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## Pilot Standardization of the Peabody Picture Vocabulary Test—Revised on Hearing Impaired Subjects

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### Résumé

*Les formes L et M du PPVT-révisé (test de vocabulaire par l'image de Peabody) ont été administrées à des sujets malentendants au niveau de l'élémentaire et du secondaire dans un grand pensionnat. Des moyennes et des erreurs types sont fournies pour les ages 4-7 à 14-6. Information et discussion sur la validité d'une autre forme et sur le mode d'acquisition du vocabulaire y sont également présentées.*

### Abstract

*Forms L and M of the Peabody Picture Vocabulary Test—Revised were administered to hearing impaired elementary and junior high school age subjects in a major residential school. Means and standard errors are provided for ages 4-7 to 14-6. Information and discussion of alternate form reliability and pattern of vocabulary acquisition are presented also.*

### Introduction

The Peabody Picture Vocabulary Test (PPVT) has commonly been used as a screening instrument to provide a quick estimate of language development in hearing impaired children (Forde, 1977). The exact meaning of results obtained has been open to question as the PPVT was not normed on hearing

impaired subjects. To facilitate comparison of this population with normally hearing children and with other hearing impaired children Forde published norms for an elementary age population. These norms were found useful by professionals involved with psychoeducational assessment of the hearing impaired.

Unfortunately, the PPVT was revised just after Forde's work was published. The norms so recently developed did not apply to the new Peabody Picture Vocabulary Test—Revised (PPVT-R) (Dunn & Dunn, 1981).

This paper reports pilot norming information on the PPVT-R for hearing impaired subjects from four years seven months to 14 years six months of age. A total of 10 age groups each representing a one year period (e.g., four to seven to five to six) forms the population for this study.

### **Subjects**

Subjects were drawn from a major day-residential school for the deaf. The total number included in this pilot standardization was 102. Each age group contained a minimum of eight subjects. Subjects were selected according to the following criteria:

1. Loss of 80dB or greater across 500 to 2000Hz in the better ear;
2. High or low frequency losses greater than 40dB across 500 to 2000Hz in the better ear;
3. Performance IQ of 80 minimum;
4. Within the age range of four years, seven months to 14 years, six months;
5. Prelingual age of onset.

### **Materials**

PPVT-R administration procedures were followed with specific changes recommended by Forde (1977). As each stimulus page was presented and the oral directions given, an index card bearing the appropriate word printed in one inch high letters was also presented. The only other change in procedure was based on Forde's finding "that using the 6 errors in 8 items criterion was unduly penalizing the hearing impaired students and deflating their scores" (p. 39). Ceiling points were established by use of a criterion of 12 errors in 16 consecutive items.

### **Results**

Results fall into a number of areas of interest. The first was the determination of means and standard errors for age groups from 4-7 through 14-6 years (see Table 1).

A second area of interest was the correlation between scores on Form L and scores on Form M. A healthy correlation must exist if L and M are to be accepted as equivalent. Correlations for the entire age range and for each age level are presented in Table 2.

The third area of interest was the investigation of a "plateauing" effect found in the earlier norming of the PPVT. Forde found irregular score differences between years for hearing impaired children. At some points the

TABLE 1  
Mean Scores and Standard Deviation and Standard Error  
by Age Group Forms L and M

Age Groups	n	Form L			Form M		
		Mean	Standard Deviation	Standard Error	Mean	Standard Deviation	Standard Error
1. 4-7 to 5-6	8	9.63	6.12	2.16	7.75	6.09	2.15
2. 5-7 to 6-6	9	12.78	7.63	2.54	15.89	9.41	3.14
3. 6-7 to 7-6	9	17.56	15.47	5.16	20.44	15.69	5.23
4. 7-7 to 8-6	13	24.00	9.89	2.74	27.69	10.55	2.93
5. 8-7 to 9-6	12	28.17	16.30	4.71	31.00	18.76	5.41
6. 9-7 to 10-6	8	42.13	29.78	10.53	43.75	25.22	8.92
7. 10-7 to 11-6	8	4.88	15.25	5.39	46.13	15.90	5.62
8. 11-7 to 12-6	12	48.75	14.43	4.17	53.50	19.16	5.53
9. 12-7 to 13-6	15	69.47	22.29	5.76	74.53	22.22	5.74
10. 13-7 to 14-6	8	59.63	16.70	5.90	61.38	15.46	5.47

TABLE 2  
Alternate Form Reliability Correlation Coefficients for  
Forms L and M for All Ages and Individual Age Groups

Age	L-M Correlation Coefficient
4-7 to 5-6	.7106
5-7 to 6-6	.8822
6-7 to 7-6	.8690
7-7 to 8-6	.4350
8-7 to 9-6	.9418
9-7 to 10-6	.9439
10-7 to 11-6	.6497
11-7 to 12-6	.7536
12-7 to 13-6	.9169
13-7 to 14-6	.8189
All ages	.9383

differences were so great as to be significant. These points were followed immediately by score differences so slight that no significance was found. This "Forde effect" followed the pattern of a significant difference between the first and second year levels in his study, no significant difference between the second and third, a significant difference between years three and four, and so on in regular fashion. The findings in this area for the present study are presented in Table 3.

