Verificação do desempenho de crianças deficientes auditivas oralizadas em teste de vocabulário***

Verification of the performance of oralized hearing impaired children in a vocabulary test

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Abstract

Background: expressive vocabulary of hearing impaired children. Aim: to verify the performance of a group of children with hearing impairment in an expressive vocabulary test. Method: the Language Test for Young Children ABFW - Vocabulary was used in 21 children with moderately-severe to profound hearing losses. Children were divided in three groups according to their age: 3 to 4 years and 11 months; 5 to 6 years and 11 months; 7 to 8 years and 11 months. These children used predominately the linguistic oral code in order to communicate. Results: all of the groups presented a higher number of correct answers and substitution processes when compared to the number of non-designations. Overall, children with ages between 7 and 8 years and 11 months presented a better performance than those with ages between 3 and 4 years and 11 moths, and with ages between 5 and 6 years and 11 moths. Both of these groups presented similar performances. Conclusion: Children presented better performances in the semantic fields of animals, means of transportation and shapes and colors; older children demonstrated to have a greater knowledge of words in most of the tested semantic fields. The ABFW Vocabulary Test identified the semantic fields in which children present a greater or lower domain, as well as the identification of the strategies that hearing impaired children use when trying to name an object. These information allow speech-language pathologists to emphasize the semantic fields that are less known to the children and to explore characteristics and attributes of those objects that are already known by them before their presentation.

Key Words: Impairment Hearing; Vocabulary; Language; Children.

Resumo

Tema: vocabulário expressivo de crianças deficientes auditivas oralizadas. Objetivo: verificar o desempenho de um grupo de crianças com perda de audição em um teste de vocabulário expressivo. Método: o Teste de Linguagem Infantil ABFW - Vocabulário foi aplicado em 21 crianças portadoras de deficiência auditiva de grau moderadamente severo a profundo divididas em três grupos, conforme suas idades: 3 anos a 4 anos e 11 meses, 5 anos a 6 anos e 11 meses e 7 anos a 8 anos e 11 meses. Estas crianças utilizavam predominantemente o código lingüístico oral para se comunicar. Resultados: os indivíduos pertencentes aos diferentes grupos etários forneceram mais respostas corretas e processos de substituição ao nomearem as figuras solicitadas do que não designaram. Em geral, as crianças com idades entre 7 anos a 8 anos e 11 meses demonstraram melhor desempenho do que aquelas com idades entre 3 anos a 4 anos e 11 meses e 5 anos a 6 anos e 11 meses, cujos comportamentos foram semelhantes. Conclusão: as crianças demonstraram melhores desempenhos nos campos conceituais animais, meios de transporte e formas e cores; as crianças mais velhas mostraram maior conhecimento dos vocábulos na maioria dos campos conceituais. Ao verificar o desempenho destas crianças no Teste de Linguagem Infantil ABFW - Vocabulário, foi possível concluir que tal verificação permitiu a identificação dos campos conceituais em que as crianças possuem maior ou menor domínio, assim como o reconhecimento dos recursos que os sujeitos deficientes auditivos utilizam na tentativa de nomear. Estas informações permitem que o fonoaudiólogo enfatize os campos conceituais menos conhecidos pelas crianças e abordem os traços e atributos dos objetos já conhecidos por elas, antes de apresentá-lo.

Palavras-Chave: Deficiência Auditiva; Vocabulário; Linguagem; Crianças.

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Introduction

The effects of hearing privation, despite dependent on certain variables, affect in different degrees some human behaviors aspects, making difficult the integration of the hearing impaired individual in the society (Russ et al., 2003; Lieu, 2004).

Correction measures (use of hearing aids, cochlear implant, family guidance, rehabilitation methods, etc.) have improved, adapted and been early applied in an attempt to minimize the impact of the hearing impairment in the language acquisition and development process.

