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HAYEF: Journal of Education

RESEARCH ARTICLE

Drawing Skills in Students with Mild Intellectual Disability

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Abstract

Children's drawings, as well as the development of the ability to draw, are developed under the influence of a number of developmental abilities. The purpose of this research is to assess the quality of drawing in students with intellectual disabilities and to assess the abilities that participate in the formation of drawing. In this research, the ACADIA-test has been used and conducted on two groups of respondents, the target group of 63 students with mild intellectual disabilities and the second group of 80 students with typical development. The 63 respondents from the first group were from third to eighth grade of primary school, which is from the age of 9 to 14, 5 students were from the first grade, 8 students from the fourth grade, 10 from the fifth grade, 13 from the sixth grade, 12 from the seventh, and 15 students from the eighth grade. Thirty-three of the respondents from this group were male and 30 students were female. The 80 respondents from the second group were from third to fifth grade, which is from the age of 9 to 11, 23 students were from the third grade, 30 students from the fourth, and 27 students from the fifth grade. The group consisted of 37 female and 43 male students. Also, the drawing skills of students with typical development were compared by the variables—gender and age. According to the obtained results, the intellectual disabilities negatively affect the development of skills necessary for artistic expression, 44.45% of students with intellectual disabilities showed a high standard deviation from the standard values. Problems with the ability to draw occur in a small number of students with typical development (5.8%), which indicates the possibility of specific learning problems in these students. The ability to draw does not depend on the gender of the students, but it develops in the early school period and is directly dependent on the calendar age of students with typical development.

Keywords: Art expression, drawing skills, intellectual disability, typical development

Introduction

Children's drawing is a reflection of children's emotions, imagination, and expression, it is naive and sincere and is one of the basic forms of expressing a child's personality. A child's drawing is a child's expression first, and then an act of art (Boyadzhieva-Deleva, 2020). There are various views as to why a child likes to express himself artistically. Science claims that this is an innate tendency to play, especially at an earlier age. Drawing depends on the level of the intellectual development of the child. Children show what interests and excites them, and the process of artistic creation is more important to them than the product of expression (Rubin, 2005). A child's drawing can help us to get to know the child's emotional life because it talks about the child, his experiences, feelings, and thoughts, and about his environment and relationships in it (Grbeša, 2020). The paper examines the importance of the manifestation of creative abilities through drawing for children with typical development and mild intellectual disabilities. The problem of the study is to detect the achievements in the process of drawing children with typical development and children with intellectual disability. The importance of this study is providing information about the children that are facing problems in the formation of drawings and providing comparison of the results between the children with typical development and the children with mild intellectual disability. The comparison is presenting the statistical difference in the students' achievements on the drawing subtest by gender, chronological age, and the grade of the

students. Also, at the end of the research, analysis of some of the individual drawings of children with mild intellectual disability is given in order to detect the most common drawing issues for this group of respondents. The aim of the research is to examine the students' achievements in terms of drawing ability for students with typical development and students with mild intellectual disability. The sub aims are comparing the achievements by gender, chronological age, and the grade of the students as well as to analyze the drawing of children with mild intellectual disability and detect the most common issues they face.

Individual deviations from certain standards in artistic expression can be caused by subjective factors, which are reflected in deviations based on typological differences, or under the influence of the environment. It should be emphasized that individual deviations from the standards of development in artistic expression can also be caused by the intellectual disabilities.

The ability to draw and redraw is a complex system, which according to neuropsychological studies includes developmental skills such as practical skills (melokinetic and constructive practice), perception, memory, fantasy, thinking, and finally esthetics. Problems or damage to these developmental abilities is likely to affect the ability to draw (Toomela, 2002). Unlike the lower extremities, which reach maturity around the 30th month, clearly differentiated movements of the upper extremities do not occur until the end of the sixth year

(Degrot & Cusid, 1990; Hrnjica et al., 1991). Most of the authors dealing with the development of children's artistic expression consider that there are several specific stages in the typical development (Karlavaris et al., 1986):

- A stage of random realism, also called the scribble period.
- Stage of failed realism or stage of schemes (up to fifth year).
- Stage of intellectual realism or stage of developed schemes (up to 8 years).
- Stage of visual realism, stage of forms, and phenomena (from the tenth year).

It is often thought that motor development begins faster than cognitive but ends earlier. Contrary to these views, we also have perceptions according to which these processes take place in parallel in early childhood (Diamond, 2000). This claim is confirmed by the fact that the neocerebellum has both motor and cognitive functions, which are realized by their connections with the dorsolateral prefrontal cortex (Çolak, 2021).

