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THE DIFFERENCES IN PASSIVE VOCABULARY AMONG BLIND, LOW VISION STUDENTS AND STUDENTS WITHOUT VISUAL IMPAIRMENT

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Abstract

Different research hers have shown that poverty in the vocabulary of children with visual impairments is an additional factor in the failure of the child in school. The aim of this research was to examine the level of passive vocabulary development among blind, low vision students and students without visual impairment. The examinee sample consisted of three groups of students: blind (N=51), low vision students (N=42) and students without visual impairment (N=123) attained from students' population grades 1-4 in primary schools in the area of Tuzla Canton and population of blind and low vision students from the boarding school grades 1-4 in the Centers for blind and low vision children and youth, as well as the population of blind and low vision students grades 1-4 that are integrated in regular schools in primary schools of Tuzla Canton. A diagnostic set for examination of capacities for speech, language, reading, and writing of children was used for examination of the passive vocabulary (Bjelica, Posokhova, 2001).

Analyzing the results of discriminant analysis on variables for passive vocabulary assessment it can be concluded that three examined groups vary statistically according to all variables. The disadvantages determined in the development of a vocabulary can be helpful when creating rehabilitation programs for improvement of these skills where student of impaired sight show the weakest results.

Keywords: Passive Vocabulary, Low Vision Students, Students Without Visual Impairment.

INTRODUCTION

Vocabulary is a body of thought for man's linguistic expression (Vasic and Vasic, 2004). The degree of the adopted active and passive vocabulary is important for reading and writing, but it cannot explain the undeveloped ability to recognize words (Assink, and Soeteman Knuijt, 1999).

Learned vocabulary is important for reading skills and academic achievement (Ehri et al., 2007). As the child progresses, he/she increasingly seeks to build new sentences out of parts, therefore, we usually talk about learning new words, and not about learning a new sentence. However, even sophisticated learning of a new word is usually a matter of learning within the context, that is, learning through examples, analogies, and the use of a sentence in which the word may occur (Willard, 1999). Poverty in the vocabulary of children with visual impairment

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is an additional factor of child's failure in school, and even failures in communication (Hrnjica et al., 2004). Blindness reduces the availability of data from the environment, adversely affects the development of communication between mother-child, due to the lack of the language of smile and eyes (Vucinic, 2005).

Many scientists believe that language acquisition in the blind is not late, not aberrant, but that it follows a different path, using other resources for development compared to children without visual impairment (Jovanovic, 2005). McGrgor et al. (2007) point out that language development and vocabulary development depend upon the well-developed lexical and semantic abilities. In the research of data about the connection between tactile perception and some language variables (phonological and semantic recognition, that is, the recognition of certain materials on the basis of phonological and semantic features) Vučinić (2005) examined the blind children at the age of 4-10 years. The results showed that children equally use both types of information processing and memory, with a weaker result recorded in phonological similar series in relation to the heterogeneous, while the difference was somewhat lower when compared to the success of tactile similar series in relation to heterogeneous. Research in a study where the expressive dictionary was investigated in 25 children with visual impairment and 57 children with normal language development, the ability to use linguistic symbols in the 16 tactile-kinesthetic tasks (psycholinguistic test that involves the use graphesthesia and stereognosis) was tested.

The results showed poorer vocabulary in children with visual impairments than in children with normal language development (KieseHimme, 1995). In the conducted longitudinal study Muter et al. (2004) examined the relationship of early phonological skills, written expression, grammar skills, vocabulary knowledge by predicting the known words and the read ones on a sample of 90 children, and came to the conclusion that early developed sense of phonemes, and developed vocabulary and grammatical skills are the foundation for the early development of reading skills. The lexical development was examined in a longitudinal study performed on 42 Italian children. The size of the vocabulary (50, 100 and 200 words), individual differences in score and composition of the vocabulary, its expression and diversity, were examined. The results showed that the total number of children 28% of them had vocabulary fond of 50 words, while others had 100 to 200 words (Dodorico et al., 2001). Tomaseo (2003) points out that there are individual differences in early vocabulary composition, the continuum between the recommended and expressive vocabulary style. These differences between expressive and receptive vocabulary play a major role in the field of cognitive skills (Bates, 1988). Dale (2000) notes the statement that testing language development of children can provide evidence for vocabulary and early lexical development (word map) in general.

