

**NORMALIZATION OF READING VOCABULARY IN STUDENTS OF ILAM CITY**

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E-mail: [xozns2006@yahoo.com](mailto:xozns2006@yahoo.com)**Abstract**

*Introduction: Reading vocabulary is the most important predictor of students' achievement. Knowledge about VOCABULARY refers to a reader's ability for appropriate response to words in a text. Objective: The aim of this study was to demonstrate reliability and validity of the Persian version of reading vocabulary.*

*Method: This research was a descriptive study to evaluate the psychometric properties of a reading vocabulary scale among students in Ilam, Iran. The study population constituted a set of students in Ilam, Iran for the academic years 2013 to 2014. The sample size included 782 students selected by cluster random sampling.*

*Results: The results of this study illustrate that items of point-biserial correlation were completely positive, except for items 6, 7, 8 and 9. Results determined point-biserial correlation between 0.95 and 0.96 oscillated and biserial correlation between -1.30 and 1.30 oscillated; average load factor of 0.70 and standard deviation of 0.01, and root mean square (RMS) =.35 was calculated.*

*Conclusion: This research is an important contribution to the literature in standard way measurement of reading vocabulary applicable to future research. The main limitation of this research was the lack of financial resources to implement the study in a different part of Iran. Another limitation was non-cooperation between some school administrators and examiners that wasted the researcher's time and money.*

**Keyword:** *standardization, reading, vocabulary, correlation, biserial, achievement, students, Ilam*

**Introduction**

The development of vocabulary is so important for a child's success in education that it should not be left to chance. Assuming that we learn 3000 or 4000 words every year, acquisition all of such volume is impossible by direct instruction. There are three additional ways that new vocabulary is acquired: a wide-range of reading, talking about words and listening to others as they talk about words. All of these routes to vocabulary acquisition help students to develop a consciousness of vocabulary (Rubin and Opitz, 2007).

In the primary grades of formal education, students begin to encounter words that are spelt the same way but have different meanings based on their context in a sentence. For example, students learn that the word 'saw' in "I saw Sara" does not carry the same meaning as in "Jeanne will help his father saw the tree." When first grade students recognized that saw, train, coat, and so many other words have different meanings based on their surrounding words, then vocabulary consciousness begins to develop. This consciousness grows when they begin to enquire and to look up meanings of the new words that they come across in their everyday activities. Another way to challenge first grade students and to help them expand their vocabulary is by learning word parts. First grade students can learn about prefixes, suffixes and roots in order to expand their vocabulary. In addition, as students become more advanced in reading in the second grade so they encounter new contexts for words that had previously only been understood in one context. In the second grade, students should be guided to a broader understanding of vocabulary (Rubin and Opitz, 2007).

In the Persian language, there are many words that combine with other words to make new words, such as, grandmother (compound words). Also, a root word can be combined with a letter or a group of letters either as a prefix or suffix of the root word to form a new, related word. According

to the National Reading Panel (2000), vocabulary occupies a central position in learning how to read. A student's vocabulary has a significant effect on reading achievement. Knowledge of vocabulary requires the reader not to only know a word, but also to apply it in the correctly context (Lerner and Kline, 2006). This study tried to normalize the reading of vocabulary. It is important to know that oral vocabulary is different from reading vocabulary. Oral vocabulary refers to the words a child uses in speaking and in listening, but reading vocabulary refers to the words that a reader can recognize in print (Lerner and Kline, 2006). Students develop their vocabulary knowledge both indirectly and directly. Methods for indirect instruction include expansive use of oral language and by reading extensively on ones own. In direct instruction, words are explicitly taught using word-learning strategies. According to McKenna (2004), students learn words gradually. Most words require exposure 20 times in context before an adequate grasp of their meanings is acquired.