In addition to analyzing the dynamics of the developmental abilities of drawing, the researchers paid special attention to the influence of speech on the development of visual-spatial and graphic abilities. It has been found that children successfully draw a human figure if they also give an accurate description of body parts, with the mere naming of body parts having no significant effect on the quality of the drawing (Golomb, 1992). The effects of speech skills are reflected in drawing skills mainly through visual-spatial skills. The ability to verbally describe the object has a significant impact on the quality of the drawing in young respondents, while older (older than 6 years) has a crucial impact on the development of fine motor skills. Two verbal subsystems participate in the drawing process. The first is related to the vocabulary that refers to the characteristic objects that are drawn and its influence is represented in the planning process, while the graphic realization itself is supported by another verbal subsystem, the one that refers to the spatial relations between the elements of the drawing (Toomela, 2002). Having in mind the mentioned factors that affect the quality of the redrawing and the drawing, we can freely point out that the assessment of the drawing is an important diagnostic procedure in special education and rehabilitation.

Rainbow et al. (2020) conducted research on adults with intellectual disabilities aiming to examine the effects of expressive arts-based intervention (EABI) on the behavioral and emotional well-being of adults with intellectual disabilities. After the intervention, the adults with intellectual disabilities tended to use more diverse colors and leave less empty space in their drawings. The results of this study suggested that EABIs have different effects on the emotional and behavioral well-being of male and female participants. Gagić et al. (2014) researched the creativity in art drawings in children with a mild intellectual disability according to their gender and found a statistically significant difference in the achievements of boys and girls in the preparation of work on a given topic before encouragement, in favor of girls. By comparing the results of boys and girls on individual items, a difference in the use of colors in the spatial organization of drawings has been noticed before the encouragement. Kurniawati et al. (2018) researched the effect of finger painting on the fine motor skills of the children with intellectual disability and found that the finger painting is affecting the fine motoric of the children with intellectual disability. Based on the result of hypothesis test showing that significant difference between fine motor ability before and after given painting treatment. Beh-Pajooh et al. (2017) have researched the effectiveness of painting therapy program for the treatment of externalizing behaviors in children with intellectual disability and the research results have shown that painting therapy program could alleviate the externalizing behaviors of children with intellectual disability.

Most of the studies implemented so far are mostly carried out on adults or examining the effects of painting therapy or interventions. Some of the researches are applied to compare the painting abilities of children with mild intellectual disability with the preparation of work. Therefore, it was important to conduct research that will examine the students' achievements in terms of drawing ability for students with typical development and students with mild intellectual disability. Also, in the literature, there aren't any examples of drawings of children with mild intellectual disability available which is reducing the possibility for further comparisons and analysis in different researches.

The aim of the research is to examine the students' achievements in terms of drawing ability for students with typical development and students with mild intellectual disability. The sub aims are comparing the achievements by gender, chronological age, and the grade of the students as well as analyzing the drawing of children with mild intellectual disability and outline the most common issues they show.

Methods

The subject of the research is the analysis of drawing in students with mild intellectual disabilities. The research objectives are as follows: assess the quality of drawing in students with mild intellectual disability and in students with typical development; determine the relationship between the grade in which the students' study, the calendar age, and the drawing of the students; and determine the relationship between gender and the quality of drawing in students. The reason for determining these objectives was to examine the differences between the drawings of the students with typical development and the children with mild intellectual disability at the same age as well as to examine whether or not the students are showing differences in the creative expression due to their gender. The research has descriptive character because it is aimed at discovering, analyzing, and comparing the problems in the formation of children's drawing that occur in children with typical development and in children with mild intellectual disability in the school period. The research detects the problems that occur in students with mild intellectual disabilities in the formation of the drawing. Through the analysis of the obtained data, we came to certain features that are characteristic and common to both groups of students. The conclusions from the research will help in the development of individual programs for the education and rehabilitation of these students. Hence the applied character of the research. While the modernity of the research comes from the problems that students face every day in mastering the ability to draw.

Sample

Two groups of 143 respondents have been included in this research. The sample was divided into two groups, and we analyzed and compared the results with each other. The first group, the target group, consists of 63 students with mild intellectual disability, who study in special primary schools in the Republic of North Macedonia. The sample was included from four special schools in North Macedonia: 31 students from the special primary school "Idnina," 15 students from the special primary school "Dr. Zlatan Sremac," 12 students from the special primary school "Maca Ovcarova," and 5 students from the special primary school "Kliment Ohridski" (Table 1). In terms of structure, the sample consists of 50 students (79.69%) who study subject teaching from fifth to eighth grade and only 13 students (20.31%) who study in secondary school. Regarding the gender of students with intellectual disability, we had 33 (52%) male students and 30 (48%) female students. The second group consists of 80 students from government primary school "Vojdan Cernodrinski" in Skopje, North Macedonia. We assessed students of third, fourth, and fifth grades. Regarding the number of students in the grade, we assessed, in third class we have 23 students (28.75%), in fourth class we have 30 students (37.5%), and 27

