Programme:
INCLUSIVE EDUCATION

REPORT

From the progress study

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Skopje, 2016

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МАКЕДОНСКИ ЦЕНТАР ЗА ГРАЃАНСКО ОБРАЗОВАНИЕ

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AUSTRIAN DEVELOPMENT AGENCY

CONTENTS

INTRODUCTION

The Programme - *Inclusive education for marginalized children* (hereinafter the Programme) is part of the *Child-Friendly Schools* programme and it represents an expansion and broadening of the programmes - *Thinking Mathematics* and *Language literacy in early grades*, which are supported by UNICEF and are carried out in the former Yugoslav Republic of Macedonia since 2009. On the one hand, it was initiated based on the findings about the effects of the programmes for mathematical and language literacy[1], and on the other hand, to contribute to the implementation of the national policy for inclusion of the marginalized groups of children. The implementation of the Programme's activities is expected to strengthen the knowledge and skills of the educational staff for supporting the learning of the Roma students.

The Programme is directed towards:

- Inclusion of all children in the classroom/school and in the education system;
- Development of teachers competences for inclusive education;
- Promotion of teaching approaches that will provide greater student achievements;
- Provision of additional support to the students with special educational needs[2];

1 The study of the programmes' effects has shown that there are statistically significant improvements of the students' achievements in mathematics and in reading comprehension, in the project schools in which the programmes were realized, compared to the control schools. (Aleksova A., G. Mickovska, M. Cheshlarov (2012) Thinking Mathematics in early grades – Report on the research of the achievements at the end of the first cycle of the realization of the project, MCEC, Skopje; Mickovska G., A. Aleksova, B. Naceva, A. Mickovska, M. Cheshlarov (2010) Report of the baseline study – Project: Language literacy in early grades, Macedonian Civic Education Centre, Skopje).

2 Special educational needs is an umbrela term for an aspect of education focusing on students primarily with learning difficulties and/or dissability. (Wikipedia)

- Use of formative assessment and developing an understanding of intelligence as flexible category through the learning process[3];
- Inclusion of the parents and the wider community.

The realization of the Programme began in seven primary schools, in the first half of 2014. The Baseline Study was conducted at the beginning of its realization and the progress study was carried out after two school years of realization (in 2016). Both measurements included the students who are at the end or who have completed the first cycle of primary education (third grade), and the second cycle of primary education (sixth grade), and also their teachers. It is important to bear in mind that during the period when the realization of the programme began, the implementation of innovative mathematics curricula has started in the 2014/15 school year for the third grade. The implementation of innovative mathematics curricula for the sixth grade students has started in the 2015/16 school year with an incomplete continuity from grade five curricula content.

This study provides findings about the inclusive education progress and circumstances in the schools, including the students' achievements in mathematics, reading and writing, by emphasizing the Roma students achievements.

The conceptual framework in the study is based on the analysis of the factors which could influence the effects of the project activities. Therefore, the study makes an effort to obtain answers to the following questions:

- To what degree has the inclusiveness of the schools changed as a whole?
- How do the key actors in the educational process understand inclusive education?
- What mindset is developed by the teachers in relation to the understanding of intelligence?
- Has the level of competences of the teachers changed, in relation to working with students belonging to marginalized groups, particularly Roma students and students with special educational needs?

3 The phrase "mindset" is used in foreign literature to describe individuals based on their behaviour, specifically their reaction to failure. Those with a "fixed mindset", make efforts to prove they are intelligent, instead of developing it. Those with a "flexible/groth mindset" believe that intelligence can be developed through hard work and dedication, and the abilities are only the starting basis, work hard and want to learn, which is important for great achievements. The teachers should develop an understanding among the students that intelligence and abilities may be developed through the learning process.

- What type of additional training and support do the teachers need?
- Do the students' achievements in mathematics, reading and writing meet the goals foreseen at the end of the first cycle[4] and at the end of the second cycle of primary education?

The emphasis in this report is placed on the comparison of the data in the baseline and in the repeated study. The comparisons among the students' achievements are first and foremost, followed by the comparative data on the changes among the teachers and the schools as a whole, which could be used to explain the students' achievements. At the end, there is a detailed description of the methodology of the study.

Some integral parts of the Report from the Baseline Study[5] are used in this report and it is not specifically apparent[6]. An easier understending of both reports is provided in this manner.