According to Proctor et al. (2012), vocabulary includes morphology, semantics and syntax. Morphological awareness means understanding the structure of words, such as combinations of meaningful units (for example, book + shelf = bookshelf). Semantic awareness means an understanding of how words are related conceptually (for example, school and teacher). Syntax refers to awareness of grammar and language structure. Students with problems in reading vocabulary may have difficulty in synonyms/antonyms or analogs, or may have difficulty in both or three of these areas in reading vocabulary. This study focuses on determining reliability and validity in the reading vocabulary scale and addresses the following research questions:

1. Does the reading vocabulary scale provide appropriate reliability?
2. Does the reading vocabulary scale provide appropriate validity?

## **Methodology**

### **Preparation**

The first step in this study was preparation of the Persian version of the reading vocabulary scale that was made based on Schrank et al. (2004). After that, the Persian version of the reading vocabulary scale was sent to two Persian literature experts for improvement and to make any necessary adjustments. The role of the Persian based language expert was to modify the structural scale. Back translation was used to increase confidence. The researchers used a pilot study in to prepare the Persian version of the reading vocabulary scale. Results of the pilot study show reliability of 0.93 which was considered good.

### **Population and Sample**

The population used in the study constituted students in Ilam city during the education year 2013 to 2014. Random cluster sample size was used to determine the sample size. In this study, level of education included elementary, secondary and high school. The sample was selected by the three-stage cluster sampling method. The first step was identification of school districts and then a list of schools was prepared at the second stage. In the third step, 18 schools were selected. Finally, based on the Morgan table 782 students were tested in three degrees and 12 grades.

### **The reading vocabulary scale**

The reading vocabulary scale is applicable to different age groups. This scale measures the skill in reading words and supplying appropriate meanings. It allows an examiner to evaluate word vocabulary skills. The task requires an ability to read words in part: synonyms, antonyms, and verbal analogies. Performance on reading vocabulary was related to basic reading skills. Low performance on this scale may be a function of limited basic reading skills, difficulty in word comprehension or both. In synonyms, the subject was required to state a word similar in meaning to the word that was read. In antonyms, the subject was required to state a word that was opposite in meaning to the word that was read. In analogies, the subject was required to read three words of an analogy and then provide the fourth word to complete the analogy. Items in the test became increasingly difficult within each task. Only one-word responses were accepted. This test had

median reliability of 0.88 in the age ranging of 5 to 19 and 0.92 in adults. Also, results of the pilot study obtained higher levels of reliability in Ilam, Iran.

## Results

In this study, SPSS and BILOG-MG software were used for data analysis. Analysis of data based on ranking percentages and the Rush model are illustrated in Tables 1 to 10. Participants in the study consisted of 782 students.

### Analysis of reading vocabulary

In this study, results for reliability in reading synonyms were as follows; alpha coefficient of 0.95 and split-half between 0.91 and 0.92.

Table 1. Summary and reliability statistics

Test	Age							
	Statistic	6-8	9	10	11	12	13	14
Reading vocabulary	n	69	36	25	30	25	83	110
	M	7.90	15.39	13.72	20.33	27.72	34.92	37.25
	SD	5.3	11.16	6.63	12.64	10.73	11.07	11.16
	r <sub>11</sub>	.94	.97	.96	.97	.96	.99	.99
		<b>Age 15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20 &amp; above</b>	<b>Median</b>
	n	129	109	64	46	26	30	.95
	M	42.43	42.46	43.47	46.39	55.50	58.57	
	SD	9.91	10.07	1.43	10.27	4.44	6.46	
	r <sub>11</sub>	.99	.99	.98	.98	.96	.70	

Table 1 shows the sample size, mean, standard deviation, reliability, and standard error in ages 6 to 20 and above for reading vocabulary in Ilam, Iran students for the academic years of 2013 to 2014. Based on this table, the median reliability was 0.95 and this reliability determines as score above the average.

### Validity

The present study, for obtaining validity in reading vocabulary scale employed specialist opinion, cross correlation and construct validity.