Table 1.
Structure of Research Sample

	Students with Intellectual Disability		Students with Typical Development	
School	Indnina	31	Vojdan Cernodrinski	80
	Zlatan Sremac	15		
	Maca Ovcarova	12		
	Kliment Ohridski	5		
Class	Third to fourth grade	13	Third grade	23
	Fifth to eighth grade	50	Fourth grade	20
			Fifth grade	27
Gender	Male	33	Male	41
	Female	30	Female	39
Total	63		80	143

students (33.75%) who study in fifth class. Regarding gender, in the assessment of the second group, we included 39 female students, which is 46.25%, and 41 male students, which is 53.75%.

Instruments

To achieve the set goals, the ACADIA test (Atkinson et al., 1972) was used, and the subtest number 13 named “Drawing” to assess the quality of the drawing. The test consists of 13 subtests, mutually independent, but still correlate with each other (between 0.50 and 0.80): auditive discrimination, vision-motoric coordination, drawing on shapes, visual memory, audiovisual association, order and encryption, auditorial memory, creating concepts skills, speech skills, automatic speech richness, visual association, and drawing. A child is thought to have (or could have) learning difficulties if some subsets (or most of them) have results for two or more standard deviations (SDs) below the arithmetic mean. The drawing assessment test is part of this series of tests that assess the quality of the drawing, that is, praktognostic abilities, the most important of which are visual attention, perception, visual memory, visual-constructive, motor, and graphic abilities. In the drawing part of the test, the child is asked to draw a man standing under a tree and next to a house. The recognizability, the accuracy in the proportions, the richness of details, and the mutual relation of the given elements are evaluated. For analysis and interpretation of the obtained results, we used the key of the test itself, where the achieved and standardized points are given, as well as the SD for each subtest. A total of 20 points can be scored on the test. The assessment is precisely defined and contains 16 items, which are scored one or two points each. The final result is interpreted in a separate table with standardized points. That is, the obtained result, depending on the chronological age of the child, gives us the standardized points. Given that the standardized points of the subtest have an arithmetic mean of 50 (out of a total of 100) and a SD of 10, drawing problems have children whose standardized points are 2 SDs below the arithmetic mean (i.e., 20), then its success is significantly low and needs treatment. Additionally, the drawings of the children with mild intellectual disability were analyzed according to the control list created by Milojković (2020) where the drawing performance was analyzed according to the Details and the Perspective of the drawing. The interpretation begins with such an indicator in more detail. Mandatory details should be present: the house should have at least one door, one window, one wall, roof, and chimney. The tree must have a trunk with at least one branch. A person must have a head, body, two legs, two arms, as well as two eyes, nose, mouth, two ears. The lack of mandatory details in the drawings, among other things, may indicate a decrease in intelligence levels. If the use of a small number of parts is accompanied by low quality of drawing in terms of proportions and space, it can be assumed that the child has poor contact with reality and the intellectual abilities are reduced. In processing the obtained data, we used the following statistical methods: frequency, percentage, measures of central tendency, and χ^2 test

at the level of significance of $p < .05$. The analysis of the results was performed using PASW Statistics 18.

Data Collection Process

The research was conducted in a period of 3 months—January, February, and March 2020. During this period, the researchers were implementing the ACADIA–Drawing subtest on the students in 4 schools in North Macedonia. Four of the schools Idnina, Zlatan Sremac, Maca Ovcarova, and Kliment Ohridski are special schools for children with intellectual disability, and one school Vojdan Cernodrinski is a public school for students with typical development. The professional team, the special educators, and the psychologist, working in the special primary schools were pointed out the characteristics and needs of the test, and they, having in mind the characteristics of the students and our requirements, helped us in choosing the students that would be included in the sample.

Application

For the application of the test, previous preparation of a sheet of paper and pencil was made. Students had to follow one simple verbal instruction: “Please draw a man standing under a tree and next to a house.” The applicator was able to watch the drawing process without commenting or giving additional instructions, and note important statements of the children during the drawing. The test was implemented in a group of students in each class.

Analysis

After collecting the drawings of the sample, the data was divided into two groups of students with mild intellectual disability and students with typical development, and the drawing skills of the students were compared by the variables—gender and age with the statistical methods: frequency, percentage, measures of central tendency, and χ^2 test. For analysis and interpretation of the obtained results, the key of the test itself was used, where the achieved and standardized points are given, as well as the SD for each subtest. The drawings of the students with mild intellectual disability were additionally analyzed using the Milojković (2020) control list for children drawing description and the drawings with low scores were singled out and the specifics of the drawings were noted and outlined.