Anderson and Olson (1981; by Vucinic, 2005) confirmed the connection between understanding the meaning of words, and perceptual experience for blind and children without visual impairment aged 3-9 years through examination of defining and describing the concrete and abstract items. They came to the conclusion that blind children give more egocentric and functional attributes, and much less perceptual attributes, and they listed more attributes in describing concrete than abstract items, which is a sign that these children do not "copy" the speech of people who they see, but that they perform a specific conceptualization of terms based on information obtained through the senses of touch and other "non visual" senses. A child with visual impairment can use a lot of words and proper syntax, but does not know what the story is about, that is, he/she can use "correct" sentences/words that have minimal meaning for the child. "Regular" speech, but the one without the meaning, does not provide the speech base for reasoning (Vucinic, 2005).

Some authors believe that blind children rely heavily on the stereotype speech and that it has no clear role in the development of speech (Anderson, 1993). Blind children use the verbal routine and stereotypical speech for contact with other people, social interaction and participation in joint activities (Perez-Pereira and Castro, 1997).

Rosel et al. (2005) examined the use of verbosity in visually impaired students and congenitally blind students aged from 7 to 14 years and have found that visually impaired students have lower frequency of the verbosity than the congenitally blind students.

The degree of the adopted active and passive vocabulary is important for reading and writing, but it cannot explain the undeveloped ability to recognize the words (Assink, and Soeteman Knuijt, 1999).

The Aim of the Research

- To determine if there is a difference in the development of passive vocabulary of students with and without visual impairment.

- To determine which variables best discriminate passive vocabulary in students with and without visual impairment.

Work Methods

The Sample of Students

The sample consists of three groups of students: blind, low vision students and students without visual impairment obtained from the population of students from the first to fourth grade of primary schools in the area of Tuzla and the population of blind and low vision students in boarding accommodations who are also from the first to fourth grade at the Center for Blind and Low Vision Children and Youth, as well as the population of blind and low vision students from the first to fourth grades, who are integrated in regular schools in Tuzla Canton.

The Sample of Variables

A total of 20 variables was analized: PRPREOPI - Identification of items according to the description; UPZBIPOJ - Identification and use of collective terms – naming the collective concepts without visual support;

UPORIMAT - Understanding and use of words denoting tools and working materials for different occupations; IMEPRED - Knowing and naming parts of objects; UPIMSUPZ - Knowing and use of nouns with the opposite meaning; POBOJTON - Knowing basic colors and shades; RAZPROBL - Distinguishing objects according to their form; RAZUPPRI - Understanding and use of adjectives that denote spatial quality; RAZPROKU - Distinguishing objects according to taste; RJGRADPR - Adjectives indicating the material of which the subject is made (vocabulary of material adjectives); ODAPRID - Selection of the adjective for the set nouns; PRSUPZNA - Adjectives with opposite meanings (antonyms); PRIBLISZ- Adjectives with related meanings; IMEGLAG - Naming the verbs denoting actions of humans, animals and natural phenomena, and the actions we can do with objects; RAZGLAG - Understanding verbs; GLSUPZNA - Knowing and use of verbs with opposite meanings;
IMEPRIL - Naming adverbs; RAZUPRIL - Understanding adverbs; PRPROSZN - Adverbs with spatial meaning; PRSUPRZN - Knowing adverbs with opposite meanings.

Way of Conducting Research and Measuring Instruments

The study was conducted in the "Center for the Blind and Low Vision Children and Youth" Nedžarići - Sarajevo, and the "Institute for the Blind and Low Vision Future" Derventa, and in regular schools in Tuzla Canton.

