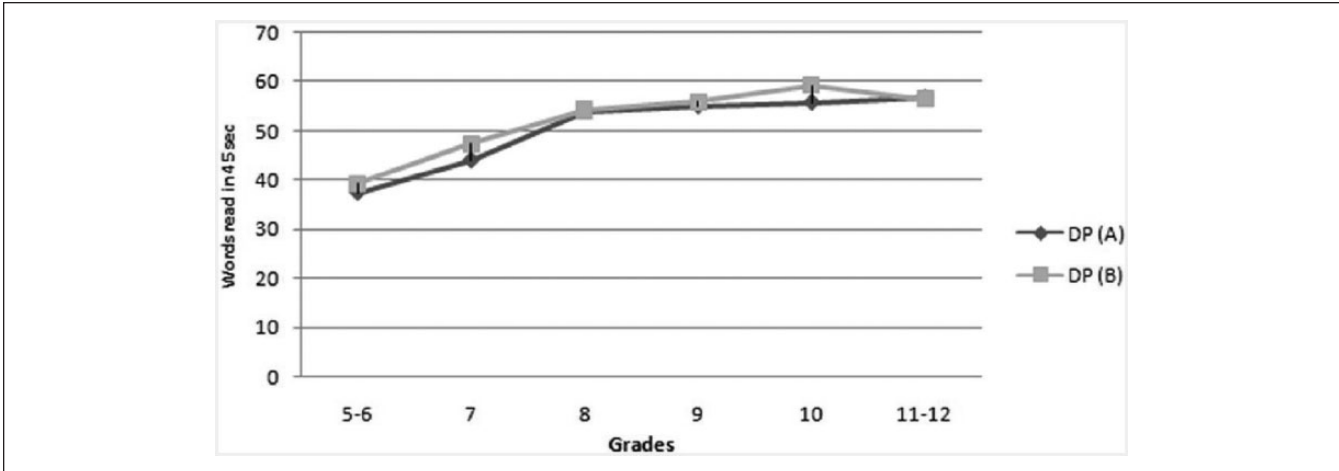
The lists of sight words and pseudo-words were evaluated for validity. If these tests tap underlying reading skills, the reading scores should increase over the grade levels and the

mean differences between lower and higher grades should be statistically significant.

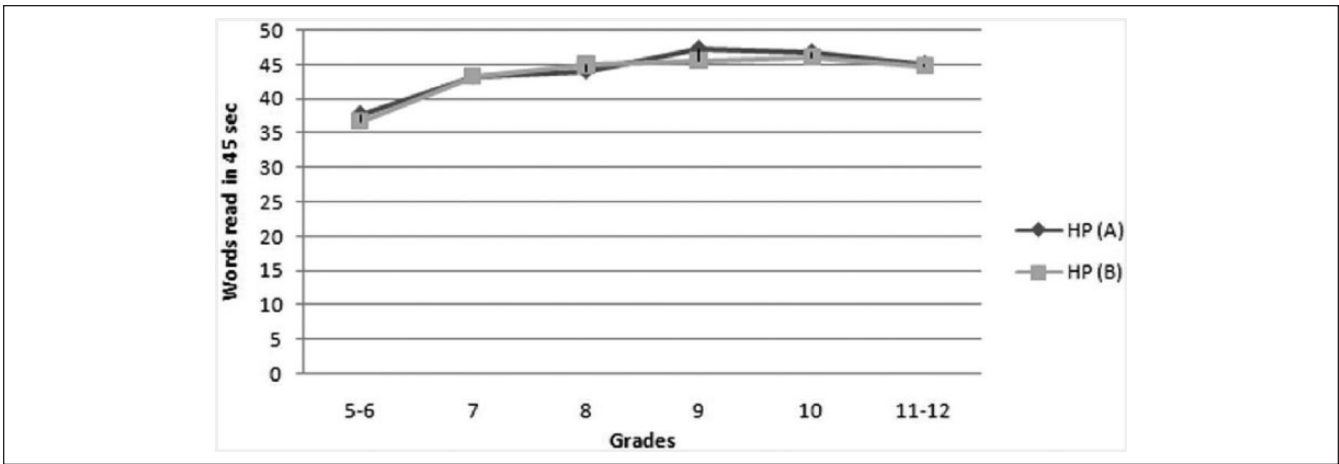
A gradual increase in performance over the grade levels on all word lists was observed (see Figures 1-3). The results of the independent-samples *t* tests confirmed that the mean differences between lower grades (5 and 6) and higher grades (11 and 12) on the total score of forms A and B of sight words (*drishti pada*) and pseudo-words (*husi pada*) were significant,  $t(10) = 3.28$ ,  $p < .01$ , and  $t(10) = 3.19$ ,  $p < .01$ , respectively.