Results

As part of the assessment, we gave the respondent a precise order to draw a man standing under a tree, next to which is his house. The recognizability, the accuracy in the proportions, the richness of the details, and the mutual relation of the given elements were evaluated. The maximum result that could be achieved is 20 points. The results of the assessment of both groups are presented in the following Table 2.

In students with Intellectual disability, the analysis of drawings showed that most of them have problems in the ability to draw. Only

Table 2.
Distribution of Students' Achievement in Terms of Drawing Ability

SD	Students with Intellectual Disability		Students with Typical Development	
	f	%	f	%
0 SD	17	26.98	61	76.25
1 SD	18	28.57	14	17.5
2 SD	14	22.22	3	3.75
3 SD	6	9.53	2	2.5
4 SD	0	0	—	—
5 SD	8	12.7	—	—
Total	63	100	80	100

Note: SD= standard deviation.

Table 3.
Analysis of Students' Achievements on the Drawing Subtest Using χ^2

SD	Students with Intellectual Disability		Total
	Students with Typical Development		
0 SD	17	61	78
1-5 SD	46	19	65
Total	63	80	143

Note: SD=standard deviation.

26.98% of the students, that is, 17 students had good results, within the average points, while for 28.57% or 18 students the deviation is within 1 SD. Higher deviations of 2 SD were observed in 22.22% of the students (14 students) and 9.53% or 6 students showed a deviation of 3 SD from the average results. The highest deviations of 5 SD were found in 8 students or in 12.7%.

In the second group of the students with typical development, 76.25% or 61 students achieved appropriate results, within the expected average points, and 17.5% or 14 students had a deviation of 1 SD in the achieved results. However, we had higher deviations only in 3 students, 3.75% who had deviations of 2 SD, and in 2 students or 2.5%, the deviation was within 3 SD.

The analysis using χ^2 showed that there is a statistically significant difference between the achievements of the two groups in favor of the second group of students with typical development, at a significance level of .05, which can be seen in Table 3.

Further analysis aimed to compare the relationship between the achieved results of the subtest and the gender of the students. The results of the analysis are given in the tables (Tables 4 and 5), in which the values of χ^2 are given according to which there is no statistically significant difference between the gender of students and the ability to draw in both groups of students.

The distribution of the results in terms of gender shows diversity or a tendency of disconnection between these variables in students with intellectual disability. We have a higher percentage of female students who achieved results without any deviations, at the same time a higher percentage of students who achieved results that deviate by 1 SD from the average values. In contrast, we have a higher percentage of male students who showed deviations of 2.3 and 5 SD, respectively.

The second group showed similar results as the students with intellectual disability, in terms of gender. However, partially better results were observed among female students, that is, we have a higher percentage of female students who showed good results, without any deviations, as well as a lower percentage of female students whose results deviate by 1.2, which is 3 SD.

Table 4.
Distribution of Achievements by Gender

SD	Gender							
	Students with Intellectual Disability				Students with Typical Development			
	Female		Male		Female		Male	
	f	%	f	%	f	%	f	%
0 SD	9	30	8	24.24	32	82.05	29	70.73
1 SD	12	40	6	18.18	5	12.83	9	21.95
2 SD	4	13.33	10	30.31	1	2.56	2	4.88
3 SD	2	6.67	4	12.12	1	2.56	1	2.44
4 SD	0	0	0	0	–	–	–	–
5 SD	3	10	5	15.15	–	–	–	–
Total	30	100	33	100	39	100	41	100

Note: SD=standard deviation.

Table 5.
Analysis of Student Achievement in Terms of Gender Using χ^2

SD	Gender					
	Students with Intellectual Disability			Students with Typical Development		
	Female	Male	Total	Female	Male	Total
0 SD	9	8	17	32	29	61
1-5 SD	21	25	46	7	12	19
Total	30	33	63	39	41	80

Note: $\chi^2 = .264$, $df = 1$, $p = .607$, $2 = 1.41$, $df = 1$, $p = .234$.
SD=standard deviation.

Table 6.
Ability to Draw in Relation to Chronological Age in Students with Intellectual Disability

Age	f	Average Value of Standard Deviation	Average Points Scored	Average Standardized Points
9	1	1	12	41
10	6	3.83	3.5	12.67
11	5	1.2	12.2	41.6
12	14	1.14	12.79	43.79
13	9	1.11	12.33	42
14	7	.43	14.43	49.57
15	12	2.17	9.17	31.75
16	4	1.5	11.75	40.25
17	3	1.67	11	37.33
18	1	3	7	24
19	1	5	0	1

Table 7.
Ability to Draw in Relation to the Grade in which the Students with Typical Development

Grade	Average Value of Standard Deviation	Average Points Scored	Average Standardized Points
Third	.74	13.96	47.17
Fourth	.27	15.63	53.47
Fifth	.04	16.19	55.63

The analysis of the relationship between the ability to draw and the chronological age of the two groups of respondents is presented in Tables 6 and 7.