During the examination of the passive vocabulary fund in students with and without visual impairment "Diagnostic kit for testing the ability of speech, language, reading and writing of children" (Bjelica and Posokhova, 2001) was used.

The task of the examinees was to provide answers to questions raised verbally without visual support.

Data Processing Methods

The obtained data were statistically analyzed using computer software SPSS 10.00 for Windows. During the statistical analysis, the analysis of variance and discriminant analysis were performed.

The study was conducted with the significance level of 5% (0.05).

Results and Discussion

The study of language development in children with impaired vision starts from the premise that the language development is based on cognitive abilities, cognitive and language dependence affects not only the occurrence of the first word, but also the expression of meaning in early language productions. It is believed that the later development, even some specific aspects of grammatical development, depends on the specific cognitive achievements (Cromer,

1991). Landau (1997) points out that blind children are able to learn the meaning of certain words (look, see) without direct sensory experience. Others authors suggest that blind children are able to analyze the position of words in the statements, formulating rules and learning the rules of grammar principles (Baldwin, 1997). Linguistic experience is considered to be very important for blind children and it is denied by the non-existence of visual input. The use of stereotypical language, imitation and repetition are considered useful for the language development of blind children (Perez-Pereira, 1994). Cutsforth (1932; by Vucinic, 2006) conducted tests on a sample of congenitally blind children (N = 26) and blind children who lost their sight later in life (N = 13) from age of 8 to 21. Respondents were given a task to name 40 different objects and to name some of their properties. The results showed that out of the total number of responses 54% were terms related to visual properties, but the congenitally blind children made 48.2% of such responses, and blind children who lost their sight later in life gave 65% response. Harley (1963; by Vucinic, 2005) conducted the examination of the use of verbosity in 40 children aged 7-14 years who attended two special schools. The children were asked to define certain words taken from dictionaries for elementary school, then to identify objects that are correctly defined just by touching. He concluded that there is a strong negative correlation between IQ and verbosity, as well as chronological age, experience and verbalism. Dimcovic (1991) conducted a survey of general verbal ability on a sample of blind children and children without visual impairment from age of 6-12 years, and she concluded that blind children have a poor vocabulary. Anderson and Olson (1981; by Vucinic, 2005) conducted a study of defining and describing the concrete and abstract objects in blind and children without visual impairment, concrete objects were considered to be items that can be examined by tactile perception, and abstract one those that could be imagined. Blind children specified more properties in describing the concrete than in describing the abstract concepts. Starting from the calculated arithmetic means or average number of points scored on the test of passive vocabulary in all three groups of examinees it is examined whether the average score on the test of passive vocabulary differs between the groups that were examined. Testing was conducted at the significance level of 0.05. From Table 1 it can be seen that there are differences between the groups on all 20 variables of passive vocabulary at the level of 5%.

Table 1: Differences in the performance on test of passive vocabulary of the blind, low vision students and students without visual impairment

Variable	Students without visual impairment	Low vision students	Blind students	F ratio	df1	df2	p-value
PRPREOPI	16,84	12,71	10,43	105,492	2	213	0,00
UPZBIPOJ	8,16	7,33	4,88	83,525	2	213	0,00
UPORIMAT	5,55	4,29	3,96	65,833	2	213	0,00
IMEPRED	27,60	21,88	15,49	164,050	2	213	0,00
UPIMSUPZ	25,82	17,57	15,24	160,203	2	213	0,00
POBOJTON	56,58	45,31	21,25	768,343	2	213	0,00
RAZPROBL	21,62	16,90	12,55	139,820	2	213	0,00
RAZUPPRI	62,50	51,55	32,43	290,292	2	213	0,00
RAZPROKU	16,36	13,69	10,86	70,759	2	213	0,00
RJGRADPR	22,47	17,74	12,00	163,579	2	213	0,00
ODAPRID	13,42	10,88	8,20	32,794	2	213	0,00
PRSUPZNA	51,18	35,00	26,86	102,666	2	213	0,00
PRIBLISZ	8,32	5,52	5,51	29,306	2	213	0,00
IMEGLAG	13,78	11,98	8,25	151,277	2	213	0,00
RAZGLAG	25,98	17,19	14,76	79,245	2	213	0,00
GLSUPZNA	37,30	25,19	20,47	111,146	2	213	0,00
IMEPRIL	11,08	8,00	7,35	119,716	2	213	0,00

