

## THE INFLUENCE OF PRESCHOOL EDUCATION ON THE GENERAL KNOWLEDGE OF STUDENTS WITH A MILD DEGREE OF INTELLECTUAL DISABILITIES

### UTICAJ PREDŠKOLSKOG ODGOJA NA OPĆE ZNANJE UČENIKA SA BLAŽIM STEPENOM INTELEKTUALNIH TEŠKOĆA

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#### ABSTRACT

People with mild degrees of intellectual disabilities are not always easy to distinguish from people without intellectual disabilities. Most of such persons show no signs of brain pathology and belong to families with low formal education and lower socioeconomic status. The aim of this paper is to examine the level of school readiness of students with mild intellectual disabilities, and to determine whether there are differences between students who were included in preschool education and students who were not included in preschool education, in the field of "General Knowledge". The research was conducted on a sample of 60 students with mild intellectual disabilities, both genders, attending I and II grade. The sample of respondents was divided into two subsamples: students with mild intellectual disabilities who were included in preschool education (N = 25) and students who were not included in preschool education (N = 35). The study was conducted via the DABERON-2 test (Danzer, Frances Gerber, Lyonsi Voress, 1991). The test was designed for the examination of ten areas, however, for the purposes of this research, a part of the test related to the examination of the area "General Knowledge" was singled out. The maximum number of points that can be achieved in this area is 30. The results were presented by descriptive statistics, and the differences of the respondents were calculated via the t-test. Students with mild intellectual disabilities who didn't attend preschool education, in the summary variable of the area "General Knowledge", achieved an average score of 22.2 with a standard deviation of 4.8, while students with the same disabilities who did attend preschool education achieved an average score of 18.3, with a standard deviation of 7.9. The results of the t-test showed that there is a statistically significant difference between these groups of respondents, at the level of significance ( $p < 0.01$ ).

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## SAŽETAK

Osobe s blagim intelektualnim teškoćama nije uvijek lako razlikovati od osoba bez intelektualnih teškoća. Najveći broj takvih osoba ne pokazuje znakove patologije mozga i pripadaju porodicama sa niskim formalnim obrazovanjem i nižim socioekonomskim statusom. Cilj rada je ispitati nivo školske spremnosti učenika sa blažim intelektualnim teškoćama, i utvrditi da li postoje razlike između učenika koji su bili obuhvaćeni predškolskim odgojem i učenika koji to nisu na području „Opće znanje“. Istraživanje je provedeno na uzorku od 60 učenika s blažim intelektualnim teškoćama, oba spola, I i II razreda. Uzorak ispitanika podjeljen je na dva subuzorka: učenici s blažim intelektualnim teškoćama koji su bili obuhvaćeni predškolskim odgojem (N=25) i učenici koji nisu obuhvaćeni istim (N=35). Istraživanje je provedeno testom DABERON-2 (Danzer, Frances Gerber, Lyonsi Voress, 1991). Test je konstruisan za ispitivanje deset područja, međutim za potrebe ovog istraživanja izdvojen je dio testa koji se odnosi na ispitivanje područja-opće znanje. Maksimalan broj bodova koji se može postići na ovom području je 30. Rezultati su predstavljeni deskriptivnom statistikom, a razlike ispitanika izračunate su t-testom. Učenici sa blagim intelektualnim teškoćama koji nisu bili obuhvaćeni predškolskim vidom odgoja i obrazovanja na sumarnoj varijabli područja „Opće znanje“ postigli su prosječan rezultat koji iznosi 22,2 uz standardnu devijaciju 4,8 dok su učenici sa istim teškoćama koji su bili obuhvaćeni predškolskim vidom odgoja i obrazovanja ostvarili prosječan rezultat od 18,3, uz standardnu devijaciju 7,9. Rezultati t-testa pokazali su da postoji statistički značajna razlika između navedenih skupina ispitanika, na nivou značajnosti 0,01.