### Discussion

Mean scores for hearing impaired children fall far short of those obtained by their normally hearing peers. This phenomenon is routinely found in any assessment of vocabulary with hearing impaired children. It is useful, though, to obtain some idea of the scoring levels of hearing impaired subjects to permit comparison with other hearing impaired individuals as well as with the

TABLE 3  
Plateauing Effect by Age Groups for Form L and Form M

Age Group	Age Groups Significantly Different <sup>1</sup>	
	Form L	Form M
1. 4-7 to 5-6	5, 6, 7, 8, 9, 10	4, 5, 6, 7, 8, 9, 10
2. 5-7 to 6-6	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 9, 10
3. 6-7 to 7-6	6, 7, 8, 9, 10	6, 7, 8, 9, 10
4. 7-7 to 8-6	6, 7, 8, 9, 10	6, 7, 8, 9, 10
5. 8-7 to 9-6	7, 8, 9, 10	8, 9, 10
6. 9-7 to 10-6	9, 10	9, 10
7. 10-7 to 11-6	9	9
8. 11-7 to 12-6	9	9
9. 12-7 to 13-6		
10. 13-7 to 14-6		

<sup>1</sup>.05 level for LSD procedure with a Multiple Range Test

normally hearing. It is interesting to note that standard deviations and standard errors of measurement for the majority of hearing impaired age groups in this study compare favorably with standard errors for roughly equal age groups as given in the PPVT-R manual.

Alternate form reliability must be strong if Forms L and M are to be employed interchangeably with the hearing impaired. Correlations computed for both forms for total subjects and for each age group indicate quite acceptable alternate form reliability levels (see Table 2). Correlations found in this study for hearing impaired subjects exceed those found among normally hearing subjects.

Scores on Forms L and M increase on a yearly basis with the exception of scores for the eldest group (see Figure 1). The decrease at this age is insignificant. This constant increase is a desirable characteristic. However, the regular, built-in increase with age for the normally hearing standardization population characteristic of the PPVT-R was not found in this sample of hearing impaired subjects. As in Forde's earlier study, a plateauing effect was found, though that noted here was not exactly the same as that found earlier. A steady and roughly equal score increase occurred for both forms for age groups one to five (Form L: 3.15 to 6.44; Form M: 3.31 to 8.14). Between age groups five and six, scores increased by 13.96 and 12.75 for L and M respectively. Scores then settled down for groups six to seven (L=2.45; M=2.38) and seven to eight (L=3.87; M=7.37). A marked increase then occurred between groups eight and nine (L=20.72; M=21.03). Between groups nine and 10 the decrease mentioned previously occurred.

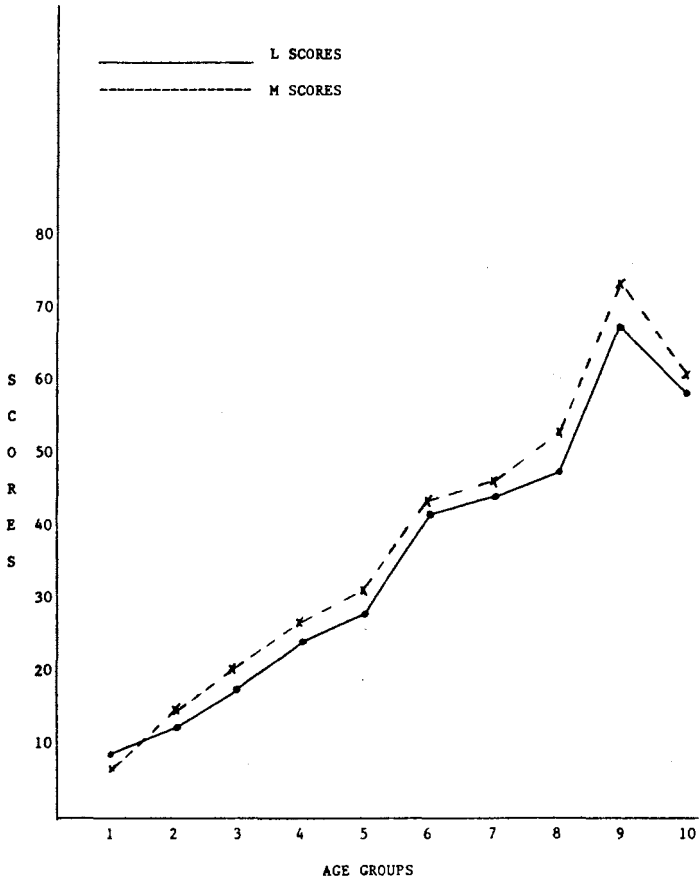


Figure 1: Increase in L and M Scores by Age Group

Though the pilot standardization sample is small, the repetition of a plateauing effect is intriguing. Forde suggested three possible explanations for the steady but irregular pattern of increase in the 1977 study. These may be reexamined in light of results from this study.

1. Hearing impaired children take longer to pass through certain vocabulary acquisition stages than do normally hearing children. When they do pass through one stage, their acquisition rate is comparatively accelerated.
2. The plateaus may indicate merely that the PPVT-R was designed to yield equal steps for normally hearing children and that it is less than a perfect measuring instrument for the hearing impaired.
3. The slow, uneven development of vocabulary in the hearing sample of 1977 may be a reflection of an oral approach, and the use of a Visible English approach might result in a regular increase profile.

Option three appears untenable. All subjects in this pilot standardization were instructed under a Visible English/Total Communication approach. Vocabulary acquisition for hearing impaired children remains slow, and the uneven profile of the earlier study reappears in this study. Possibilities one and two remain. The authors lean toward the belief that both possibilities are valid and interact in a complex fashion which only further research will clarify.

### General Discussion

The PPVT-R is one of a number of assessment instruments commonly used with hearing impaired children. Though it is commonly used, it has not been standardized for that population. Given this fact, the results obtained from a PPVT-R administration are of dubious value.

The present study provides pilot norms for a limited age range, basically that found in most elementary and junior high programs for hearing impaired students. Scores on either form may be compared with scores achieved by normally hearing children or hearing impaired children. The addition of this latter information pool should add to the utility of the PPVT-R when used with this specific population. Extended norming studies with segregated and integrated groups of hearing impaired children are necessary to further document the utility of the PPVT-R with hearing impaired students.

### References

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