RAZUPRIL	11,21	9,24	6,92	119,286	2	213	0,00
PRPROSZN	13,74	11,31	8,37	115,264	2	213	0,00
PRSUPRZN	49,82	33,55	25,94	118,527	2	213	0,00

The calculated p-value (the calculated level of significance) is smaller than the theoretical significance level of 5% (0.05), suggesting that there is a statistically significant difference among arithmetical mean of three sets, that is, in this case there is a difference in the average number of scores in the test of passive vocabulary among the blind, low vision students and students without visual impairment at all particles-variables of the passive vocabulary test. Following the univariate analysis of variance it can be concluded that examinees in different groups differentiate in all variables.

Differences between the three groups (blind, low vision students and students without visual impairment) in the space of group of variables for the assessment of passive vocabulary development were founded by the discriminant analysis at the level of significance ($p < 0.05$). Two discriminant functions were extracted whose discriminant value for the first function is 628.336, and Hi-square test of 40 statistically significant at the 0.00 level. For the second function the discriminant value is 135.294 and the Hi-square test 19 (Table 2). Students without visual impairment, blind and low vision students differentiate at variables of passive vocabulary test.

Table 2: Diskriminative analysis of variable the passive vocabulary of the blind, low vision students and students without visual impairment

Functions	Wilks' Lambda	Hi-sqr	P	
1	628,336	40	0,00	
2	135,294	19	0,00	

Since both of discriminant functions are significant at the level of significance ($p < 0.05$) their structure shown in Table 3 will be analyzed.

The first discriminant function is mostly defined by variables POBOJTON (Knowing basic colors and shades) whose discrimination coefficient is 1.102, the variable RAZUPPRI (Understanding and use of adjectives that denote spatial quality) with a discrimination coefficient 0.55, the variable IMEPRED (Knowing and naming parts of objects) where correlation coefficient is 0.41, and variable PRSUPZNA (Selection of adjectives with opposite meanings) and GLSUPZNA (Knowing and use of verbs with opposite meanings) with the values of discrimination coefficient 0.33.

The second discriminant function is mostly defined by variables UPIMSUPZ (Knowing and use of nouns with the opposite meaning) with discrimination coefficient 0.96, variable IMEPRIL (Naming and understanding adverbs) where the coefficient of discrimination is 0.59, and variable UPORIMAT (Knowing and use of the word denoting tools and working materials for different occupations) with coefficient of discrimination 0.56, then variable RAZPROKU (The distinction between objects according to taste) with a negative value of discrimination coefficient -0.59, then variable IMEGLAG (Naming verbs denoting actions of humans, animals and natural phenomena, and the actions we can do with objects), also with a negative value of discrimination coefficient -0.57.

Table 3: Coefficient of discrimination

Variable	Function	
	1	*2*
PRPREOPI	0,064	0,263
UPZBIPOJ	-0,132	-0,325
UPORIMAT	-0,208	0,561

IMEPRED	-0,412	-0,153
UPIMSUPZ	0,249	0,964
POBOJTON	1,102	-0,265
RAZPROBL	-0,095	-0,097
RAZUPPRI	0,558	-0,005
RAZPROKU	0,167	-0,595
RJGRADPR	-0,042	0,236
ODAPRID	-0,052	0,037
PRSUPZNA	0,336	0,008
PRIBLISZ	-0,317	-0,278
IMEGLAG	0,036	-0,578
RAZGLAG	-0,070	0,198
GLSUPZNA	-0,331	0,125
IMEPRIL	-0,196	0,597
RAZUPRIL	0,278	-0,246
PRPROSZN	0,013	-0,078
PRSUPRZN	-0,161	0,101