The literature reveals that the limited opportunities to hear lead to the privation of experiences with negative consequences for the world knowledge and vocabulary development. According to Azcoaga et al. (1977), the lack of hearing feedback in coincidence with the words that represent the objects present in the child's environment interferes in the acquisition and improvement of the vocabulary. Bommarito and Chiari (1996) affirmed that speaking through words does not substitute living and experimenting, but expresses what can be said about them allowing the construction of knowledge, the sharing and the transmission of ideas, feelings and, above all, socio-cultural values.

According to Zamorano (1991), besides being a communication instrument the language function triggers the meaning dimension.

Vigotsky (1991) reported that words are units in which the thought and the speech are inter-related, functioning firstly as a way for a concept formation and latter becoming its symbol.

Luria (2001) reported that the Word is the language's fundamental element. The word codifies and transmits experiences, designating things, actions and relations; gathering objects in certain systems and individualizing characteristics. Furthermore, the word allows the human being to operate mentally with absent objects.

The linguistic productions of hearing impaired subjects are usually simple, broad and concrete-related. Many researchers point to the scarce and restrict vocabulary as one of the factors that don't allow the use of more punctual, complex and structured verbal emissions by those individuals (Luetke-Stahlman, 1993).

Although researches have been carried out aiming to understand the difficulties and the nature of the language acquisition and development process in hearing impaired or deaf individuals, only a few studies describe the words acquisition process by these children.

The knowledge of how this process occurs in hearing impaired individuals would help to obtain better results during the therapeutic intervention and would clarify some theoretical questions about the semantic aspect of language in normal children.

The purpose of this study was to verify the performance of a group of oralized hearing impaired children in an expressive vocabulary te

Method

This research was approved by the Research Ethics Committee of the Federal University of São Paulo (UNIFESP - EPM), CEP n°. 1477/03. The subjects' care takers read and signed the Informed Consent Term.

Twenty one children, male and female, from 3 years and 5 months to 8 years and 8 months old, with bilateral moderate-severe to profound sensorineural hearing loss and who used predominantly the oral linguistic code to communicate took part in this study.

All 21 participants had a congenital or a pre-linguistic hearing loss acquired before 2,6 years of age. All of them used bilateral hearing aids or cochlear implant, and have attended speech-language therapy in order to receive speech, language and hearing stimulation for at least two years. Children did not present any other evident difficulty related to speech and language, besides the hearing loss.

The data collecting was performed in 4 different places: the Speech and Hearing Evaluation and Diagnostic Ambulatory of UNIFESP - EPM / Hospital São Paulo; a Private Clinic located in the North Zone of São Paulo city; a Private Clinic located in São José dos Campos city; and the Santa Terezinha Institute.

Previously to the test application, the children's care takers were individually submitted to an initial interview for the characterization of the sample, with data concerning the identification, the hearing impairment, the speech therapy, the communication, development, schooling and audiometry of the subjects.

Children were than divided in three age groups: 3 years to 4 years and 11 months; 5 years to 6 years and 11 months; and 7 years to 8 years and 11 months. Even not being the purpose of this study to analyze the influence of the variables degree of hearing loss and age in which children started to receive stimulation on their performance in the test,

the individuals of each age group had different degrees of hearing loss (chart 1) and also started to receive speech-language intervention at different ages, as shows chart 2.

The test chosen for this study was the Vocabulary verification task proposed by Befi-Lopes (2000), part of the ABFW - Child Language Test. All the application criteria suggested by the author were followed.

Most of the children were tested by their speech-language therapists and, prior to the testing they received all the application instructions of the test.

A JVC® video recorder Compact VHS Video Entertainment System GR-SV3 and compact cassette tapes JVC® and Maxell® were used for the data collecting.

The recordings of the responses provided by the subjects allowed their registration in the specific protocol of the vocabulary verification task. Following the analysis criteria proposed by Befi-Lopes (2000), the responses were classified as usual word designation (UWD), no designation (ND) and substitution process (SP)

For the statistical analysis the Two Proportions Equality Test was used and the significance level was 0,05 (5%).

