**Language ability in people with intellectual disability**

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Scientific article

Pg. 10

Characters without space

Number of tables – 2

Ilustations – 2

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**Abstract**

It is necessary for children to develop skills for language expression so that they can easily master the curriculum, but also in order to communicate with the environment, to express their attitudes and needs. Children with intellectual disability are characterized by many changes in developmental abilities, one of those changes is the different language development. The purpose of this paper is to show how intellectual deficit affect language development, ie the possibility of forming concepts, and the relationship of this ability with gender and age of the respondents. For the needs of our research, we used the AKADIA test (Atkinson, Johnston and Lindsaz, 1972) - a test for assessing the person's development abilities. We use one of the subtests for assessing the possibility of forming concepts and we adapted it in Macedonian language. We included a sample of 144 students (64 students with ID and 80 students with typical development). Regarding the obtained results, we can conclude that the intellectual deficit negatively affects the possibility of forming concepts, i.e. it makes language development more difficult.

**Key words:** Children with intellectual disability, ACADIA test, formation of concepts

**Introduction**

Speech is the ability to produce the sounds that form words. Language is the words that child understands and uses as well as how he use them. Language includes spoken and written language.

The first 3 years of life, when the brain is developing and maturing, is the most intensive period for acquiring speech and language skills. There appear to be critical periods for speech and language development in infants and young children when the brain is best able to absorb language (1).

Language skills usually blossom between four and five years of age. Children of this age can do the following: verbalize extensively, communicate easily with other children and adults, articulate most sounds correctly, know 1,500 to 2,500 words, use detailed six to eight-word sentences, can repeat four-syllable words, use at least four prepositions, tell stories that stay on topic, can answer questions about stories. At age five most children can do the following: follow three consecutive commands, talk constantly, ask innumerable questions, use descriptive words and compound and complex sentences, know all the vowels and consonants, use generally correct grammar. Six-year-olds usually can correct their own grammar and mispronunciations. Most children double their vocabularies between six and eight years of age and begin reading at about age seven. A major leap in reading comprehension occurs at about nine. Ten-year-olds begin to understand figurative word meanings (2).

Children in one group classify objects that have similar characteristics or function, but for a long time there was a discussion about which of these two criteria is dominant. Between five and seven years, the non-figurative collection begins to develop, objects are classified on the basis of some of their perceived characteristics. With the emergence of concrete logical operations occurs capability for inclusion of classes, i.e. hierarchical operational classification (3). In speech-linguistic terms, this ability is evident through the ability to use hyponyms (4). The older people classify objects in terms of functional similarity, even when the physical similarity between them is high. Contrary to them, children classified items in a particular category primarily according to their physical similarity (5).

Changes in child development are associated with increasing experience and using words in a different context and enriching knowledge about the category and relationships. Increasing the experience improves the child's awareness of the word and its meaning, as well as its ability to use it. Another consequence is the understanding of the use of bound terms - as they are: "but", "therefore", "if ... then", which link complex physical realities between the events. Education as a factor in the development of the meaning of language specifically affect the adoption of knowledge about the meaning of terms that characterize the biological and physical entity, and the understanding and use of complex figurative language (3).

Children with syntactical development problems use less complex sentences, verbal phrases, pronouns, and adjectives (6). Difficulties often occur in the generalization of complex sentences (7). The semantic relationship and lexical characteristics of these children are similar to the language characteristics of younger children (6).

By the mid-seventies it was thought that the linguistic difficulties occur less frequently than speech impairment. However, some studies suggest that this is not a rule, in a Canadian study found that 5% of all tested children age five have linguistic impairment. Although linguistic problems may not be the primary problems in this group of children, but the research shows that the linguistic problems are more common than previously assumed (8). In another, British study analyzing the documentation of 1 100 children, from two to six years old, who were referred to speech therapy, found that 20.4% of them had problems with speech comprehension and 16.9% of them in speech production (9). The prevalence of specific linguistic problems in preschool was 7.4%, considering that 75% of speech problems are normalized to 6 years of age (10).

**Methods**

The subject of our research is the analysis of lexical-semantic development among students with intellectual disability (MID).

Research Aims:

• To assess the quality of lexical-semantic development among students with mild ID and students with typical development;

• To determine the relationship between calendar age and the lexical-semantic development of students;

• To determine the relationship between sex and the ability for lexical-semantic development.