Looking at Table 4 we can see that the highest correlations with the first discriminant function have the following variables:

Variable POBOJTON "Knowing the basic colors and shades" (RDV = 0.83); variable RAZUPPRI "Understanding and using adjectives which denote the spatial quality" (RDV = 0.51); variable RJGRADPR "Adjectives that denote the material of which the subject is made "(RDV = 0.38); variable IMEPRED" Knowing and naming parts of objects "(RDV = 0.37); variable IMEGLAG" Naming verbs denoting actions of humans, animals and natural phenomena, and the actions we can do with objects "(RDV = 0.37); variable RAZPROBL " Distinguishing objects according to their form" (RDV = 0.34); variable UPIMSUPZ "Knowing and use of nouns with the opposite meaning" (RDV = 0.34); variable RAZUPRIL "Understanding the adverbs" (RDV = 0.32); variable PRPROSZN "Adverbs with spatial meaning" (RDV = 0.31);

The highest correlations with the second discriminant function have the following variables:

Variable UPIMSUPZ "Knowing and use of nouns with the opposite meaning" (RDV = 0.58); variable IMEPRIL "Naming and understanding adverbs" (RDV = 0.53); variable GLSUPZNA "Knowing and use of verbs with opposite meanings" (RDV = 0 , 43); variable PRSUPRZN " Knowing adverbs with opposite meanings" (RDV = 0.42): variable RAZGLAG "Understanding verbs" (RDV = 0.41); variable UPORIMAT "Understanding and using words that indicate the tools and working materials for different occupations "(RDV = 0.38); variable PRSUPZNA" Selection of adjectives with opposite meanings (antonyms) "(RDV = 0.37); variable PRPREOPI" Identifying objects by description "(RDV = 0.36); variable PRIBLISZ" Understanding adjectives with related meaning "(RDV = 0.32).

Table 4: Cofficient of correlation with discriminant function

Variable	Function	
	1	*2*
POBOJTON	0,836	0,172
RAZUPPRI	0,512	0,180
RJGRADPR	0,380	0,241
IMEPRED	0,379	0,265
IMEGLAG	0,371	0,085
RAZPROBL	0,346	0,295

RAZUPRIL	0,324	0,214
PRPROSZN	0,319	0,203
UPZBIPOJ	0,276	-0,002
RAZPROKU	0,248	0,184
ODAPRID	0,169	0,126
UPIMSUPZ	0,340	0,580
IMEPRIL	0,288	0,537
GLSUPZNA	0,290	0,437
PRSUPRZN	0,303	0,420
RAZGLAG	0,239	0,411
UPORIMAT	0,216	0,381
PRSUPZNA	0,284	0,378
PRPREOPI	0,290	0,365
PRIBLISZ	0,132	0,320

If we look back on the discriminant function we see that those same variables in which the three groups vary the most, showed the greatest correlations with the first and second discriminant function.

If we take a look at the centroid of a cluster, then we see that they show that students without visual impairment have the best developed passive vocabulary (C = 2.224) than the other two groups of low vision students (C = 0.241) and blind students (C = -5.563).

Table 5: Centroids of groups

	Function	
Group	*1*	*2*
Students without visual impairment	2,224	0,499
Low vision students	0,241	-1,963
Blind students	-5,563	0,412

Conclusion

Based on insights gathered during the writing of the paper, as well as on the results of the research, following conclusions can be drawn:

- In the population of students without visual impairment, low vision students and blind students of primary school age significant differences were determined in the abundance of passive vocabulary.

- We can also see that blind and low vision children due to a complete absence or reduced visual perception have no basis for a visual representation of the environment which is largely limiting them in the field of development and vocabulary enrichment compared to their peers with intact vision.

- Based on the obtained results we can conclude the importance of timely education and rehabilitation for a successful educational process of the blind and low vision students, appropriate to their specific needs and possibilities, using this approach would increase their success in the educational process, as well as in everyday living skills.

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