**1. Cross correlation in the reading vocabulary scale with reading fluency scale:** Cross correlation between these two scales provided validity. The results show a high correlation between reading vocabulary and reading fluency.

**2. Construct validity:** Factor analysis was used to provide construct validity. In this study, principle component, varimax rotation and rotation values were used to analyze the questions. Results showed that more questions had been uploaded on 3 of the factors. In this study, KMO equal to 0.94, Bartlett sphericity test with Chi-square was evaluated as 11711.29, degree of freedom was 325 and significance of the study was determined at  $P < .01$ , such that adequacy of sampling and implementation of factor analysis were justified. Finally, questioners were analyzed using classical model (CTT) and Roush model (LP1).

Table 2. Difficulty and correlation items based on CCT for reading synonyms

Item	Difficulty	Item difficulty on a Logit scale	Point-biserial correlation	Biserial correlation
1	7.5	1.48	.15	.29
2	88.3	-1.19	.63	1.04
3	13.2	1.11	.18	.28
4	87.3	-1.14	.59	.95
5	72.3	.56	.9	1.21

6	25.3	.64	.96	-1.31
7	11.4	1.21	-.58	-.95
8	26.6	.6	-.95	-1.28
9	1.3	2.57	-.01	-.04
10	74.7	-.64	.95	1.3
11	64.3	-.35	.84	1.07
12	74.4	-.63	.97	1.31
13	71.4	-.54	.92	1.23
14	74.4	-.63	.97	1.31
15	58.9	-.21	.76	.97
16	74.4	-.63	.96	1.31
17	11.5	1.2	.04	.07
18	74.4	-.63	.97	1.31
19	57	-.17	.74	.94
20	74.4	-.63	.96	1.31
21	62	-.29	.81	1.03
22	74.4	-.63	.97	1.31
23	57.1	-.17	.71	.9
24	74.4	-.63	.97	1.31
25	36.7	.32	.38	.5
26	74.4	-.63	.96	1.31

Table 2 showed positive point-biserial correlation on all items except for items 6, 7, 8 and 9. Point-biserial correlation oscillated between 0.95 and 0.97 and biserial correlation oscillated -1.31 and 1.31. Also, load factor had an average of 0.70 and standard deviation of 0.01. In addition RMS evaluation was 0.34. Furthermore, LP2 analysis showed that the average power discriminated was 6.28 and standard deviation was 5.68. Chi-square in LP2 model was evaluated at 863.1 with 40 degrees of freedom and 0 .01 significance.

Table 3. Difficulty and correlation items based on CCT for reading antonyms

Item	Difficulty	Item difficulty on a Logit scale	Point-biserial correlation	Biserial correlation
1	7.5	1.48	.15	.29
2	88.3	-1.19	.63	1.04
3	13.2	1.11	.18	.28
4	87.3	-1.14	.59	.95
5	72.3	-.56	.9	1.21
6	25.3	.64	-.96	-1.31
7	11.4	1.21	-.58	-.95
8	26.6	.6	-.95	-1.28
9	1.3	2.57	-.01	-.04
10	74.7	-.64	.95	1.29
11	64.3	-.35	.84	1.07
12	74.4	-.63	.97	1.31
13	71.4	-.54	.92	1.23
14	74.4	-.63	.97	1.31
15	58.9	-.21	.76	.97
16	74.4	-.63	.97	1.31
17	11.5	1.2	.04	.07

18	74.4	-.63	.97	1.31
19	57	-.17	.74	.94
20	74.4	-.63	.97	1.31
21	62	-.29	.81	1.03
22	74.4	-.63	.97	1.31
23	57.1	-.17	.71	.9
24	74.4	-.63	.97	1.31
25	36.7	.32	.38	.49
26	74.4	-.63	.97	1.31

Table 3 showed the point-biserial correlation on all items as positive, except for items 6, 7, 8 and 9. Point-biserial correlation oscillated between 0.96 and 0.97 and biserial correlation oscillated between -1.31 and 1.31. Also, average load factor was 0.71 and standard deviation was evaluated at 0.01. In addition, RMS was evaluated at 0.36.