**Research instruments**

We used ACADIA test (Atkinson, Johnston and Lindsaz, 1972), i.e. the subtest for assessment of skill of creating concepts.

The test itself consists 13 subtest for assessing the functioning of the overall person, in our research we used all of them, but in this topic we are focusing on the results obtained from the subtest for assessing skill of creating concepts. This subtest consists four sets of tasks that assess the ability of identifying, sorting and naming attributes, knowledge about relationships between concepts, the ability of classification and the ability for inclusion by similar criterions. The subtext combines drawings and words. There is no limitation of time for solving the test and max points that gen be scored are 20. At the beginning of the subtest, the researcher must emphasize that: For each part of this test, will be given special instructions. Those instruction will be read by the researcher, but if children feel confident they can read instructions by them self.

For the analysis and interpretation of the obtained results, we used the key of the test itself, where we made comparison between achieved and standardized points and calculate standard deviation (SD).

Data analysis was accomplished using the χ2 test, for connection between two independent variables at a level of significance of 0.01, as well as percentages.

**Sample**

The research involved 144 students. We divided the sample into two groups. The first group, our target group, consists 64 students with mild ID, who study in the special elementary schools (SES) in the Republic of Macedonia, in SES “Idnina” and SES “Dr. Zlatan Stremac”. While the control group consists 80 students (from 3 to 5 grade) with typical development from the regular elementary school “Vojdan Cernodrinski”, in Skopje.

**Results**

In the following table no.1 we present the results obtained by using the test in both groups of students.

**Table 1:** Standard deviation of achievements

The analysis of the results showed that only small percentage of students with ID or 14.28% (9 students) don’t have problems in ability of creating concepts. Same percentage of students showed small problems in this ability with a deviation of 1 SD in there achievement.

Problems in ability of creating concepts among students with ID are very high, 38.1% (24 students) of them achieved results with deviation of 2 SD, and 25.4% (16 students) show results with deviation of 3 SD. Particularly low results showed 7.94% (5 students) of the respondents where the deviation was within the framework of 4 SD.

The results achieved by the control group were according our expectations, 90% (72 students) showed appropriate abilities in the process of creating concepts, 7.5% of students (6 students) snow minimal deviation within 1 SD. Only in 2.5% of them (2 students) we observed larger deviations of 2 SD.

The results regarding the gender relationship and the ability to create concepts are presented in the following table.

**Table 2:** Achievements of the subtest in terms of gender:

Regarding percentage analysis, we noticed that male students achieved better results. There are 8.18% of male students more than female students, who achieved excellent results without SD. Higher is the percentage of female students whose results had 2 and 3 SD. However, despite the existence of better results in male students, the χ2 analysis showed no statistical significance between gender and the ability of creating concepts.

In the control group, there is no difference between the achievements of male and female students. The percentage analysis, as well as the χ2 analysis, does not show a statistically significant difference between these two variables.

In the following graphs we present the relationship between the achievements of the test and the age of the students

**Graph 01:** Graphic representation of the achieved results in relation to the chronological age of students with ID

**Graph 02:** Graphic presentation of the achieved results in relation to the class in which the students from the control group attend

Regarding the chronological age of students with ID, we did not find improvement in the achieved results with increasing the chronological age. In Graph 1 we can notice that there is no tendency to decrease SD by increasing the calendar age, i.e. there are no increasing of the achieved and standardized points by increasing the calendar age.

Unlike students with ID, in the control group there is a connection between these two variables. According to the data, we can see that with increasing of calendar age we have increasing of achievement and standardized scores and reducing of SD deviations.

**Discussion**

According to the results, we found that large number of students with ID (85.72%) showed deviation in their achievement. In 14.28% of them, we found small deviation within 1 SD, but high percentage of students (71.44%) achieved results with higher rank of deviation from 2 to 3 or more SD. The achievement of these students alert the need of stimulation program for developing the ability of creating concepts, and thus to improve the educational opportunities and potential of the student.

Gligorović M. and Radić Šestić M. (2010) in their research have shown that students with learning difficulties have similar achievements. In this group of students, 78% of them have problems in this ability, 28% of them had deviation of 1 SD, and 48% of students had 2 or more SDs (4).