**Ključne riječi:** opće znanje, predškolski odgoj, učenici s blažim intelektualnim teškoćama, školska spremnost

## INTRODUCTION

The American Association on Intellectual and Developmental Disabilities (AAIDD) defines intellectual disabilities as "reduced ability characterized by significant limitations in intellectual functioning and adaptive behaviour, expressed in conceptual, social, and practical adaptive skills." It occurs before the age of eighteen (Luckasson, Schalock, Spitalnik, SprentS, & Tasse, 2002). Three main determinants of intellectual disabilities can be concluded from the definitions, and these are:

- Limitation in intellectual functioning;
- Difficulties in adaptive behaviour; and
- The occurrence before the age of eighteen (18).

Over the years, the terminology related to intellectual disabilities has often changed.

Thus, the definitions have changed, from the former ones that put intellectual retardation in the foreground, emphasizing the incompetence and difficulties of persons, to the present ones that put the possibilities of socialization and training of persons with intellectual disabilities in the foreground. The former definitions were quite negative, so it can be assumed that this was the attitude of society towards people with intellectual disabilities, e.g. "they are the ones who can't do anything". Today's definitions are much more positive, which affects the perception of intellectual disabilities and their abilities in general, both among professionals and in society as a whole. Now the social definition of people with intellectual disabilities is "the one who can be trained to perform simple tasks" (Alimović, 2011).

When it comes to people with mild intellectual disabilities, in addition to intellectual limitations, there are individual strengths that can have a positive effect on improving the level of functioning in everyday life, if the support from the environment is directed personally and continuously provided (Sekušak-Galeveš, 1994; according to Poredoš Lavor and Radišić, 2011).

Kostelnik, Onaga, Rohde, and Whiren (2004) state that there are large differences among children who have the same intellectual disability. If teachers rely too much on the difficulty the child is facing, they may create wrong assumptions, have inappropriate expectations of the child, or anticipate his or her strengths.

Each child is a unique bio-psycho-social structure whose development depends on a number of subjective (genetics, temperament, psycho-physical health) and objective (environment, atmosphere, parenting style, etc.) factors (Ljubetić, Mandarić and Zubac, 2010). So in addition to genetics, the environment has a great influence on the formation of the personality of each individual. In addition to parents and family, the educator / teacher has the most important role in motivating and preparing children for learning. The educator's/teacher's approach, proper assessment of the child's strengths and the teacher's commitment to their development, is in fact the basis for all future knowledge, skills and abilities that the child will acquire through the educational process.

### **Aim of the research**

The aim of this paper is to examine the level of school readiness of students with mild intellectual disabilities, and to determine whether there are differences between students who were included in preschool education and students who were not included in preschool education, in the field of "General Knowledge".

### **Hypothesis**

H<sub>1</sub> – There is a statistically significant difference in the area of "General Knowledge" among students with mild intellectual disabilities who attended preschool education and students with the same disabilities who did not attend preschool education.

## **Sample of respondents**

A total of 60 students with mild intellectual disabilities participated in the study, of which thirty-five students (N=35) did not attend preschool education and twenty-five students (N = 25) who attended preschool education. Students of both genders, attending first and second grade of primary school, were included in the research.

## **Measuring instrument**

The study was conducted with the DABERON-2 test by Danzer, Frances Gerber, Lyons Voress (1991). This test is used to assess school readiness. It consists of 122 variables, which examine the following areas: body parts, concept (understanding) of colours, concept of numbers, suggestions, following instructions, plural, general knowledge, visual perception, motor development, and categories. For the purposes of this research, one part of the test was used, namely the "General Knowledge" area, which refers to checking the knowledge of names and surnames, the concept of the first and last, understanding occupations, differences between subjects, etc.

## **Method of conducting the research**

The maximum number of points that can be achieved in this area is 30. The answers on the DABERON-2 test are scored as (R) - right, (W) - wrong, (N) - no answer, (I) - inadequate answer. The answer in most cases is correct or incorrect, and the child achieves a point only for correct answers, so the correct answer is 1 point, and an incorrect answer is no points (0). The research was conducted individually with each respondent, in a different duration. The average duration of the test is about 20 minutes. Due to the low percentage of children that attended preschool education, the research was conducted in several schools in Bosnia and Herzegovina. The schools in which the research was conducted are: Elementary School Safet-beg Bašagić, Elementary School Ivan Goran Kovačić, and Elementary School Musa Ćazim Ćatić - in the area of Gradačac; then in the area of Brčko District - in the First Elementary School and Second Elementary School - Brčko, in the Seventh Elementary School - Gornji Rahić, Eighth Elementary School - Brka and the Ninth Elementary School - Maoča; Special Elementary and High School Đorđe Natošević in the area of Prijedor, and Public Institution Centre for Children and Youth with Special Needs - Los Rosales - Mostar.

