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By Dragana Milosevic, MA & Vero Rossetti

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The main task of the research is to determine how much the differentiated instruction is suitable for adoption of new geography curriculum and if there is a need for more detailed elaboration of this topic in order to improve teaching. Another task is related to the implementation of experiments in two classes, control one and experimental one, on the basis of which it has been determined which approach in teaching gives the best results in presenting geographic content in elementary school.

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Implementation of Differentiated Instruction in Teaching Geography in the Fifth Grade of Elementary School

Dragana Milosevic, MA [α] & Vero Rossetti [σ]

Abstract- The main goal of this research is to determine how necessary is the use of a differentiated instruction in teaching geography in the example of fifth-grade students of the second cycle of education. Based on that, this paper shows the use of this form of teaching when introducing a new material in the classroom.

The main task of the research is to determine how much the differentiated instruction is suitable for adoption of new geography curriculum and if there is a need for more detailed elaboration of this topic in order to improve teaching. Another task is related to the implementation of experiments in two classes, control one and experimental one, on the basis of which it has been determined which approach in teaching gives the best results in presenting geographic content in elementary school.

Keywords: geography, forms of teaching, differentiated instruction, implementation of differentiated instruction in elementary school.

I. Introduction

Students of the same age differ in physical, emotional and volitional characteristics, especially at the level of education, development of working habits and motivation for learning. Modern teaching must suit the individual, not just the age characteristics of students. In modern teaching, a teacher has to deal with the abilities of each student and has to distance the teaching from the requirements of "average student."

The effort to adapt the teaching to the abilities of students with different achievement is called differentiated instruction. Differentiated instruction means that students are different and that these differences have to be accepted, and the expression individualized instruction specifies that it is a differentiation based on respect for individual differences.

One of possible ways to overcome the current problems in geography teaching is differentiation of regular classes. Greater student activity would be achieved through the respect for differences among students, each student could move at a pace that suits him best and which is in line with his aspirations, students with disabilities would be able to participate with other students equally in regular classes, talented students would not be neglected and would receive more information about geographic phenomena, structures and processes, not causing inferiority of other students in the class.

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II. Defining Differentiated Instruction

Traditional education does not recognize differences among students, because curricular content is identical for all students, the requirements are the same, the way of practice and repetition as well as evaluation. Such teaching is hard for the students who have low achievement and it influences their further inferiority in teaching. They continually achieve weaker results, which would be eliminated as a teaching threat which would be adapted to them. Teaching with the same requirements also has the impact on the pace of better students' progress. Traditional teaching also does not affect the inner motivation of better students, because they are impeded in their further progress since they are given average type tasks. They develop apathy and expressed unconformity, because insufficient attention is paid to their achievement. Since the majority of the school population is average students, traditional teaching has a negative effect on their level of school achievement. Average students have different preferences and affinities in the teaching process, but the formulaic approach distances them from the expression of creativity and the formation of critical attitudes and opinions. Since each student is specific, it is necessary to search for forms of teaching which can accept the differences among students in the best possible way, and in relation to different levels of achievement and aspiration.

At the time of the ancient civilizations it was known that the teaching had to be adjusted to each student so the results of the work could be as efficient as possible. Common pedagogical errors are in poor conceptual determination of individual instruction. The main problem is its identification with individual work. Individual work means performing certain tasks independently by all students in the class during one lesson. Individualized instruction is based on different levels of achievement, while at the same time it respects

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almost all shades of students' individuality in a social group or a class.

Students of one class cannot be seen as a homogenous group from any point of view. If it was possible in our education system to form fairly uniform groups in terms of classes, there would be problems that would ruin the homogeneity criteria during the time. If psychological and pedagogical services even formed classes made up of individuals with approximately the same intellectual development, a problem would arise in the form of an inability for each student to recognize, solve the problem and implement it in a specific situation in a predicted time unit.

a) Experimental Factors and Models of Research

Students of the experimental and control groups handle planned geography content using different forms of teaching. To make the obtained results complete, comparable and effective in educational terms, it was necessary to compare the results of both groups of students, and then analyze them and make final conclusions.

In the fifth grade:

- M1 consists of students of the control group K1 who handled planned teaching units by using frontal instruction with the application of monologue, dialogue, demonstration and illustrated method.
- M2 consists of students of the experimental group E1 who handled planned teaching units by using differentiated instruction with the application of reading comprehension.