It is evident that there is no correlation between the chronological age and the results achieved on this subtest, the ability to draw does not improve with the growth of the child with intellectual disability. The previous table gives the obtained results, where we have ups and

downs of the SD, the achieved, and standardized points regardless of the age of the student.

Unlike students with intellectual disabilities, in the second group, we noticed an improvement in results with increasing calendar age. Table 6 shows the obtained results, where we can see that SD is the highest in third grade, while the achieved and standardized points are the lowest. Gradually, in fourth and fifth grades, SD decreases, and the achieved points increase.

For better insight and confirmation of our conclusion about the different influence of the chronological age on the ability to draw in both groups of respondents, we present the results graphically in Figures 1 and 2.

Within the analysis, in addition, we gave an overview of some of the drawings of students with intellectual disability. The drawings with lower scores were singled out and were additionally analyzed using the Milojković (2020) control list for children drawing. The goal was to highlight the problems that most often characterize the drawing of students with intellectual disability.

From the additional drawings, we can notice a number of characteristics of individuals with intellectual disability. The first two drawings (Figures 3 and 4) show the necessary objects (e.g., house, man, and tree) and to some extent, the interrelationships between them were paid attention to (e.g., the man stands under/next to the tree and his house is on the side). However, details are generally missing for all objects (on the tree—leaves, branches, etc.; on the house—roof, chimney, door, and windows).

The man as a drawn figure should have all the parts of the body, a clearly separated body from the head, with a defined face, and all the parts of the face. It is also necessary to notice the clothes on the body as well as some details of the clothes. The man drawn in this way presents the correct perception of the man as a figure, but also of his own body and his presentation in space. According to the presented drawings, we can see that the students do not have a well-developed topography, they have improperly experienced the parts of their own bodies and are not able to represent them. Often, in the drawing, we could notice

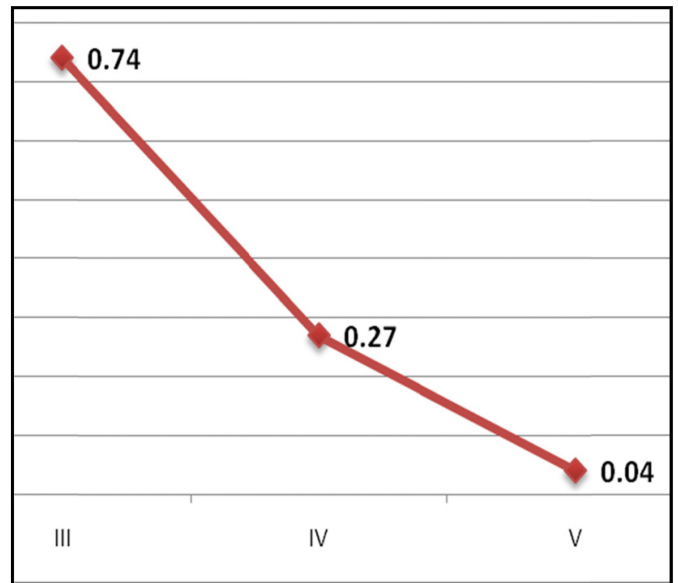


Figure 2.
The Ability to Draw in Relation to the Grade of Students with Typical Development.

that the students do not pay attention to the size of the objects and their proportions (e.g., the person has to be the right size with the house to be able to enter in it) nor to the use of drawing space, because in most of the drawings, the objects are very small in relation to the surface or are placed only on one side of the sheet. Such features of the drawings indicate problems in the Gnostic activities—topography and orientation in the subjective and objective space.

Regarding the presented drawings, it can be noticed that in two of them there is no understandable presentation of the objects that the child is asked to draw: house, tree, and person (Figures 5 and 6). These students are still in the initial stages of developing the ability to draw, or the stage of scribbling. In parallel with the developmental problems in the ability to draw, in these persons, we can point out problems in the possibility of formation of representations and their reproduction, in the perceptual activities, as part of the cognitive processes of the student.