## RESEARCH RESULTS

Table 1. Response percentage by students who did not attend preschool education - in the area of "General Knowledge".

Number	Variable	NO		YES	
		f	%	f	%
1	Your name?	0	0	35	100,0
2	Your surname?	5	14,3	30	85,7
3	How old are you? (use fingers)	14	40	21	60,0
49	Put your finger on the middle. (bird)	12	34,3	23	65,7
50	Put your finger on the first. (child)	5	14,3	30	85,7
51	Put your finger on the last. (child)	12	34,3	23	65,7
52	Put your finger on the penultimate. (child)	26	74,3	9	25,7
53	Put your finger on the second. (child)	20	57,1	15	42,9
73	Which is bigger, a tree or a flower?	4	11,4	31	88,6
74	Which is slower, a car or a bike?	11	31,4	24	68,6
75	Which is heavier, the stove or the sock?	5	14,3	30	85,7
76	Where do we buy fuel?	9	25,7	26	74,3
77	Where can we find a cow?	9	25,7	26	74,3
78	Where do we go when we are sick?	0	0	35	100,0
79	What does a fire-fighter do?	7	20,0	28	80,0
80	What does a dentist do?	1	2,9	34	97,1
81	What do you do when you're sleepy?	3	8,6	32	91,4
82	What do you do when you're hungry?	0	0	35	100,0
83	What do you do when you're thirsty?	2	5,7	33	94,3
84	What are books for?	6	17,1	29	82,9
85	What is the stove for?	3	8,6	32	91,4
86	What is the key for?	0	0	35	100,0
87	What is an umbrella for?	0	0	35	100,0
88	What is the house for?	9	25,7	26	74,3
89	What is the chair made of?	8	22,9	27	77,1
90	What is the coat made of?	23	65,7	12	34,3
91	What is the house made of?	11	31,4	24	68,6
92	How are a fork and a shoe different?	19	54,3	16	45,7
93	How are a bird and a dog different?	22	62,9	13	37,1
94	How are wood and glass different?	23	65,7	12	34,3

The results from the area of "General Knowledge" shown in Table 1 show that out of 35 students with mild intellectual disabilities who did not attend preschool education, all of them answered correctly on the following variables: „Your name?“, „Where do we go when we are sick?“, „What do you do when you're hungry?“, „What is the key for?“ and the variable „What is an umbrella for?“ and thus achieved a percentage of 100% of correct answers.

A large number of correct answers were also achieved by the respondents on the following variables: „What does a dentist do?“ with 34 correct answers (97.1%), then on the variable „What do you do when you're thirsty?“ where the number of correct answers is 33 (94.3%), and on the variables „What is the stove for?“ and „What do you do when you're sleepy?“ with 32 correct answers (91.4%). The percentage of correct answers below 50%, in the area of "General Knowledge", was achieved by students who did not attend preschool education on the following six variables: „How are a fork and a shoe different?“, „Put your finger on the second. (child)“, „How are a bird and a dog different?“, „What is the coat made of?“, „How are wood and glass different?“ and on the variable „Put your finger on the penultimate. (child)“. With 16 correct answers on the variable „How are a fork and a shoe different?“, respondents achieved 45.7% of correct answers, on the variable „Put your finger on the second. (child)“, the number of correct answers is 15, i.e. (42.9%), then, the respondents achieved 13 correct answers on the variable „How are a bird and a dog different?“ with 37.1% of correct answers. The same number of correct answers, a total of 12, was achieved on the variables „What is the coat made of?“ and „How are wood and glass different?“ which resulted in 34.3% correct answers. The variable with the least number of correct answers is „Put your finger on the penultimate. (child)“, where the percentage of correct answers is 25.7%, i.e. the total number of correct answers is 9.