Results

Tables 1, 2, 3, 4, 5, 6, 7, 8 and 9 show, respectively, the proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of clothing, animals, food, transports, furniture and utensils, occupations, places, shapes and colors and toys and musical instruments.

Table 10 evidences the proportional comparison of the distribution of the types of responses in each conceptual field independently of the age group.

Chart 1 – Distribution of children from the different age groups according to the variable degree of hearing loss.

Age Groups	Degree of Hearing Loss	N	%	Total	%
3y – 4y11m	Moderate-severe to profound	4	19,0	9	42,8
	Severe to profound	4	19,0		
	Profound	1	4,8		
5y – 6y11m	Moderate-severe to profound	0	0,0	7	33,4
	Severe to profound	4	19,0		
	Profound	3	14,4		
7y – 8y11m	Moderate-severe to profound	0	0,0	5	23,8
	Severe to profound	4	19,0		
	Profound	1	4,8		
Total		21	100,0	21	100,0

Chart 2 – Distribution of children from the different age groups according to the variable age of intervention beginning.

Age Groups	Beginning of intervention	N	%	Total	%
3y – 4y11m	Before 1 year	6	28,5	9	42,8
	After 1 year	3	14,3		
5y – 6y11m	Before 1 year	2	9,6	7	33,4
	After 1 year	5	23,8		
7y – 8y11m	Before 1 year	0	0,0	5	23,8
	After 1 year	5	23,8		
Total		21	100,0	21	100,0

Table 1 –Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of clothing.

	CLOTHING	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,602	
	7y – 8y11m	0,062	0,026*
ND	5y – 6y11m	0,714	
	7y – 8y11m	0,288	0,339
SP	5y – 6y11m	0,535	
	7y – 8y11m	0,106	0,039*

p-values

Table 2 – Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of animals.

	ANIMALS	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,644	
	7y – 8y11m	0,007*	0,003*
ND	5y – 6y11m	0,176	
	7y – 8y11m	0,092	0,397
SP	5y – 6y11m	0,356	
	7y – 8y11m	0,028*	0,004*

p-values

Table 3 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of food.

	FOOD	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,362	
	7y – 8y11m	<0,001*	<0,001*
ND	5y – 6y11m	0,658	
	7y – 8y11m	0,001*	0,010*
SP	5y – 6y11m	0,523	
	7y – 8y11m	0,002*	0,015*

p-values

Table 4 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of transports.

	TRANSPORTS	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,551	
	7y – 8y11m	0,132	0,052
ND	5y – 6y11m	0,255	
	7y – 8y11m	0,030*	0,139
SP	5y – 6y11m	0,217	
	7y – 8y11m	0,633	0,135

p-values

Table 5 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of furniture and utensils.

	FURNITURE AND UTENSILS	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,676	
	7y – 8y11m	<0,001*	<0,001*
ND	5y – 6y11m	0,607	
	7y – 8y11m	0,630	0,362
SP	5y – 6y11m	0,836	
	7y – 8y11m	<0,001*	<0,001*

p-values

Table 6 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of occupations.

	OCCUPATIONS	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,465	
	7y – 8y11m	0,006*	0,001*
ND	5y – 6y11m	0,419	
	7y – 8y11m	0,111	0,034*
SP	5y – 6y11m	0,915	
	7y – 8y11m	0,065	0,066

p-values

Table 7 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of places.

	PLACES	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,982	
	7y – 8y11m	0,241	0,259
ND	5y – 6y11m	0,899	
	7y – 8y11m	0,375	0,338
SP	5y – 6y11m	0,939	
	7y – 8y11m	0,684	0,748

p-values

Table 8 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of shapes and colors.

	SHAPES AND COLORS	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,010*	
	7y – 8y11m	0,293	0,207
ND	5y – 6y11m	0,030*	
	7y – 8y11m	0,045*	0,911
SP	5y – 6y11m	0,265	
	7y – 8y11m	0,544	0,118

p-values

Table 9 - Proportional comparison of the types of responses provided by children from the different age groups in the conceptual field of toys and musical instruments.

