

## **Alternate Form Reliability of the PPVT-III in 100 ESL University Students**

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### **ABSTRACT**

*Alternate form reliability of Dunn and Dunn's (1997a) Peabody Picture Vocabulary Test-III (PPVT-III) was measured in 100 linguistically diverse, academically successful, upper division university students studying English as a second language (ESL). The PPVT-III appeared to reliably measure English receptive vocabulary in this adult ESL population. Age-based standard scores between Form A and Form B of the test correlated at  $r = .94$ . Participants' standard scores (mean age 23 years 6 months) were comparable to average PPVT-III reference scores for graduating high school seniors and entering college freshmen in the United States (18;7 on Form A, 18;2 on Form B).*

The primary purpose of this study was to determine the effectiveness of assessing receptive English vocabulary in 100 linguistically diverse, academically successful, upper-division university ESL students using the PPVT-III. The degree of alternate form reliability was documented by correlating students' scores between forms A and B of the PPVT-III. Their performance was compared with published normative data.

### ***Views on vocabulary acquisition***

Lexical competence—meaning knowledge of vocabulary and the ability to use that knowledge in communication—is a key component to overall communicative competence in a given language (Coady & Huckin, 1997). Simple vocabulary terms are the first elements of language that a baby utters (i.e. mama, bottle), and further learning of language proceeds from that point. In the process of learning a second language, individuals discover that building vocabulary is a challenging aspect from the very beginning. True language acquisition cannot take place without a broad base of vocabulary. Wilkins (1972) noted correctly that “while without grammar very little can be conveyed, without vocabulary nothing can be conveyed.” Despite the clear role that vocabulary learning plays in language acquisition, however, how to teach vocabulary has often been less clear. Zimmerman (1997, p. 5) points out that although vocabulary is “central to language and critical to the language learner,” vocabulary instruction has not been a priority.

In the recent history of language teaching methods, which language teachers are familiar with, the teaching of vocabulary was traditionally assigned a lower priority because it was generally believed to be an automatic ancillary to speech production, merely a tool. Also, the memorization of lists of words out of context did little to build language skills (Savignon, 1997). The Audiolingual method of the 1940's and 1950's, patterned on conditioning theory from behavioral psychology, held that the core of language learning was grammar. Students memorized set phrases and did pattern drills as a means of internalizing grammar structures through operant conditioning. Because of the emphasis on grammar structure and drills, vocabulary lists that students had to learn were purposely kept simple, and vocabulary items were reused often (Zimmerman, 1997). Terms and phrases from a vocabulary list were a tool to be used for practicing and learning grammar

rather than a critical component of communication. Simple pattern sentences containing the familiar vocabulary terms were often used to teach verb conjugations in the present, past and future tenses, as well as to help the learner grasp other grammar structures.

The movement in the 1960's away from language drills as a means of acquiring language changed the way linguists and language teachers viewed linguistic production. Chomsky's theories about language competence and performance emphasized abstract, internal rules that allowed the learner to generate syntactic structure (Chomsky, 1969). Vocabulary acquisition was assumed to be a part of this process, so there was little concern about how vocabulary was mastered. Little attention was given to the appropriate use of language in different settings, which would include lexicon and word choice.

By the 1970's, however, others sought to move beyond Chomsky's limited definition of competence in order to delineate a broader picture of how language is acquired. Language theorists began to posit that external social factors play a role in language knowledge and use. Thus, sociolinguistic and pragmatic competence came to be viewed as components of overall communicative competence (Hymes, 1972). Communication involved the use of authentic speech akin to that of a native speaker, where interlocutors negotiate meaning. This required a broad vocabulary base (Savignon, 1983).

### ***Vocabulary and English language learners***

Vocabulary is an important element of communicative competence and a good gauge of one's overall ability to understand and speak a second language. One has an increased ability to comprehend as well as to communicate effectively in English if one possesses an extensive base vocabulary. Nation (1990) found that 2,000 high frequency words account for 87% of words found on pages of typical academic texts, and that another 800 academic vocabulary words (Xue & Nation, 1984) account for 8% of university-level texts. Laufer (1997) reports that a learner must know approximately 5,000 lexical items from 3,000 word families in order to understand 90–95% of words in an average, non-academic text, and that a much larger list of low-frequency words are typically found in novels and popular magazines. Regardless of the purposes for which an ESL speaker wishes to learn English words, it is clear that broad lexical knowledge is important to communicative competence in the second language.