### Conclusion

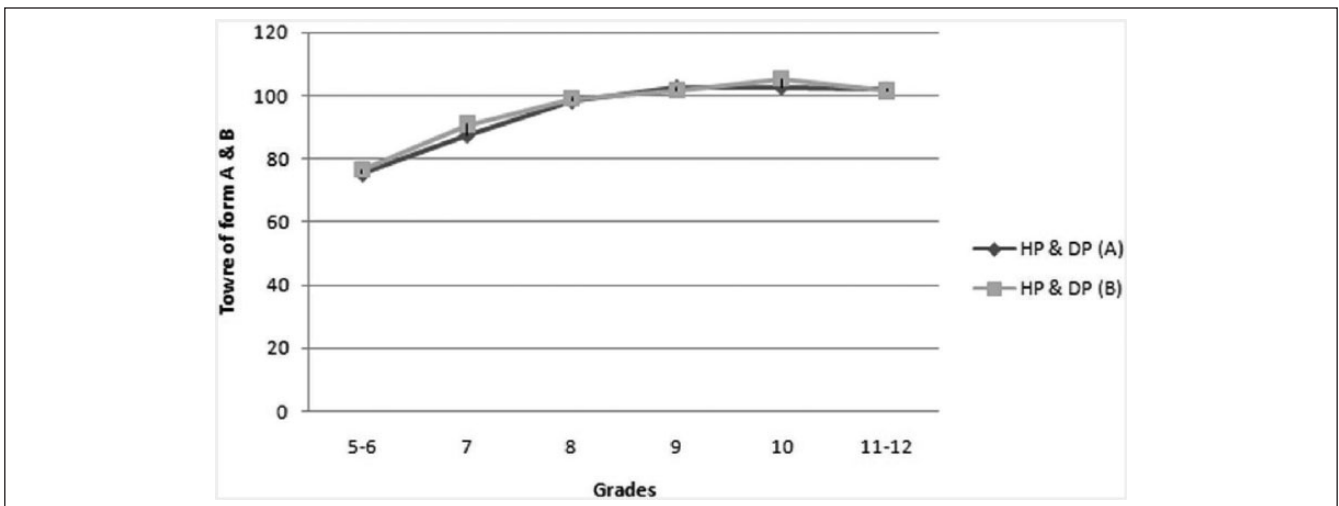
To make important decisions with respect to specific scores, a reliability of .90 is the bare minimum, and a reliability of .95 is considered the desirable standard (Nunnally & Bernstein, 1994). Most values in the present study reached or exceeded the minimum standard of .90. Thus, the reading lists constructed (given in the appendix) for assessing sight-word reading and pseudo-word reading are reliable tools that could be the resources available in Kannada for assessment



**Figure 1.** Mean number of sight words (DP) read in 45 s by different grade-level children.  
 Note. DP = *drishti pada*.



**Figure 2.** Mean number of pseudo-words (HP) read in 45 s by different grade-level children.  
 Note. HP = *husi pada*.



**Figure 3.** Mean total number of words read by different grade-level children.  
 Note. HP = *husi pada*; DP = *drishti pada*.

and research purposes. The new measures also exhibited satisfactory criterion validity as the tests successfully differentiated between lower grade-level and higher grade-level students. We do believe that ours is an earnest, albeit small, attempt to address the need for developing valid and reliable measures in languages and orthographies that are less

studied. It is not only beneficial for the population studied but also could be useful in bilingual/trilingual education studies and cross-linguistic comparisons. However, we acknowledge the limitation of the study in having a small sample with a broad age range. Future studies may further validate the measures we have presented here.