Considering these percentages, we can conclude that the frequency of those problems are similar in students with ID and students with special learning problems. In both groups’ those problems results with problems in academic knowledge and skills, social skills problems in everyday life and emphasizes the need for adequate individual treatment. The control group in our research has shown that the general school population has a well-developed ability to create concepts. Only a small percentage of students (10%) showed deviations from the predicted norms. Form them, 7.5% show minimal deviation of 1 SD, and the other 2.5% of students shows more serious problems in this ability. For comparison of these two groups of respondents, we used χ2 test with which we established a statistically significant difference between them, at the level of significance of 0.01. **We can conclude that ID affects negatively on the ability to create concepts, and it makes the speech development more difficult.**

Regarding the connection of the students' gender and the assessed ability, the analysis of the results showed us that boys with ID had higher achievements compared to girls, but this difference is not statistically significant and cannot conclude that there is a connection between the gender of students with ID and the ability to creating concepts. The control group presented similar results. The difference in achievements between the boys and girls has proved to be not statistically significant, and therefore we can generalize that **the ability to form concepts does not depend on the gender of the students.**

Further, we analysis the relationship between the student's calendar age and the ability of crating concepts. We find different results in both groups. Students with ID did not show improvement in their ability with growing up. In the graph where the results are presented, we can notice that there is no tendency of decreasing of SD, i.e. of increasing of the achieved points. The worst results of this subtest were achieved by a group of students at the age of 10 with a SD of 3.17 and an average score of 2.83, as well as the oldest student at the age of 19, had a score with 4 SD, actually she didn’t achieving a single point. **According to these data, we can generalize that the ability to creating concepts is not improving with the increase the calendar age of students with ID.** This conclusion is rejected when it comes to the achievements in the general population. The control group in our research has shown that the results are improving in the higher grades. Students form V grade have best achievements, without SD and the average scored points are 16.37. **Therefore, we would generally point out that the ability to creating concepts develops further in the young school period and depends on the age of the student.**

Kostic V. (2000) examined problems in the vocabulary among students with mild ID. The aims of the research were to determining the influence of gender, intellectual status, chronological age, and school age on speech development. According to the obtained results, students mostly use verbs and nouns, of the total number of used words 718, the nouns and verbs were used 509 times or 70.89% of all words. While the other types of words - pronouns, adverb, conjunctions, adjectives, numbers and particles, all together, were used 209 times or in 29.11%. In this study girls showed better results compared to boys, but the coefficient of correlation does not indicate a statistically significant difference between genders. Regarding the relationship between calendar age and speech development, the author Kostic obtained the coefficient of correlation (r) = 0.23 indicating a low correlation, i.e. a small connection between the examined variables (11). Beers and Nagy (2011) examined literacy among students and found that at the beginning of formal education written vocabulary is shorter and with poorer quality compared to spoken vocabulary in older student (12). Ivanović M. in her research found that the number of dependent complex sentences is higher in older students (93 versus 34), which can be concluded that students from IV grade not only used longer sentences but they are more complex (13), which is consistent with the results obtained by Ravid (2004), Nippold (1994) and Hunt (1970) in their research (14) (15) (16).

**Suggestions**

We believe that these recommendations will enable improvement of lexical semantic development of students with ID:

* When enrolling students with mild ID in educational institutions it is necessary to evaluate the personality of the child by the team of experts, to determine his developmental abilities, including the assessment of speech development, which further would be basis for organization and realization of the educational and rehabilitation process.
* Use of a functional diagnosis which will include an assessment of the person's speech and linguistic abilities.
* Realization of proper treatment by a professional team that will be organized based on the abilities, possibilities and potentials, i.e. based on the individual education plan. If we want this treatment to be effective it must be timely, continuous and scientifically based.

Practical recommendations for the educator who will conduct treatment for improving the speech skills of the students:

* It is necessary to use visual material to support language development;
* The given instructions and information should be short, set in order of execution.
* It is important for the child to have enough time to process the verbal information;
* Child should have enough time to formulate the answer without fear of interrupting it.
* It is important to use an unambiguous language.
* Treatment should be carried out individually or in a small group;
* Expand the vocabulary of the child by adding other, new words.
* Use images, stories, diagrams to encourage creative writing ideas and practical activities.

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