### ***Vocabulary and academic success in English language learners***

English proficiency generally, and vocabulary in particular, have been identified as the most important variables in the academic success of ESL students attending U.S. schools and colleges. Saville-Troike (1984) found that an absence of sufficient English vocabulary is a primary barrier to reading comprehension and achievement in elementary school. She measured factors that influence academic achievement in nineteen ESL children in grades second through sixth. Each had well-educated families, had enrolled in the U.S. school with little to no exposure to English, and each possessed initial literacy in his or her native language. Several factors were shown to significantly influence academic performance, but the study concluded that in this population of elementary-school aged ESL children "Vocabulary knowledge in English is the most important aspect of oral English proficiency for academic achievement." (p. 216)

Clipperton (1994) concluded that the size of an ESL university student's English lexicon is the best English proficiency predictor and also provides the greatest assistance in advancing English proficiency. Clipperton reviewed the literature on the theoretical perspectives about second-language vocabulary knowledge and acquisition and concluded that good knowledge of vocabulary is the single most essential component of successful communication. A knowledge of syntax and phonology is of little use without adequate lexicon. Furthermore, something that is germane to the present study, Clipperton reported that the consensus in the literature about the best way to test a student's ability to communicate proficiently in a second language is the need to measure that student's emerging vocabulary. The PPVT-III, a well documented vocabulary testing instrument, was chosen for this study to evaluate its adequacy for testing receptive English vocabulary in university ESL students.

## **Method**

### ***Participants***

A list of potentially eligible international student participants was provided by the university's Department of Institutional Analysis and Data Administration. Participation was voluntary. Potential participants were contacted by telephone or in person when they

visited the campus International Services Office at Brigham Young University (BYU). The participants were an opportune sample of the first 100 qualified upper-division ESL students (54 males, 46 females) who volunteered to participate. Each participant gave written informed consent and met the following inclusion criteria. Each was a nonnative speaker of English born and raised outside the United States who had lived cumulatively in the U.S. for less than ten years. All had completed at least 60 semester credit hours of graded university coursework (and were thus either juniors or seniors in good academic standing), and all were currently enrolled full-time as undergraduate students.

### ***Instrument***

The third edition of the Peabody Picture Vocabulary Test (or PPVT-III) was released by Lloyd M. and Leota M. Dunn in November 1997 (Dunn & Dunn, 1997a) and is designed to gauge a speaker's receptive vocabulary in standard English. In administering the test, as with the two previous editions, the examiner says a word aloud. The individual taking the test then non-verbally points to the one picture from an array of four that he or she feels best represents the target vocabulary word. PPVT-III features include 204 test items on each of two alternate forms of the test (17 sets of 12 questions; Form A and Form B), locator tabs for each set, extended U.S. national norms from age two years two months to 90+ years, and new pictures including modernized content with purportedly better balance for gender and ethnicity. The PPVT-III was well documented as a reliable and valid test of English receptive vocabulary across the normative populations (Dunn & Dunn, 1997b).

Of note to the present study, the examiner's manual states that "for persons for whom English is a second language, the PPVT-III provides a measure of English language proficiency," but it goes on to caution that the standardization sample did not include persons "who had limited proficiency in English" (Dunn & Dunn, 1997b, pp.3-4). No guidance is provided as to the appropriateness of the test along a continuum of second language learning from beginning to advanced learners. More data are needed on the appropriateness of the PPVT-III for measuring English proficiency in ESL learners. This need for more information justifies this present study of 100 demographically and linguistically diverse, academically successful, upper-division ESL university students.

The instruments used were both Form A and Form B of the PPVT-III. The test is not timed and requires one-on-one administration. No reading or writing is required of the participants. During the test the subject points to one of four black-and-white line-drawn pictures presented after the examiner says a corresponding stimulus word. The PPVT-III yields a raw score that is then converted into a standard score using the subject's chronological age. Other normative scores provided in the manual include age equivalence, percentile, normal curve equivalents, and stanine information. Each form of the PPVT-III takes 10 to 15 minutes to administer.

### ***Procedure***

Once the population was determined, all participants were given an oral interview and asked to provide background information relevant to the study. Following the standardized administration protocol, each subject was administered the two forms of the PPVT-III in immediate succession. The order of the presentation of the two forms of the test was alternated to minimize order effects. The same examiner administered both forms to all participants; she was an advanced master's degree candidate in speech-language pathology holding an undergraduate degree in the same discipline with extensive prior experience administering both the PPVT-R and PPVT-III. Both raw score and age based standard score inter-rater agreements between this examiner and a second Ph.D. level licensed speech-language pathologist on 25 sequential administrations of the PPVT-III were found to be 100%. The entire procedure took approximately 25 minutes.