Class	Factors		Model and number of students	Classes And number of students
	Type of a lesson and a teaching unit	Form of teaching and teaching methods		
V	Presentation: - Rotation and its consequences	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - Rotation and its consequences	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_4$ 26
V	Presentation: - Revolution and its consequences	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - Revolution and its consequences	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_2$ 26
V	Presentation: - Origin and internal structure of the Earth	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - Origin and internal structure of the Earth	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_4$ 26
V	Presentation: - The composition of the Earth's crust- rocks; fossils	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - The composition of the Earth's crust- rocks; fossils	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 28	$(E1)V_4$ 26
V	Presentation: - Lithospheric plates;	- frontal instruction - monologue, dialogue,	M1 26	$(K1)V_2$ 26

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	movements and consequences	demonstration and illustration		
	Presentation: - Lithospheric plates; movements and consequences	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_4$ 26
V	Presentation: - Volcanism and earthquakes	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - Volcanism and earthquakes	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_4$ 26
V	Presentation: - Shaping the relief by the activity of internal forces	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - Shaping the relief by the activity of internal forces	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_4$ 26
V	Presentation: - Shaping the relief by the activity of external forces	- frontal instruction - monologue, dialogue, demonstration and illustration	M1 26	$(K1)V_2$ 26
	Presentation: - Shaping the relief by the activity of external forces	- differentiated instruction - monologue, dialogue, demonstration and illustration , reading comprehension	M2 26	$(E1)V_4$ 26

III. Experiment in the Fifth Grade

An experiment in the form of parallel group technique was conducted in the fifth grade of the second cycle of education. After the selection of the control and experimental group, eight teaching units were presented.

The same teaching units were presented in both classes: *Rotation and its consequences, Revolution and its consequences, Origin and internal structure of the Earth, The composition of the Earth's crust- rocks; fossils, Lithospheric plates; movements and consequences, Volcanism and earthquakes, Shaping the relief by the activity of internal forces and Shaping the relief by the activity of external forces.*

a) Control Group

In the control group K2 all the units were presented by using frontal instruction with the application of monologue, dialogue, demonstration and illustration. The instructional materials which were used were: student books and atlases, physical-geographical map and thematic map of Europe.

The teacher planned the structure of these lessons according to the classical model, through a clearly defined time articulation of introductory, main and final part of the lesson.

By using frontal instruction, a teacher distances himself from unpredicted circumstances, such as the distancing from the teaching content planned for presentation on the particular class. Addressing of a teacher, presenting the material to students, as well as asking questions is addressed to everyone regardless of the level of achievement and level of understanding of phenomena.

In the introductory part of the class, method of monologue is dominant and scenario is carried out under strictly controlled conditions by a teacher. In the present case, the use of monologue is justified by the time aspect, as the introductory part of the lesson

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usually takes 5 to 7 minutes, so it is necessary to rationalize time.

By emphasizing the aim of the lesson, students are introduced to the main part of the lesson and they start to adopt the new teaching contents where methods of dialogue, monologue and illustration and demonstration are dominant.

The use of illustration and demonstration is present in: explanations related to Earth's rotation, Earth's revolution, internal structure of the Earth, rocks, volcanism and earthquakes, shapes of relief created by the activity of internal and external forces.

The final part of the lesson involved testing of the acquired knowledge of each student. The questions contained characteristic terms, phenomena and objects which the students were introduced to during the presentation of the content of teaching units.

b) Experimental Group

In the experimental group E1 all the units were presented by using differentiated instruction with the application of monologue, dialogue, demonstration, illustration and reading comprehension. The instructional materials which were used were student books, worksheets, student, as well as other recommended literature.

Monologue method was used in the first lesson, in the introductory part so the students could understand what they are expected to do, how to fill out the worksheets, how to use additional sources of information, i.e. additional literature. Students are also given the instructions related to the study.

In the next phase of the lessons students filled out worksheets. Worksheets are differentiated according to the level of students' achievement with four levels of difficulty. The first level of differentiation for the grade-sufficient (2) contains the basic information about the contents of the unit. The second level of differentiation corresponds to the achievement of students with the grade-good (3). At this level it is expected that the student with the teacher's assistance and advice respond to more complex tasks. The third level of differentiation corresponds to the achievement- very good (4). At this stage a high level of a student's autonomy and a greater ability of productive work are expected, and worksheets are done with the teacher's minor suggestions. The fourth level of differentiation corresponds to the achievement- excellent (5). At the highest level, the students are expected to have the highest level of independence in their work, successful execution of all assigned tasks, finding information from other sources.