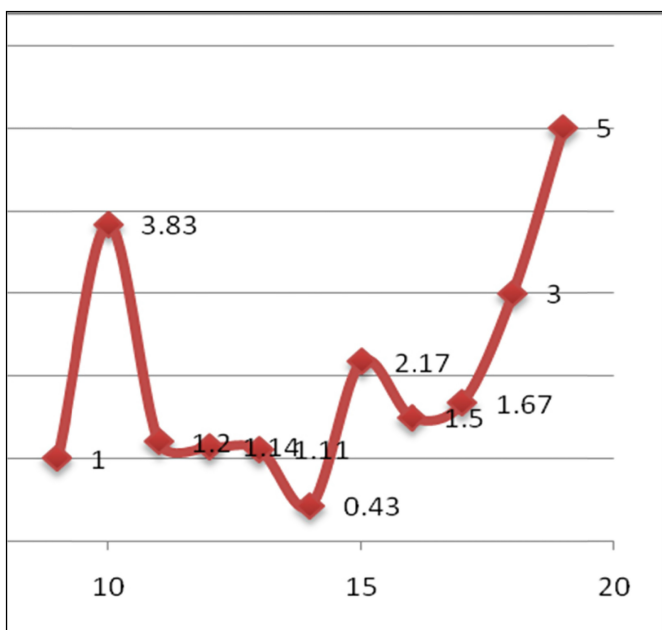


Figure 1.
The Ability to Draw in Relation to the Chronological Age of Students with Intellectual Disability.



Figure 3.
Drawing of a Student with Mild Intellectual Disability—Sample 1.



Figure 4.
Drawing of a Student with Mild Intellectual Disability—Sample 2.

One of the drawings worth detailed analysis because of the drawing specifics is Figure 7. We can clearly see that the student did not distinguish between drawing and writing, due to which the objects are represented in words (authors note: on the sheet the student has written: “дрво-куќа-човек,” which means “tree-house-men” in Macedonia).

The analysis of the drawings showed that they are all individual, with special features and characteristics, but all of them lack a presentation of the horizon and ground, as well as a clear three-dimensional shape of the objects which essentially requires not only excellently developed drawing ability and proper motor development but also abstract thinking so that the three-dimensional effect of the object can be represented.

Discussion

Given that intellectual disability causes changes in the developmental abilities of the person, it is quite expected that in the analysis of the drawing we will identify a number of problems that may be a



Figure 5.
Drawing of a Student with Mild Intellectual Disability—Sample 3.

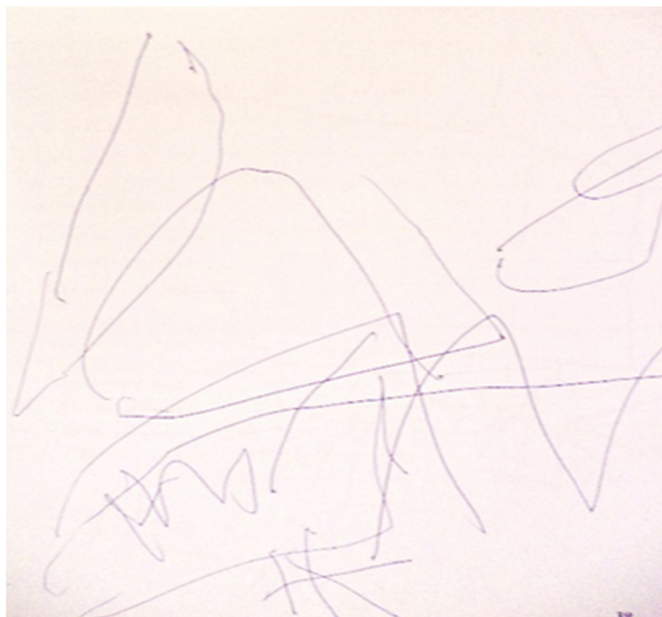


Figure 6.
Drawing of a Student with Mild Intellectual Disability- Sample 4.

consequence of insufficiently defined dominant laterality, as well as insufficiently developed melokinetic and constructive practice.

In students with intellectual disability, the analysis of drawings showed that most of them have problems in the ability to draw. Only 26.98% of the students, that is, 17 students had good results, within the average points, while for 28.57% or 18 students the deviation is within 1 SD. Higher deviations of 2 SD were observed in 22.22% of the students (14 students), and 9.53% or 6 students showed a deviation of 3 SD from the average results. The highest deviations of 5 SD were found in 8 students or in 12.7%. The analysis using χ^2 showed that there is a statistically significant difference between the achievements of the two groups in favor of the second group of students with typical development, at a significance level of .05. There is no statistically significant difference between the gender of students and the ability to draw in both groups of students. In students with intellectual disability, we have a higher percentage of female students who achieved