### ***Data analyses***

Descriptive statistics were computed for both Form A and Form B of the PPVT-III. Raw scores were converted into age-based standard scores ( $M = 100$ ,  $SD = 15$ ), percentiles, and stanines. Tables for each standardized score are provided in the PPVT-III manual for each different age group. Pearson product-moment correlations (correlation of equivalence) and paired t tests for dependent means were calculated for both standard scores and raw scores to determine the comparability of PPVT-III alternate forms A and B. An alpha level of .05 was used for all statistical tests. Interpretation of significant correlations was based on the criteria recommended by Maxwell and Satake (1997), that is,  $r < .20$  being slight or almost negligible;  $r = .20$  to  $r = .40$  being low correlation

indicating a definite but slight relationship;  $r = .40$  to  $r = .70$  being moderate correlation indicating substantial relationship;  $r = .70$  to  $r = .90$  being high correlation indicating marked relationship; and  $r > .90$  being very high correlation indicating a very dependable “predictive index of a relationship among variables.” (p.81)

## Results

### *PPVT-III alternate forms A and B*

Data on native language spoken and country of origin revealed that this population of 100 ESL students was culturally, demographically and linguistically diverse. Participants represented 41 different nationalities and spoke a total of 31 native languages. Ages ranged from 18 years to 35 years, with a mean age of 23 years 6 months.

The PPVT-III was standardized using chronological age. For the USA based national norms, the average standard score is 100, which would place an examinee in the 50<sup>th</sup> percentile and in the 5<sup>th</sup> stanine. On the PPVT-III Form A, the average age-based standard score for the BYU ESL group was 95. This score was at the 45<sup>th</sup> percentile and the 4<sup>th</sup> stanine. On the PPVT-III Form B, their average age-based standard score was 94, which was at the 44<sup>th</sup> percentile and the 4<sup>th</sup> stanine.

The average chronological age of the 100 participants was 23 years 6 months. Their age-based standard scores were comparable to average PPVT-III reference scores for graduating high school seniors and entering college freshmen in the United States (18;7 on Form A; 18;2 on Form B), and were only slightly below those of same-age native English-speaking peers in the PPVT-III standardization samples.

Table 1 shows a summary of raw scores and age-referenced standard scores for both Form A and Form B of the PPVT-III administered to the BYU ESL students. Comparisons of mean scores between forms were calculated using paired t tests. The t tests on both standard scores and raw scores showed no significant alternate form differences.

Pearson product-moment correlations were calculated for both age-based standard scores and raw scores to determine the comparability of Form A and Form B of the

PPVT-III for the total ESL group. Significant correlations were found between the scores received on alternate forms. Using participants' standard scores, the Pearson product-moment correlation between Forms A and B was  $r = .94$  ( $p < .001$ ). Using the group's raw scores, Form A and Form B yielded a correlation coefficient of  $r = .93$  ( $p < .001$ ).

**Table 1** Local Means, Standard Deviations, Minimums, Maximums, and Ranges for PPVT-III Raw Scores and Age-based Standard Scores

Variable	M	SD	Minimum	Maximum	Range
<b>Raw Scores</b>					
Form A	170.01	15.69	126	198	72
Form B	169.80	15.07	128	195	67
<b>Standard Scores</b>					
Form A	96.31	12.50	70	127	57
Form B	94.92	11.58	70	125	55

## Discussion

The primary outcome of this research was the determination that the PPVT-III appears to be a reliable instrument to measure receptive vocabulary in this ESL population. Form A and Form B were found to be reliable equivalent forms of the test. This finding is similar to that of Scruggs, Mastropieri, and Argulewicz (1983) who concluded that an earlier version of the test was a suitable instrument for testing English vocabulary in ESL elementary school children. The two studies agree that the alternate forms of Peabody tests can be confidently used to evaluate receptive English vocabulary in selected ESL student populations. Other researchers found high correlations between alternate forms of earlier versions of the PPVT in other populations (Bing, & Bing, 1984a; Karnes, McCallum, & Bracken, 1982; Levenson, Kairam, Bartnett, & Mellins, 1991; Stevenson, 1986). This research demonstrates that same finding for the PPVT-III in academically successful upper-division ESL university students.