Reading comprehension in the present study has two forms: textual work and filling out the worksheets. Textual work represents the use of recommended literature: geography textbook for the fifth grade of elementary school, workbook and other recommended and prepared data sources.

The use of illustration and demonstration is present in all phases of the lesson. Depending on the severity of the worksheets and achievement levels, students are given tasks that are related to the interpretation of the geographic content with the help of different means of expression: photos, graphs, thematic maps...

The final part of the lesson involved testing of the acquired knowledge of each student. The questions contained characteristic terms, phenomena and objects which the students were introduced to during the presentation of the content of teaching units.

IV. Testing in the Fifth Grade

In order to determine which form of teaching gives better results when presenting geography content, eight teaching units were presented in the fifth grade: Earth's movement and its consequences- rotation. Earth's movement and its consequences- Revolution, Internal structure and composition of the Earth…

In the control group all the units were presented by using frontal instruction with the application of monologue, dialogue, demonstration and illustration. In the experimental group all the units were presented by using differentiated instruction with the application of monologue, dialogue, demonstration, illustration and reading comprehension.

The contents of the geography lessons in the fifth grade are mainly abstract and difficult for students to understand. It is necessary to find the best combination of teaching forms and methods that will enable students to "learn how to learn." The main problem is that fifth grade students cannot progress at the same pace with the use of frontal instruction because it makes them passive. In the final part of the class, after presenting all the units in both control and experimental group, students were given prepared tests of simple recall and filling in with short questions and answers.

V. Test Results

In order to have clear results, the test analysis was approached through several phases.

i. First, the scheme for the test analysis was done, so it would be easier to score students' answers. In this way we get results for the whole class. Vertical analysis of the questions demonstrates the extent to which students have mastered the questions individually and questions as a whole, which allows us to determine the extent to which the differentiated form of work helped in students' acceptance of specific geographical facts. In addition to the achievement of each student, this scheme has

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enabled us to observe how many points were scored in the class in total, the mean value of the points in the class and the deviation from the mean value for each student.

ii. The next step was calculating the mean value of the points in the class. Calculation was done by simple arithmetic mean. The mean value shows the average number of points in the class. The mean value enables us to calculate deviation of each student from the obtained mean value (deviation) and the mean deviation of all students in the class from the mean value (standard deviation).

$$M = \frac{a_1 + a_2 + a_3 + \ldots + a_n}{n}$$

M- Arithmetic mean
a_1, a_2, a_n- individual values of points
n- Number of students

iii. In order to observe the achievement of each student expressed in points and to determine how much it deviates from the mean value of the class in a positive and a negative way, deviation is calculated. Deviation represents the difference among the results, i.e. between the number of points which a student scored and the mean value of the class. It is marked with the symbol (+) if the number of points is bigger than the average of the class, and with the symbol (-) if the number of points is smaller than the average of the class.

iv. Then, the calculation of the standard deviation was done, which represents the mean deviation of the class from the mean value of the points. Standard deviation is calculated when the individual deviations are squared, divided by the number of students and then the square root is extracted.

$$D = \sqrt{\frac{d_1^{\,2} + d_2^{\,2} + d_3^{\,2} + \ldots + d_n^{\,2}}{n}}$$

D- Standard deviation
d_1, d_2, d_n- individual deviations of each student
n- Number of students

v. In the last phase, parameters obtained by the test analysis are converted into points, i.e. the students are assessed on the basis of a points scale and according to the percentages of the points related to the maximum (table x). After the tests were marked, the average grade of the whole class was calculated.

In order to observe the structure of every class according to the points and grades achieved, the distribution of students according to the points and grades was also done.