## Appendix

Kannada pada vaachana pareekshe (Kannada word reading test)

APPENDIX	
ಕನ್ನಡ ಪದ ವಾಚನ ಪರೀಕ್ಷೆ (Kannada Word Reading Test)	
ದೃಷ್ಟಿ ಪದ (Sight Word Reading)	
ತರಬೇತಿ ಪದಗಳು (Practice items)	
ಜನ	jana
ರಾಗ	rāga
ಆಕಾಶ	ākāśa
ಭೂಮಿ	bhūmi
ಸಮೂಹ	samūha
ಬೆಳ್ಳಿ	beḷḷi
ಮುಖ್ಯಮಂತ್ರಿ	mukhyamaṁtri

ದೃಷ್ಟಿ ಪದ-Sight Word Reading- A					
ಮರ	marā	ಘಂಟೆ	gaṁṭe	ಭಯಂಕರ	bhayaṁkara
ವನ	vana	ಎಲ್ಲ	ella	ಉಪವಾಸ	upavāsa
ಊಟ	ūṭa	ಅಮ್ಮ	amma	ಗೌರವಿಸು	gauravisu
ಹಣ	haṇa	ಎಲ್ಲಿ	elli	ಅಪಘಾತ	apaghāta
ಆನೆ	āne	ದೊಡ್ಡ	doḍḍa	ಗಾಳಿಪಟ	gāḷipāṭa
ದಿನ	dina	ಸಣ್ಣ	saṇṇa	ಹಿಂಬಾಲಿಸು	himbālisu
ಇದು	idu	ಬೆಟ್ಟ	beṭṭa	ಶುಭಸಮಾರಂಭ	śubhasamāraṁbha
ಅದು	adu	ಸಾಯಂಕಾಲ	sāyaṁkāla	ಅಂಗವಿಕಲತೆ	aṁgavikalate
ಕಾಲು	kālu	ದೇವತೆ	dēvate	ಪ್ರಕೃತಿ	prakṛti
ಗಿಡ	giḍa	ಬೇಸಿಗೆ	bēsige	ಕೊಲ್ಲುವ	kolluva
ನೀರು	nīru	ಚೀಮಾರಿ	chīmāri	ಆಲೋಚಿಸು	ālōcisu
ಗುರು	guru	ಚೇನುಹುಳು	jēnuhuḷu	ಅಸಂಖ್ಯಾತ	asaṁkhyāta
ಮಳೆ	maḷe	ಸೋಲಿಗರು	sōligaru	ನಿಸ್ಸಹಾಯಕ	nissahāyaka
ಕೋತಿ	kōti	ದಾರಿಹೋಕರು	dārihōkaru	ಕಂಗೊಳಿಸು	kangoḷisu
ಬೇಕು	bēku	ಸೂರ್ಯ	sūrya	ಆಶ್ಚರ್ಯ	āścarya
ಹೇಗೆ	hēge	ಹತ್ತಿರ	hattira	ಸ್ವಾತಂತ್ರ್ಯ	svātaṁtrya
ತಾಯಿ	tāyi	ಪುಟ್ಟ	puṭṭa	ಪ್ರತಿಜ್ಞೆ	pratijne
ದೇಶ	dēśa	ಸುಮ್ಮನೆ	summane	ಧೈರ್ಯಶಾಲಿ	dhairyasāli
ಮಾಡು	māḍu	ಧ್ವನಿ	dhvani	ಮೊಮ್ಮಕ್ಕಳು	mommakkaḷu
ಬಂತು	baṁtu	ಜ್ಞಾನ	jñāna	ಮುಖ್ಯೋಪಾಧ್ಯಾಯ	mukhyōpādhyāya
ಮೇಲೆ	mēle	ರಾಜ್ಯ	rājya	ಕೃತಜ್ಞತೆ	kṛtajnate
ಗಂಡು	gaṁdu	ಎಷ್ಟು	eṣṭu	ಗ್ರಾಮಪ್ರದಕ್ಷಿಣೆ	grāmapradakṣiṇe
ನಂತರ	naṁtara	ಎರಡು	eraḍu	ಕರ್ತವ್ಯನಿಷ್ಠೆ	kartavyaniṣṭhe
ಸಂತೆ	saṁje	ಸ್ಪೋರ್ಟ್	sporti	ಸ್ಪರ್ಶಜ್ಞಾನ	spaśajñāna