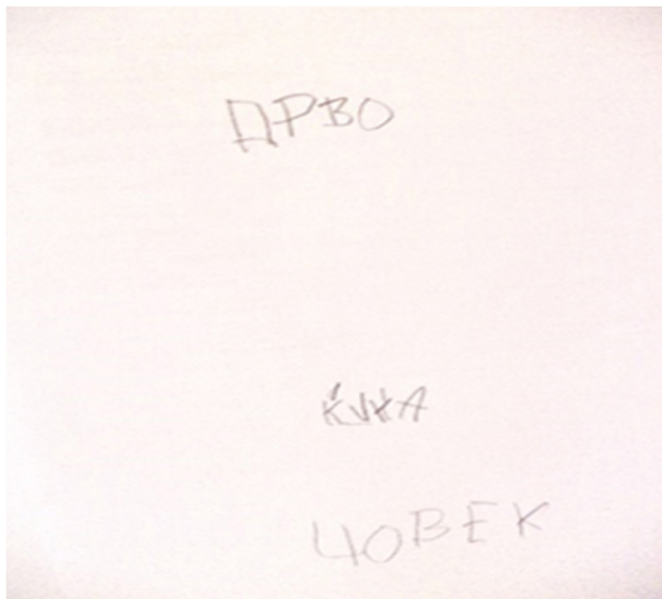


Figure 7.
Drawing of a Student with Mild Intellectual Disability—Sample 5.

results without any deviations, at the same time a higher percentage of students who achieved results that deviate by 1 SD from the average values. In contrast, we have a higher percentage of male students who showed deviations of 2.3 and 5 SD, respectively. The second group showed similar results as the students with intellectual disability, in terms of gender. However, partially better results were observed among female students, that is, we have a higher percentage of female students who showed good results, without any deviations, as well as a lower percentage of female students whose results deviate by 1.2, which is 3 SD. It is evident that there is no correlation between the chronological age and the results achieved on this subtest, the ability to draw does not improve with the growth of the child with intellectual disability. In the second group, we noticed an improvement in results with increasing calendar age, where we can see that SD is the highest in third grade, while the achieved and standardized points are the lowest. Gradually, in fourth and fifth grades, SD decreases and the achieved points increase.

To confirm the impact of intellectual disability on the ability to draw we used χ^2 with which we compared the results of the two groups. The high value of χ^2 showed a statistically significant difference at the significance level of .05, according to which the intellectual deficit has a negative impact on the ability to draw.

Using the same test, Gligorović and Vučinič (2010) analyzed students with learning difficulties and found that 54% of those students deviated from the adult norms, 22% of them showed a significant deviation of 2 or more SD, and in 32% the deviation was for 1 SD.

The prevalence of drawing problems in the general school population was also examined by Gligorović et al. (2005). They found that 4.3% of children had specific drawing problems and their achievement was lower by two standard units.

We obtained similar results, examining the drawing skills of the second group, where 5.8% of students showed a higher deviation of 2 or 3 SD.

Gligorović and Vučinič (2011) with the help of the ACADIA test examined the ability to draw geometric shapes. The analysis of the results showed that the students achieved better success on the drawing subtest, unlike the drawing substructure on geometric shapes, but this difference is not statistically significant ($p > .05$). The results for the majority of students (81.8%) have been in accordance with the established norms, for the remaining percentage of students (18.2%) deviation from the results was determined, and that 14.2% deviate by 1 SD and 4% deviate by 2 SD. In the research, they also found a connection between the grade in which the students' study and the achieved results on the subtest, that is, the students in the higher grades showed better results ($p \leq .000-.001$). On the drawing assessment subtest, a statistically significant difference was found between the achievements of girls and boys ($p = .029$), while on the drawing subtest the results between the genders were very similar. According to the statistical analysis of our research, we had similar findings with Gligorovic and Vucinic research, 73.02% of the students with intellectual disability showed deviations in the results compared to the adult norms, and in 28.57% this deviation is within 1 SD. These students who show less deviation are at risk of developing drawing problems, but the remaining 44.45% showed high deviations of 2 or more SD which would mean that these students have significant problems in the ability to draw, or in one of the abilities as participating in the formation of the drawing.

Ajdinski (2000) examined the dominant lateralization of the upper extremities and constructive practice in 100 students with mild intellectual disability, which are very important aspects of creating an appropriate drawing. According to the results, 98% of the students have

developed dominant lateralization, and in terms of practical abilities, 51% of the students had adequate development of constructive practice and the remaining 49% were not developed or had partial inappropriate development. Regarding the influence of gender on the achievements of this subtest, we obtained similar results in both groups in our research. Students with intellectual disability showed similar results in both genders, but in the second group, we tend to achieve better in female students. However, the differences in achievement did not prove to be statistically significant, which is why we would conclude that the achievements of the drawing subtest do not depend on the gender of the students.