When presenting the analysis of the achieved results, the analysis of the control group is given first, and then the analysis of the experimental group.

a) Control group K1

The teaching unit – *Rotation and its consequences*. 279 points were scored out of the maximum possible number of 468 points which is 60.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 4.08. The minimum value of the deviation is 0 and the maximum -8.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

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Table 2 : Distribution of students from the group K1 according to the interval of points and grades

The name of the unit	Number of students according to the interval of points/ grades				
	≤6 1	7-9 2	10-12 3	13-15 4	16-18 5
Rotation and its consequences	4	6	6	7	3
Revolution and its consequences	5	5	8	6	2
Origin and internal structure of the Earth	4	6	9	5	2
The composition of the Earth's crust- rocks; fossils	2	4	9	8	3
Lithospheric plates; movements and consequences	0	8	7	5	3
Volcanism and earthquakes	4	10	4	4	4
Shaping the relief by the activity of internal forces	1	8	6	6	4
Shaping the relief by the activity of external forces	1	8	8	6	3

Based on the given distribution, most of the students have mastered the unit *Rotation and its consequences* averagely. This is confirmed by the data presented as a percentage: good- 23.08%, very good- 26.92%, sufficient - 23.08%, insufficient- 15.38%, and the lowest percentage is of those with the grade excellent 11.54%. An average grade of the group K1 in presenting the mentioned unit is good 2.96.

The teaching unit – *Revolution and its consequences*. 259 points were scored out of the maximum possible number of 468 points which is 55.00% of the maximum. The mean value of the group is 10. Calculated value of standard deviation is 4.16. The minimum value of the deviation is 0 and the maximum -7, +7.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Revolution and its consequences* averagely. This is confirmed by the data presented as a percentage: good- 30.77%, very good – 23.08%, sufficient- 19.23%, insufficient- 19.23%, and the lowest percentage is of those with the grade excellent 7.69%. An average grade of the group K1 in presenting the mentioned unit is good 2.81. The reasons for the poor achievements should be searched for in the answers to the questions related to the Heat belts on the Earth which appear as the result of Revolution.

The teaching unit – *Origin and internal structure of the Earth*. 258 points were scored out of the maximum possible number of 468 points which is 55.00% of the maximum. The mean value of the group is 10. Calculated value of standard deviation is 4.17. The minimum value of the deviation is 0 and the maximum -8.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Origin and internal structure of the Earth* averagely. This is confirmed by the data presented as a percentage: good- 34.62%, sufficient- 23.08%, very good – 19.23%, insufficient- 15.38% and the lowest percentage is of those with the grade excellent 7.69%. An average grade of the group K1 in presenting the mentioned unit is good 2.81.

The teaching unit – *The composition of the Earth's crust- rocks; fossils*. 296 points were scored out of the maximum possible number of 468 points which is 63.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 3.64. The minimum value of the deviation is 0 and the maximum -9.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *The composition of the Earth's crust- rocks; fossils* averagely. This is confirmed by the data presented as a percentage: good- 34.62%, very good – 30.77%, sufficient- 15.38%, excellent 11.54%, and the lowest percentage is of those with the grade insufficient- 7.69%. An average grade of the group K1 in presenting the mentioned unit is good 3.23.

The teaching unit – *Lithospheric plates; movements and consequences*. 253 points were scored out of the maximum possible number of 414 points (three students were absent) which is 61.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 2.98. The minimum value of the deviation is 0 and the maximum +6.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Lithospheric plates;*

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movements and consequences averagely. This is confirmed by the data presented as a percentage: sufficient- 34.78%, good- 30.43%, very good – 21.74%, excellent 13.04%, and there are no students with the grade insufficient. An average grade of the group K1 in presenting the mentioned unit is good 3.13.

The teaching unit – *Volcanism and earthquakes*. 258 points were scored out of the maximum possible number of 468 points which is 55.00% of the maximum. The mean value of the group is 10. Calculated value of standard deviation is 3.92. The minimum value of the deviation is 0 and the maximum +7.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Volcanism and earthquakes* structure averagely. This is confirmed by the data presented as a percentage: sufficient- 38.46%, very good- 15.38%, good – 15.38%, insufficient- 15.38%, and excellent 15.38%. An average grade of the group K1 in presenting the mentioned unit is good 2.77.

The teaching unit – *Shaping the relief by the activity of internal forces*. 273 points were scored out of the maximum possible number of 450 points (one student was absent) which is 61.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 3.45. The minimum value of the deviation is 0 and the maximum +6, -6.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Shaping the relief by the activity of internal forces* averagely. This is confirmed by the data presented as a percentage: sufficient- 32.00%, very good- 24.00%, good – 24.00%, excellent 16.00%, and the lowest percentage is of those with the grade insufficient- 4.00%. An average grade of the group K1 in presenting the mentioned unit is good 3.28.

The teaching unit – *Shaping the relief by the activity of external forces*. 283 points were scored out of the maximum possible number of 468 points which is 60.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 3.26. The minimum value of the deviation is 0 and the maximum +6, -6.