Another interesting finding was the diversity of the vocabulary skills exhibited. The participant sample was restricted to students currently enrolled full-time with a



minimum of 60 semester hours of credits and who were still undergraduates. However, the standard scores that they received ranged 57 points on Form A and 55 points on Form B. The participant with the highest standard score on Form A performed 27 points above the average score for the normative sample of native speakers in the same age group (i.e., 23;6), and 25 points on Form B. The individual who obtained the lowest standard score on both forms performed 30 points (or two standard deviations) below the same-aged normative sample. These extremes illustrated the variance among the receptive English vocabulary skills of these 100 ESL college students studying at a large private U.S. university.

Future research could examine the concordance of PPVT-III scores with results of other standardized proficiency instruments, such as the widely-used Japanese Eiken test of English proficiency (MacGregor, 1997), the Test of English as a Foreign Language (TOEFL), or the Test of English for International Communication (TOEIC) in a similarly diverse population of upper-division university ESL students. If the PPVT-III were shown to have high concurrent validity with these or similar instruments as an index of English proficiency, the PPVT-III could be a useful and economical screening instrument.

In conclusion, the two alternate forms of the PPVT-III appeared to be practical and reliable test instruments to measure emerging receptive English vocabulary in this group of 100 academically successful upper-division ESL university students. These data may provide useful baselines against which to compare other sub-populations of ESL speakers.

## References

- Bing, J. R., & Bing, S. B. (1984). Alternative-form reliability of the PPVT-R for black Head Start preschoolers. *Psychological Reports*, 54, 235-238.
- Chomsky, N. (1969). *Aspects of the Theory of Syntax*. Cambridge: MIT Press.
- Clipperton, R. (1994). Explicit vocabulary instruction in French immersion. *The Canadian Modern Language Review*, 50 (4), 736-749.
- Coady, J., & Huckin, T. (1997). *Second language vocabulary acquisition: A rationale for pedagogy*. New York: Cambridge University Press.

- Dunn, L. M., & Dunn, L. M. (1997a). *Peabody Picture Vocabulary Test (3<sup>rd</sup> Ed)*. Circle Pines, MN: American Guidance Service.
- Dunn, L. M., & Dunn, L. M. (1997b). *Examiner's Manual for the PPVT-III Peabody Picture Vocabulary Test Form IIIA and Form IIIB (3rd Ed.)*. Circle Pines, MN: American Guidance Service.
- Hymes, D. (1972). On Communicative Competence. In J. B. Pride & J. Holmes (Eds.), *Sociolinguistics*. Harmondsworth (pp.269-293), England: Penguin Books.
- Karnes, F., McCallum, R. S., & Bracken, B. A. (1982). Comparison of the PPVT and PPVT-R as possible instruments for screening gifted children. *Psychological Reports*, 51, 591-594.
- Laufer, B. (1997). The lexical plight in second language reading: Words you don't know, words you think you know, and words you can't guess. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 20-34). New York: Cambridge University Press.
- Levenson, R. L., Jr., Kairam, R., Barnett, M., & Mellins, C. A. (1991). Equivalence of Peabody Picture Vocabulary Test-Revised forms L and M for children with Acquired Immune Deficiency Syndrome (AIDS). *Perceptual and Motor Skills*, 72, 99-102.
- MacGregor, L. (1997). The Eiken test, an investigation. *Japan Association for Language Teaching Journal*, 19(1), 24-42.
- Maxwell, D. L., & Satake, E. (1997). *Research and statistical methods in communication disorders*. Baltimore: Williams & Wilkins.
- Nation, P. (1990). *Teaching and learning vocabulary*. New York: Newbury House.
- Savignon, S. J. (1983). *Communicative competence: Theory and classroom practice*. Reading, Massachusetts: Addison-Wesley.
- Savignon, S. J. (1997). *Communicative competence: Theory and classroom practice*. New York: McGraw-Hill.
- Saville-Troike, M. (1984). What really matters in second language learning for academic achievement?. *TESOL Quarterly*, 18, 199-219.

- Scruggs, T. E., Mastropieri, M. A., & Argulewicz, E. N. (1983). Stability of performance on the PPVT-R for three ethnic groups attending a bilingual kindergarten. *Psychology in the Schools, 20*, 433-435.
- Stevenson, J. D., Jr. (1986). Alternative form reliability and concurrent validity of the PPVT-R for referred rehabilitation agency adults. *Journal of Clinical Psychology, 42*, 651-653.
- Wilkins, D. (1972). *Linguistics in language teaching*. London: Arnold.
- Xue, G., & Nation, P. (1984). A university word list. *Language Learning and Communication, 3*, 215-229.
- Zimmerman, C.B. (1997). Historical trends in second language vocabulary acquisition. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp.5-19). New York: Cambridge University Press.

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