Gligorović et al. (2005) in their research on a sample of 400 respondents found an association between gender and the ability to draw, where girls achieved better results compared to male students. Calendar age has not been shown to be an influential factor in the development of drawing ability in students with intellectual disability. The results we obtained for students with intellectual disability do not improve with the increasing calendar age of students. The students with the worst results are the oldest student where the SD is 5 units and without points scored, and among the students at the age of 10, the SD is 3.83 and 3.5 average points scored. The best students on this subtest are the students at the age of 14, where the SD is .43 with 14.43 average points achieved. Similarly, in the second group, we noticed an improvement in the results by increasing the calendar age of the students. The best results were achieved by the students from fifth grade where SD is .04, with 16.19 average points achieved. According to these results, the ability to draw is still developed in the school period, and it is directly related to the calendar age of students.

Most of the studies implemented so far are mostly carried out on adults or examining the effects of painting therapy or interventions. Some of the researches are applied to compare the painting abilities of children with mild intellectual disability with preparation of work. Therefore, it was important to conduct research that will examine the students' achievements in terms of drawing ability for students with typical development and students with mild intellectual disability. Also, in the literature, there aren't any examples of drawings of children with mild intellectual disability available which is reducing the possibility for further comparisons and analysis in different researches. Generally, in the individual drawings of the children with mild intellectual disability, details are generally missing for all objects. We can see that the students do not have a well-developed topography, they have improperly experienced the parts of their own bodies and are not able to represent them. Often, in the drawing, we could notice that the students do not pay attention to the size of the objects and their proportions nor to the use of drawing space, because in most of the drawings the objects are very small in relation to the surface or are placed only on one side of the sheet. Such features of the drawings indicate problems in the Gnostic activities—topography and orientation in the subjective and objective space. It can also be noticed that in some of the drawings, there is no understandable presentation of the objects. These students are still in the initial stages of developing the ability to draw or scribble. Looking at the drawings of individuals with the highest SD in our research, we can see that in these students, in addition to the problem in motor skills, problems in other developmental abilities are obvious.

Conclusion and Recommendations

The drawing is a reflection of the child's mental state. Drawing develops gradually in children, at the very beginning it is based on symbols. Symbols appear spontaneously and slowly grow into something more meaningful, guided by children's desire, they become real. Children in the drawing emphasize what is important to them. In this research, differences are visible in the drawings of students with mild

intellectual disability and students without difficulties. The imagination and creativity of the students without difficulties can be seen in their drawings. Children with intellectual disabilities have poorer imagination and their drawings had lack of details.

Before the realization of the research, the number of students in both groups was planned to be equal. However, during the realization of the research, we noticed that the number of students with mild intellectual disability in the special schools was significantly lower. A larger sample could provide more drawings for a proper comparison of the two groups of students which we consider as a limitation for our research. Also, the realization of the subtest for students with mild intellectual disability was implemented in small groups so that students had enough time to concentrate on the drawing. However, the same subtest was applied to larger groups of students from the second group of respondents—students with typical development. Due to the classroom impossibilities of the public schools, the test was performed on 30 students at the same time, which may have an impact on the obtained results if we take into account that some of the students could not concentrate on the drawing.

According to the obtained results, we can conclude that the students with intellectual disability have difficulties in drawing and in the abilities that are important for the realization of that activity. In the general school population, we found that 5.8% of students have intense problems in the ability to draw. These are students with specific learning problems who have shown high test deviations. The results showed that the quality of drawing improves with the growth of the child, or the maturation of the personality and the increase of experience also has a positive effect on the ability to draw. However, this statement applies only to students with typical development, while in students with an intellectual disability, the quality of the drawing is directly and only related to the individual abilities of the student regardless of his calendar age.

Drawing ability and drawing quality can play a major role in special education and rehabilitation diagnostics. Drawing as a diagnostic tool can give us important information about the person we are examining: to determine the dominant lateralization of the upper extremities and to develop of fine motor skills (quality of linearity, precision, manner of holding the writing instrument), gnostic abilities (topognosy and the possibility of orientation in space), and practical abilities (melokinetic and constructive practice). The results obtained from the assessment of the quality of the drawing can be used in organizing the reeducation of psychomotor skills or to give important directions for further diagnostic procedures of the students.

This research could serve as a basis for other research conducted on a larger sample. Also, in the future, research could be done not only on one part of the Acadia test but on all subtests: auditive discrimination, vision-motoric coordination, drawing on shapes, visual memory, audiovisual association, order and encryption, auditorial memory, creating concepts skills, speech skills, automatic speech richness, visual association, and drawing, which will provide a more detailed analysis of all aspects of the development of students with mild intellectual disabilities. Furthermore, it would be useful to conduct research for several categories of disabilities and compare the characteristics of the development of all students with special educational needs.

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