Based on the existing values, the distribution of the students from the group K1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Shaping the relief by the activity of external forces* averagely. This is confirmed by the data presented as a percentage: good- 30.77%, sufficient- 30.77%, very good – 23.08%, excellent 11.54%, and the lowest percentage is of those with the grade insufficient- 3.85%. An average grade of the group K1 in presenting the mentioned unit is good 3.08.

b) Experimental group E1

The teaching unit – *Rotation and its consequences*. 278 points were scored out of the maximum possible number of 432 points (two students were absent) which is 64.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 4.08. The minimum value of the deviation is -1, +1 and the maximum -8.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Table 3 : Distribution of students from the group E1 according to the interval of points and grades

The name of the unit	Number of students according to the interval of points/ grades				
	≤6 1	7-9 2	10-12 3	13-15 4	16-18 5
Rotation and its consequences	2	8	2	9	3
Revolution and its consequences	3	7	4	8	4
Origin and internal structure of the Earth	0	8	7	7	4
The composition of the Earth's crust- rocks; fossils	0	7	6	7	6
Lithospheric plates; movements and consequences	0	7	6	8	5
Volcanism and earthquakes	0	6	8	7	5
Shaping the relief by the activity of internal forces	0	3	8	9	5
Shaping the relief by the activity of external forces	1	3	9	7	6

Based on the given distribution, most of the students have mastered the unit *Rotation and its consequences* averagely. This is confirmed by the data presented as a percentage: very good- 35.50%, sufficient – 33.33%, excellent 12.50%, good- 8.33%, and the lowest percentage is of those with the grade

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insufficient- 8.33%. An average grade of the group E1 in presenting the mentioned unit is good 3.13.

The teaching unit – *Revolution and its consequences*. 284 points were scored out of the maximum possible number of 468 points which is 61.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 3.80. The minimum value of the deviation is 0 and the maximum -7.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Revolution and its consequences* averagely. This is confirmed by the data presented as a percentage: very good- 30.77%, sufficient- 26.92%, excellent 15.38%, good – 15.38%, and the lowest percentage is of those with the grade insufficient- 11.59%. An average grade of the group E1 in presenting the mentioned unit is good 3.12. The reasons for the poor achievements should be searched for in the answers to the questions related to the Heat belts on the Earth which appear as the result of Revolution.

The teaching unit – *Origin and internal structure of the Earth*. 297 points were scored out of the maximum possible number of 468 points which is 63.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 3.23. The minimum value of the deviation is 0 and the maximum +6.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Origin and internal structure of the Earth* averagely. This is confirmed by the data presented as a percentage: sufficient- 30.77%, very good- 26.92%, good – 26.92%, excellent 15.38%. There are no students with the grade- insufficient. An average grade of the group E1 in presenting the mentioned unit is good 3.27.

The teaching unit – *The composition of the Earth's crust- rocks; fossils*. 300 points were scored out of the maximum possible number of 450 points (one student was absent) which is 67.00% of the maximum. The mean value of the group is 12. Calculated value of standard deviation is 3.31. The minimum value of the deviation is -1, +1, and the maximum -5, +5.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *The composition of the Earth's crust- rocks; fossils* averagely. This is confirmed by the data presented as a percentage: very good- 28.00%, sufficient- 28.00%, good – 24.00%, and excellent 24.00%. There are no students with the grade- insufficient. An average grade of the group E1 in presenting the mentioned unit is very good 3.60.

The teaching unit – *Lithospheric plates; movements and consequences*. 309 points were scored out of the maximum possible number of 468 points which is 66.00% of the maximum. The mean value of the group is 12. Calculated value of standard deviation is 3.25. The minimum value of the deviation is +1, -1, and the maximum +5, -5.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Lithospheric plates; movements and consequences* averagely. This is confirmed by the data presented as a percentage: very good- 30.77%, sufficient- 26.92%, good- 23.08%, and excellent 19.23%. There are no students with the grade- insufficient. An average grade of the group E1 in presenting the mentioned unit is very good 3.42.

The teaching unit – *Volcanism and earthquakes*. 303 points were scored out of the maximum possible number of 450 points (one student was absent) which is 67.00% of the maximum. The mean value of the group is 12. Calculated value of standard deviation is 3.09. The minimum value of the deviation is +1, -1 and the maximum -6.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Volcanism and earthquakes* averagely. This is confirmed by the data presented as a percentage: good- 32.00%, very good – 28.00%, sufficient- 24.00% and excellent 20.00%. There are no students with the grade- insufficient. An average grade of the group E1 in presenting the mentioned unit is very good 3.56.