Table 2. Response percentage by students who did attend preschool education - in the area of "General Knowledge".

Number	Variable	NO		YES	
		F	%	F	%
1	Your name?	0	0	25	100,0
2	Your surname?	5	20,0	20	80,0
3	How old are you? (use fingers)	10	40,0	15	60,0
49	Put your finger on the middle. (bird)	7	28,0	18	72,0
50	Put your finger on the first. (child)	6	24,0	19	76,0
51	Put your finger on the last. (child)	9	36,0	16	64,0
52	Put your finger on the penultimate. (child)	17	68,0	8	32,0
53	Put your finger on the second. (child)	14	56,0	11	44,0
73	Which is bigger, a tree or a flower?	8	32,0	17	68,0
74	Which is slower, a car or a bike?	13	52,0	12	48,0
75	Which is heavier, the stove or the sock?	11	44,0	14	56,0
76	Where do we buy fuel?	10	40,0	15	60,0
77	Where can we find a cow?	8	32,0	17	68,0
78	Where do we go when we are sick?	2	8,0	23	92,0
79	What does a fire-fighter do?	6	24,0	19	76,0
80	What does a dentist do?	5	20,0	20	80,0
81	What do you do when you're sleepy?	8	32,0	17	68,0
82	What do you do when you're hungry?	6	24,0	19	76,0
83	What do you do when you're thirsty?	5	20,0	20	80,0
84	What are books for?	7	28,0	18	72,0

85	What is the stove for?	7	28,0	18	72,0
86	What is the key for?	5	20,0	20	80,0
87	What is an umbrella for?	3	12,0	22	88,0
88	What is the house for?	11	44,0	14	56,0
89	What is the chair made of?	14	56,0	11	44,0
90	What is the coat made of?	18	72,0	7	28,0
91	What is the house made of?	14	56,0	11	44,0
92	How are a fork and a shoe different?	21	84,0	4	16,0
93	How are a bird and a dog different?	17	68,0	8	32,0
94	How are wood and glass different?	21	84,0	4	16,0

The results from the area of "General Knowledge" shown in Table 2 show that of the total of 25 students with mild intellectual disabilities who attended preschool education, all of them answered correctly on the variable "Your name?", and thus achieved 25 correct answers, or 100% of correct answers. A total of 23 correct answers were achieved on the variable „Where do we go when we are sick?“, and thus 92.0% of correct answers was achieved. The variable with 22 correct answers, i.e. with 88.0% of correct answers, is „What is an umbrella for?“, while on the variables: „Your surname?“, „What does a dentist do?“, „What do you do when you're thirsty?“ and on the variable „What is the key for?“, the number of correct answers is 20 and the percentage of correct answers on these variables is 80.0%. On a total of 30 variables in this area, the respondents achieved a percentage of correct answers of less than 50% on 9 variables. On the variable „Which is slower, a car or a bike?“, the number of correct answers is 12, that is, a percentage of 48%. Number of correct answers on variables „Put your finger on the second. (child)“, „What is the chair made of?“ and „What is the house made of?“ is 11, that is, a percentage of 44.0%. A small number of correct answers were also obtained by the respondents on the variables „Put your finger on the penultimate. (child)“ and „How are a bird and a dog different?“, where the number of correct answers is 8, and the percentage amounts to 32.0%, while on the variable „What is the coat made of?“ the number of correct answers is 7, i.e. 28.0%. The smallest number of correct answers is on the variables „How are a fork and a shoe different?“ and „How are wood and glass different?“, with only 4 correct answers, i.e. the percentage of correct answers is only 16.0%. Both groups of respondents achieved worse results in the area of "General Knowledge" compared to other surveyed areas. However, comparing the results achieved by students who did not attend preschool education, and the results of the group of students who did attend preschool education, we can see that better results were achieved by students who did not attend preschool education. The research showed that there is a statistically significant difference in this area between the examined groups.