ದೃಷ್ಟಿ ಪದ—Sight Word Reading-B

ಆಗ	āga	ಆಮೇಲೆ	āmēle	ಮಕ್ಕಳು	makkaḷu
ಆಟ	āṭa	ನನ್ನ	nanna	ಕತ್ತಲೆ	kattale
ಈಗ	īga	ಹಳ್ಳಿ	haḷḷi	ಬದ್ದರಾಗು	baddarāgu
ಊರು	ūru	ಇಲ್ಲಿ	illi	ಆರೋಗ್ಯ	ārōgya
ಮಗ	maga	ಅಪ್ಪ	appa	ವಾಯುವಿಹಾರ	vāyuvihāra
ನದಿ	nadi	ಕಣ್ಣು	kaṇṇu	ಸಮಾಧಾನ	samādhāna
ಮನೆ	mane	ಬಣ್ಣ	baṇṇa	ಪ್ರಾರ್ಥಿಸು	prārthisu
ತಲೆ	tale	ಬುದ್ಧಿ	buddhi	ವರದಕ್ಷಿಣೆ	varadakṣiṇe
ಕಾಡು	kāḍu	ಸಂಭವಿಸು	sambhavisu	ಮನುಷ್ಯ	manuṣya
ರಾಜ	rāja	ಸೋದರ	sōdara	ವಿಶ್ವವಿದ್ಯಾನಿಲಯ	viśvavidyānilaya
ಹಾಡು	hāḍu	ಚೇತರಿಸು	cētarisu	ರಾಷ್ಟ್ರ	rāṣṭra
ಶಾಲೆ	śāle	ಘೋಷಣೆ	ghōṣaṇe	ದೃಶ್ಯ	dṛśya
ನಾವು	nāvu	ಸಂತೋಷ	saṃtōṣa	ಪ್ರಜ್ಞೆ	prajne
ಮಗು	magu	ಹೆಂಡತಿ	heṃḍati	ರೋಮಾಂಚನ	rōmāṃcana
ನೀನು	nīnu	ಶಬ್ದ	śabda	ಆಕರ್ಷಿಸು	ākarsisu
ತೋಟ	tōṭa	ಸ್ನಾನ	snāna	ಅಡ್ಡಪಲ್ಲಕ್ಕಿ	aḍḍapallakki
ಬೇಗ	bēga	ಮೂರ್ಖ	mōrkha	ಕಾರ್ಯನಿವಹಿಸು	kāryanirvahisu
ದೋಣಿ	dōṇi	ಕಟ್ಟಡ	kaṭṭaḍa	ತಿರ್ಮಾನಿಸು	tīrmānisu
ಎಂದು	eṃdu	ಔಷಧ	auṣadha	ಸೂರ್ಯೋದಯ	suryōdaya
ಒಂದು	oṃdu	ಸಂಚಾರ	saṃcāra	ಪ್ರಥಮಚಿಕಿತ್ಸೆ	prathamacikitse
ಮುಂದೆ	mumḍe	ಬಲಶಾಲಿ	balaśāli	ಮೃದುತ್ವ	mṛdutva
ಆನಂದ	ānaṃda	ತರಗತಿ	taragati	ಶಿಕ್ಷಣತಜ್ಞೆ	śikṣaṇatajne
ಗುಂಪು	gumpu	ಗೆಳೆಯ	geḷeya	ಗೃಹಾಲಂಕಾರ	gṛhālamkāra
ಗಂಡ	gaṃḍa	ಭಂಗನೆ	chaṃgane	ಕರ್ತವ್ಯ	kartavya

ಹುಸಿ ಪದ (Pseudoword Reading Test)

ತರಬೇತಿ ಪದಗಳು (Practice items)