	TOYS AND MUSICAL INSTRUMENTS	3y – 4y11m	5y – 6y11m
UWD	5y – 6y11m	0,505	
	7y – 8y11m	0,060	0,225
ND	5y – 6y11m	0,269	
	7y – 8y11m	0,040*	0,272
SP	5y – 6y11m	0,818	
	7y – 8y11m	0,770	0,634

p-values

Table 10 – Proportional comparison of the types of responses provided by children in each conceptual field.

	CONCEPTUAL FIELDS	Clothing	Animals	Food	Transports	Furniture and Utensils	Occupations	Places	Shapes and Colors
UWD	Animals	<0,001*							
	Food	0,042*	<0,001*						
	Transports	<0,001*	0,639	0,010*					
	Furniture and Utensils	0,908	<0,001*	0,008*	<0,001*				
	Occupations	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*			
	Places	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*	0,003*		
	Shapes and Colors	<0,001*	0,938	0,004*	0,724	<0,001*	<0,001*	<0,001*	
	Toys and Musical Instruments	0,118	<0,001*	<0,001*	<0,001*	0,080*	0,003*	<0,001*	<0,001*
ND	Animals	0,680							
	Food	<0,001*	<0,001*						
	Transports	0,046*	0,058	0,028*					
	Furniture and Utensils	0,042*	0,045*	0,003*	0,905				
	Occupations	<0,001*	<0,001*	0,624	0,107	0,036*			
	Places	<0,001*	<0,001*	0,135	<0,001*	<0,001*	0,009*		
	Shapes and Colors	<0,001*	<0,001*	0,162	<0,001*	<0,001*	0,089	0,980	
	Toys and Musical Instruments	<0,001*	<0,001*	0,015*	<0,001*	<0,001*	0,009*	0,361	0,372
SP	Animals	<0,001*							
	Food	<0,001*	0,195						
	Transports	<0,001*	0,800	0,150					
	Furniture and Utensils	0,517	<0,001*	<0,001*	<0,001*				
	Occupations	0,004*	<0,001*	<0,001*	<0,001*	<0,001*			
	Places	0,004*	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*		
	Shapes and Colors	<0,001*	0,002*	<0,001*	0,007*	<0,001*	<0,001*	<0,001*	
	Toys and Musical Instruments	0,090	<0,001*	0,024*	<0,001*	0,173	<0,001*	<0,001*	<0,001*

p-values

Discussion

The results obtained confirmed the expectation previous to this research that children from the age group of 7 years to 8 years and 11 months would demonstrate better performance, using higher proportions of UWD. Nevertheless, the fact that children from 5 years to 6 years and 11 months presented worse performance than children from 3 years to 4 years and 11 months may be associated to the hearing characteristics of the groups, since the majority of individuals with profound hearing impairment is located in the age group of 5 years to 6 years and 11 months, as shows chart 1.

Many authors affirm that the more severe the hearing loss, the more significant is its impact in the language acquisition and development, including the semantic aspect (Wake et al., 2004).

Children diagnosed with hearing impairment who receive early intervention, specially during the first years of life, demonstrate better language performance than those who receive latter stimulation (Moeller, 2000; Yoshinaga-Itano & Gravel, 2001; Geers, 2004; Svirsky et al., 2004; Yoshinaga-Itano, 2004).

As it can be seen in chart 2, most of the children who received intervention before 1 year of age belong to the age group of 3 years to 4 years and 11 months, which could also justify the better performance of these subjects when compared to those from 5 years to 6 years and 11 months.

In the tables correspondent to each conceptual field, it is possible to observe that, older children showed better performance in the majority of them, although this different was not statistically significant. It can also be verified that, although not statistically significant, the group of younger children provided more correct responses than the intermediate group in the majority of the conceptual fields.