The teaching unit – *Shaping the relief by the activity of internal forces*. 311 points were scored out of the maximum possible number of 450 points (one student was absent) which is 69.00% of the maximum. The mean value of the group is 12. Calculated value of standard deviation is 2.99. The minimum value of the deviation is +1, -1 and the maximum +5, -5.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Shaping the relief by*

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the activity of internal forces averagely. This is confirmed by the data presented as a percentage: very good- 36.00%, good- 32.00, excellent- 20.00 and sufficient- 12.00%. There are no students with the grade- insufficient. An average grade of the group E1 in presenting the mentioned unit is very good 3.64.

The teaching unit – *Shaping the relief by the activity of external forces*. 319 points were scored out of the maximum possible number of 468 points which is 68.00% of the maximum. The mean value of the group is 11. Calculated value of standard deviation is 3.07. The minimum value of the deviation is +1, -1 and the maximum -7.

Based on the existing values, the distribution of the students from the group E1 was done according to the interval of points and grades and the average grade of the group was calculated.

Based on the given distribution, most of the students have mastered the unit *Shaping the relief by the activity of external forces* averagely. This is confirmed by the data presented as a percentage: good- 34.62%, very good- 26.92%, excellent- 23.08% and sufficient- 11.54%. There are no students with the grade- insufficient. An average grade of the group E1 in presenting the mentioned unit is very good 3.54.

c) Correlation between the control group K1 and experimental group E1

By comparing the results of the control group K1 and experimental group E1, we can see that the group E1 achieved a greater number of points, i.e. had a higher percentage of success. In the experimental group, the teaching units were presented by using differentiated instruction, while in the control group K1 the same units were presented by using frontal instruction.

Correlation of points and average grades according to the teaching units is given in table 4.

Table 4 : Correlation of points and average grades in control group K1 and experimental group E1

Group-class	The name of the unit	% of achieved points	Average grade
K1-V_2	Rotation and its consequences	60%	2.96
E1-V_4		64%	3.13
K1-V_2	Revolution and its consequences	55%	2.81
E1-V_4		61%	3.12
K1-V_2	Origin and internal structure of the Earth	55%	2.81
E1-V_4		63%	3.27
K1-V_2	The composition of the Earth's crust- rocks; fossils	63%	3.23
E1-V_4		67%	3.60
K1-V_2	Lithospheric plates; movements and consequences	61%	3.13
E1-V_4		66%	3.42
K1-V_2	Volcanism and earthquakes	55%	2.77
E1-V_4		67%	3.56
K1-V_2	Shaping the relief by the activity of internal forces	61%	3.28
E1-V_4		69%	3.64
K1-V_2	Shaping the relief by the activity of external forces	60%	3.08
E1-V_4		68%	3.54

On the basis of the results shown above, we can notice a significant difference in percent of the points achieved and in average grades between the control and experimental group. Since the groups had similar school achievement in the previous school year, we can notice that we can have better results by using differentiated instruction.

The reason for better achievement of the experimental group is greater student's engagement on classes and achieving results by making an effort, and all of that in accordance with their own abilities.

VI. Conclusion

One of the main tasks of geography teaching is to make students adopt the acquired knowledge

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permanently, apply them to new teaching and life situations, but also to minimize the process of forgetting. By using traditional forms of teaching, we neglect the differences among students which leads to decreased productivity and motivation to work and learn. By using differentiated instruction, we cannot eliminate all deficiencies in geography teaching, it provides the possibility to overcome the weaknesses of traditional forms and methods of teaching. Consideration of abilities and preferences of each individual student is at the heart of differentiated instruction. By applying differentiated instruction, we eliminate the weaknesses in teaching, which were mainly reflected in the position of a student in the learning process. By using differentiated instruction, a student ceases to be the "object" in the classroom.

In the new situation where a student receives instruction in accordance with his abilities and is aware of the fact that he can progress, he completes his tasks on his own and uses different sources of knowledge. By applying differentiated instruction, we eliminate the subjectivity of a teacher, which increases students' motivation. The advantage of differentiated instruction is reflected in the enormous possibilities of its application in geography teaching. Students achieve better results in the classroom regardless of whether they are introduced to mathematical geography, physical geography, socio-economic or regional geography contents.

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