Table 3. Descriptive statistics coverage of preschool education of summary variables by areas for students with mild intellectual disabilities in relation to the attendance/

Areas	Kindergarten	N	AM	SD
General Knowledge	YES	25	18,36	7,98
	NO	35	22,28	4,89

In the area of "General Knowledge", differences in values of both arithmetic means and standard deviations are visible. In students with mild intellectual disabilities who attended preschool education, the arithmetic mean (AS = 18.3) is significantly smaller compared to the other group of respondents, whose arithmetic mean amounts to (AS = 22.2). There are also large differences in the values of the standard deviation, which is higher and amounts (SD = 7.9) for students who attended preschool education, while it is lower for the other group of respondents (SD = 4.8). The values of the standard deviation in this area also show us large individual differences among the respondents in the groups, especially in the first group of respondents.

Table 4. Differences in the level of school readiness of students with mild intellectual disabilities in relation to the attendance/coverage of preschool education

	F	P	T	Df
General Knowledge	6,902	<b>0,011</b>	-2,358	58

The results shown in Table 4 showed that a statistically significant difference in the level of school readiness of students with mild intellectual disabilities in relation to the attendance/coverage of preschool education exists in the area of "General Knowledge" ( $t = -2.358$ ;  $p = 0.011$ ).

## DISCUSSION

Preschool education is the first and basic phase in formal education, and preschool is the first organized form of educational work in which a child is involved and in which it will spend a significant part of the childhood. Consequently, preschool education provides the first opportunities for the adoption of many contents that will enable the child to get to know both his/her natural and social environment. Inclusion of children with disabilities in the preschool education system requires serious multidisciplinary professional support and readiness for teamwork (Liber, et al. 2002, according to Sandberg and Ottosson, 2010).

In preschool, children will get a true picture of diversity on the basis of which they will form their first impressions and their first preferences (Sakač and Marić, 2013). Predispositions with which a child is born determine the pace and upper level of development, and the achievement of that level and quality within it depends on environmental factors and the learning process (Panić, 1984; according to Tomić, Osmić, Karić, 2006). Early learning should not be limited "only to the intellectual sphere of the personality, but engage all aspects of its development, physical sphere and emotions as well as the child's mental strength. It is especially important that the child, thanks to learning, multiplies and develops cognitive

interests, develops a spirit open and ready for search and new experiences, which is the most precious characteristic of a person and a guarantee for many further achievements "(Kamenov, 1987; according to Selimović and Karić, 2011).

In order for preschool education to have a positive impact on the development of a child with developmental difficulties/disabilities, the cooperation of the preschool institution, experts of the appropriate profile, educators and parents is crucial in this process. If we start from an individual approach to the child, recognizing the strengths, needs and possibilities of the child and in creative cooperation find creative ways to meet and fulfil them, there is a greater chance that the goals of preschool education will be achieved.

Every child can achieve more through a thoughtful, creative and effective way of working. Over time, by getting to know itself, its abilities, the children through this type of work can learn to think better, remember better, and upgrade their own abilities. The support of parents, teachers, a positive attitude of peers and the environment, systematic and persistent work of experts - all this contributes to achieving better results in children with developmental difficulties/disabilities. The preschool child mainly acquires knowledge and skills through playing, and for that reason it is necessary to enable children to spend their stay in preschool institutions with quality, and that through creative games designed by experts and educators, the child acquires knowledge and skills in accordance with the child's age. Also, through playing as a basic form of learning for preschool children, in addition to pedagogical work, it is necessary to work on the development of its social interaction, on which the development of motivation in the child to acquire knowledge will depend. The environment in which the child is not accepted has negative impacts on all aspects of the child's development, from the establishment of interaction, communication, emotional development to the adoption of all forms of behaviour and necessary knowledge.

## **CONCLUSION**

Based on the presented research results, we can conclude that there is a difference in the area of "General Knowledge" between students with mild intellectual disabilities who attended preschool education and those with the same disabilities who did not attend preschool education. Better results were achieved by students with mild intellectual disabilities who did not attend preschool education. One of the possible reasons for the results obtained is the insufficient involvement of experts of appropriate profiles for working with children with these disabilities in preschool education institutions, which would apply methods and ways of working in accordance with the child's abilities and capabilities.

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