Luetke-Stahlman (1993) affirmed that words representing interesting objects for the children tend to appear earlier in the hearing impaired subjects' repertoire. Befi-Lopes and Galea (2000) and Bastos et al. (2004) verified that words designating transports are present in the vocabulary of younger children. Acosta et al. (2003) indicated that the first words learned by children concern to things that can move or be moved.

According to table 10, the conceptual field of food was statistically different than the other conceptual fields. It was possible to observe that children provided correct responses more frequently in the other categories mentioned above. Befi-Lopes et al. (2004) found that words corresponding to basic necessities are present in autistic individuals' speech.

Tables 1 (clothing), 5 (furniture and utensils) and 9 (toys and musical instruments) evidenced that only children between 7 years to 8 years and 11 month predominantly provided UWD responses.

Jerger et al. (2002) reported that the vocabulary development involves the learning of meanings and names of objects present in the quotidian of children, which requires integration of perceptual information.

In the conceptual field of occupations and places (tables 6 and 7 respectively), there was a predominance of SP responses in all groups.

Befi-Lopes, in 2002, affirmed that the good performance in the conceptual fields of occupations and places requires greater mastery of knowledge once it's necessary to have the representation and the abstraction skills for the acquisition of such concepts. Bommarito and Chiari (1996) verified that hearing impaired children presented greater facility with words that represented concrete objects than those involving higher abstraction. Pedromônico et al. (2002) observed that words related to the category place were the least frequent ones in the speech of hearing children from 22 to 36 months.

Children from the different age groups presented a small number of ND responses in all conceptual fields. Befi-Lopes and Galea (2000) found that hearing children with language disorder frequently report not knowing the name of the stimulus presented. It's possible to note in table 10 that in some conceptual fields the low proportion of ND are justified by the high proportion of SP responses.

According to Befi-Lopes (2002), the tendency to name all the requested pictures when children are being assessed decreases with the mastery of the oral, when they prefer not to name something they don't know.

The high proportion of correct responses given by the subjects of all ages in the conceptual field of shapes and colors may be an evidence of the benefic result of the intervention and the schooling (Bommarito & Chiari, 1996; Huttenlocher, 1998).

When the percentage obtained in this study were compared to the percentage values expected for the age groups from 2 to 6 years old (Befi-Lopes, 2004), it was verified that only children from 3 years to 4 years and 11 months presented proportion of responses compatible to hearing individuals of the same age.

The subjects from the other age groups did not show the same behavior similarity regarding the hearing children. Nevertheless, it must be considered

that when these children were born, the technological advances that allow the early diagnostic nowadays were not totally available then. Consequently, these individuals lacked hearing experiences during all the critical period for the language acquisition.

The findings of this research concerning the intermediate and the older age groups agree with the majority of the current reports in the literature regarding the limitation and the delay in the vocabulary acquisition by the hearing impaired children.

Some researchers affirm that the hearing impaired individuals' vocabulary does not improve in the same proportion as it does in hearing subjects, presenting greater and greater delays according to the child's age (Connor et al., 2000; Eisenberg et al., 2004).

Longitudinal researches involving hearing impaired children who received early intervention are necessary for the elucidation of the development pattern of this population, that is, for the verification of the permanency or not of these individuals within the normality parameters.

Conclusion

After the analysis of the results obtained, it was possible to conclude that children from all age groups provided more correct responses in the conceptual fields of animals, transports, and shapes and colors. In the conceptual fields of clothing, occupations and places, the individuals frequently used different SP(s) in an attempt to name. The subjects presented low frequency of ND responses in all conceptual fields.

The age group from 7 years to 8 years and 11 months demonstrated the best performance in the majority of the conceptual fields. When the younger children of the study did not present better performance than those from the intermediate group, they presented a similar performance. Furthermore, children from 3 years to 4 years and 11 months showed a performance compatible to the normality in the majority of the conceptual fields.

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