ಊಪ	ūpa
ದಿಳ	diḷa
ಷಂತ	ṣaṃta
ಮಾಣಿಗ್ಯ	māṇigyā
ಚೌಂಗರ್ಯ	cauṃgarya
ಭಕ್ಸಿಲು	bhakṣilu

## ಹುಸಿ ಪದ-Pseudoword Reading Test-A

ಅಗ	aga	ಪರಿಟ	perīṭa	ಧುಗ್ನ	dhugna
ಅಟ	aṭa	ಸಿಂಡಿ	siṇḍi	ಬೊತ್ಮೆ	botme
ಹಗ	haga	ಪೀನಿ	pīni	ಗದ್ಬುಣಿ	gadbhūṇi
ವಮ	vama	ಸುಟ್ಟಿ	suṭṭi	ಕೃಡಾನೆ	kṛḍāne
ಈಪ	ēpa	ಜೋತು	jōtu	ಸ್ವಾಶನ	svāśana
ಡನ	ḍana	ಚೌಗು	caugu	ಹಿಸ್ಕಾರ	hiskāra
ಟಲ	ṭala	ಮೆಸೀಟು	mesītu	ಬೆಕ್ಕೋ	bekśmī
ಖಚ	khaca	ಹಂಪು	hempu	ನಿಚೇಷ್ವ	nicēṣṭha
ಹಮ	hama	ಮಂಗಿ	maṅgi	ಬ್ರಿನರ್ತಿ	brinarti
ಔತಧ	autadha	ಗುಡ್ಡಿ	guḍḍi	ನಿರ್ವಾಪ	nirvāpa
ಬಫ	bapha	ಸೆಳ್ಳ	seḷḷa	ಶಕ್ತಾಡಿ	śaktāḍi
ಈದಿ	īdi	ಪವ್ವ	pavva	ಯಶೇಪ	yaślēpa
ಬಾವೆ	bāve	ಮುಬ್ಬಿ	mubbi	ನೇಸ್ವತ್ರ	nēsvatra
ದಾಯಿ	dāyi	ಭಮ್ಮೆ	bhamme	ಸ್ವಾಮಂತ್ರ	svāmamtrya
ಹಿರಮ	hirama	ಸ್ಕಳ	skala	ಸತ್ಯತಿ	saṣṭṭi
ತಿನೆ	tine	ತ್ರಿಸ್ಕ	triska	ಹಮ್ಯಾಕಿ	hamyāki
ಕೌದೆ	kaude	ಜ್ಞಾರ	jnāra	ದಿಕ್ಸಾಳ	dikśāḷa
ದೇಸು	dēsu	ಬ್ಲುಶ	bluṭha	ಬೆಕ್ಕೇಮ	beklēma
ನೀಪ	nīpa	ಕೇಲ್ಮಾ	kēlmā	ಎಸ್ವತಿ	esmṭi
ಪಾಪು	pāṣu	ಗುಪ್ಪ	gupna	ಉತ್ಕಮ್ಯ	utkṛmya
ದುಶೆ	duśe	ಗಬ್ಬ	gabda		

## ಹುಸಿ ಪದ-Pseudoword Reading Test-B

ಇಬ	iba	ಮಟ	maṭa	ಸ್ತಾಳೆ	stāḷe
ಈಕ	ēka	ಲೋಟ	lōṭi	ಪ್ಲಿಂಭ	plimbha
ಉಕ	uka	ಚಂಬ	caṃba	ನೀಸ್ಕ	nīska
ಎಬ	eba	ವೀಫ	vīpha	ಸ್ವಣರ	svaṇara
ಓಮ	oma	ಗೋಕು	gōku	ಸ್ವಾಶಮಿ	svāśami
ಟದ	ṭada	ಮಾರಳ	māraḷa	ದಾಬರೆ	dābmare
ಪಗ	paga	ಎಡಮ	eḍama	ರಾಷ್ಟಯ	rāṣṭaya
ಪವ	pava	ರುಣಕೆ	ruṇake	ಬೆಂಪ್ಲ	bempla
ನಸ	nasa	ಮುಜ್ಜೆ	mujji	ನುಲ್ಕಣ	nulkaṇa
ಮಿಬ	miba	ಬೊಕ್ಕು	bokku	ಪೆಗ್ವಟ	pegvaṭa
ರಳ	raḷa	ಪೆಟ್ಟಿ	peṭṭa	ಭಕ್ತಾಚ	bhaktāca
ಪಚ	haca	ಲುಟ್ಟಿ	luṭṭi	ತಾಸಲೆಪ	taślēpa
ಶುಮ	śuma	ಡಿಸ್ಸಿ	ḍissi	ಪ್ಲೆಂಡೆಸ	pleṇḍesa
ಮೈಪ	maipa	ರೋಗ್ಗ	rogga	ಸ್ಲಿಂತ್ರಿಕ	slimtrika
ಬೀಸೆ	bīse	ಕೀಸ್ಸ	kīssa	ಹೊಬ್ಬಮ	hobsama
ವಾಂಪ	vāmpa	ಜ್ಞಾಳ	jñāḷa	ಸಾಪ್ಪಜ	sāpnaja
ಟಪ್ಪೆ	ṭapai	ಪ್ರೇಟ	prēṭa	ಸುನ್ಯಾಲ	sunyāla
ದೋಲಿ	dōli	ಗ್ಲಾಂಪ	glāmpa	ಸ್ವಜಲ	smrjala
ಬೇಖ	bēkha	ತ್ರಾಬೆ	trābe	ಸೀಕ್ಸರ	sīksara
ಶಾಮ	śāma	ಪ್ಲಾಕ	plāka	ದುಷ್ಕಳ	duṣkṛaḷa
ಪೌಂ	śauri	ಪೆಕ್ಟ	pekta		

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