**Table 4. Difficulty and correlation items based CCT for reading vocabulary analogs.**

Item	Difficulty	Item difficulty on a Logit scale	Point-biserial correlation	Biserial correlation
1	7.5	1.48	.61	.3
2	88.3	-1.19	.64	1.05
3	13.2	1.11	.18	.29
4	87.3	-1.14	.59	.95
5	72.3	-.56	.89	1.17
6	25.3	.64	-.95	-1.29
7	11.4	1.21	-.57	-.93
8	26.6	.6	-.94	-1.26
9	1.3	2.57	-.02	-.05
10	74.7	-.64	.93	1.27
11	64.3	-.35	.84	1.08
12	74.4	-.63	.95	1.28
13	71.4	-.54	.91	1.21
14	74.4	-.63	.95	1.28
15	58.9	-.21	.78	.98
16	74.4	-.63	.95	1.28
17	11.5	1.2	-.02	-.03
18	74.4	-.63	.95	1.28
19	57	-.17	.76	.95
20	74.4	-.63	.95	1.03
21	62	-.29	.81	1.04

Table 4 shows point-biserial correlation on all items as positive except for items 6, 7, 8, 9 and 17. Point-biserial correlation oscillated between 0.95 and 0.95 and biserial correlation oscillated between -1.29 and 1.28. Also, load factor was determined with an average of 0.69 and standard deviation was 0.01. In addition RMS was determined at 0.36. Furthermore, LP2 analysis showed that average power discriminated at 5.14 and standard deviation was 3.41.

## Discussion

The aim of this study was to evaluate psychometric properties of the reading vocabulary scale for Iranian students with reading disorders. The results of this study illustrated that Cronbach's alpha in subscale synonyms determined 0.95 and split-half evaluations determined 0.91 and 0.92.

Cronbach's alpha in subscale antonyms determined 0.94 and with split-half evaluations determined 0.87 and 0.93. Finally, Cronbach's alpha in subscale analog of 0.89 and split-half evaluations determined 0.82 and 0.89. The results of this study were consistent with the results of Schrank et al. (2004). In the present study, specialist opinion, cross correlation and construct validity were employed to obtain validity. Cross correlation in the scale of reading synonyms with that of reading fluency provided validity. Results showed a high correlation between reading vocabulary and reading fluency. Factor analysis was used to show construct validity. In this study, principle component, varimax rotation and rotation values were used to analyze the questions. Results showed that more questions had been uploaded on 3 factors. In this study, KMO equal to 0.94, Bartlett sphericity test with Chi-square was equal to 11711.29, degree of freedom was equal to 325 and significance of the study was determined at  $P < .01$ , such that adequacy of sampling and implementation of the factor analysis were justified. Analyzed items for reading vocabulary showed point-biserial correlation oscillated between  $-.95$  and  $+.96$  and biserial correlation oscillated between  $-1.30$  and  $+1.30$ . The results of this study were consistent with the results of Schrank et al. (2004), Mihandoost (2014), Ewers and Brownson (1999) and Wookcock (1978, 1999).

**Conclusion:** The results of this study make an important contribution to the literature in the standard way measurement of reading for application in future research. The results of this study are in the event of item-response theory. According of this theory, the main objective was that of measurement, perception ability and skills evaluated by responses certain questions. Data analysis in diagnosing the reading vocabulary scale demonstrated the ability to distinguish a strong learner from a poor learner in the area of reading vocabulary.

**Limitation:** The main limitation of this research was the researcher's financial inability that prevented the implementation in a different part of the country. Another limitation was non-cooperation of some school administrators with examiners that wasted the researchers time and money.

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