4 The first cycle of primary education includes grades 1-3; the second cycle includes grades 4-6. The progress study was conducted after the completion of grade 3 and grade 6.

5 Aleksova A., Mickovska G., Chonteva ZH., (2015), Inclusive education of marginalized children – Report from the Baseline Study, MCEC, Skopje.

6 Both reports were drafted by the same authors and as a result, the question of copyright is irrelevant.

EXECUTIVE SUMMARY

Objective of the study

The objective of the study of the Program progress is based on comparative data from the baseline and repeated study:

1. To observe the changes in the students' achievements in mathematics, reading and writing, particularly among the Roma students;
2. To observe the changes in the work of the schools in terms of their inclusiveness;
3. The obtained knowledge to be used for assessment of the Program effects and for further planning of the activities.

In particular, by using comparative indicators in both studies, the following changes that occurred (did not occur) were provided, analyzed and interpreted:

1. Inclusiveness of the schools;
2. Understanding of the students with special educational needs by the educational staff, particularly the difficulties and needs of the Roma students;
3. Training and acquired competences of teachers to work with students with special educational needs;
4. Teachers' understanding of the concept of abilities7;
5. Students' achievements at the end of the first cycle and at the end of the second cycle in primary education on tasks relating to reading comprehension and writing, and some socio-cultural factors relating to these achievements;
6. Students' achievements at the end of the first cycle and at the end of the second cycle in primary education on mathematical tasks and some socio-cultural factors relating to these achievements.

7 Understanding whether people's intelligence and abilities are fixed or flexible has significant importance on the working methods of the teachers (Carol S. Dweck, Gregory M. Walton, & Geoffrey L. Cohen, Academic Tenacity: Mindsets and Skills that Promote Long-Term Learning http://web.stanford.edu/~gwalton/home/Welcome_files/DweckWaltonCohen_2014.pdf)

Conducting the study

The progress study, as well as the baseline study in 2014, was conducted in the first schools included in the UNICEF programme *Inclusive education for marginalized children*. The progress study involved:

- Schools (7 in total) through their management staff, support staff and members of the school inclusion teams;
- Teachers that during the 2015/2016 school year taught the third grade (45 teachers) and subject teachers of mother tongue (Albanian and Macedonian language) and mathematics who taught the sixth grade (34 teachers);
- Students that completed the third grade during the 2015/2016 school year (244 students tested in mother tongue and 245 in mathematics);
- Students that completed the sixth grade during the 2015/2016 school year (254 tested in mother tongue and 256 in mathematics).

The data were collected through surveys and student testing. The following instruments were developed and used:

- Questionnaire for schools;
- Questionnaire for teachers;
- Scale for self-assessment of the school's inclusiveness;
- Test in reading comprehension for students in the third grade;
- Test in writing for students in the third grade;
- Test in mathematics for students in the third grade;
- Questionnaire about the state and habits relating to reading, writing and learning mathematics for students in the third grade;
- Test in reading comprehension for students in the sixth grade;
- Test in writing for students in the sixth grade;
- Test in mathematics for students in the sixth grade;
- Questionnaire about the state and habits relating to reading, writing and learning mathematics for students in the sixth grade.

The same instruments were used in both studies in order to provide a more credible comparison of the obtained data.

The data were processed for all tested subjects and they were presented according to the determined indicators, comparatively for the baseline study in 2014 and the repeated study in 2016. In addition, regarding the students' achievements, comparisons are made between the achievements of the students of Roma ethnicity and the students of other ethnicities in the schools.

Key findings of the study

The indicators, the short description of each indicator and the main findings related to it, are given in the table below.

INDICATOR 1	UNDERSTANDING OF INCLUSIVE EDUCATION AND INCLUSIVE PRACTICES OF THE TEACHERS.

SHORT DESCRIPTION

- Teachers' understanding as regards the students with special educational needs and identification of the different types of learning difficulties.
- Identification of the speciffic educational needs of the Roma students.
- Self-assessment of the responsiveness to the special educational needs.
- Self-assessment of the knolege, skills and competences of the teachers for inclusive education.
- Teachers' understanding as regards the different factors for successful learning and mindset as a fixed or flexible category.

KEY FINDINGS

» Though, compared to 2014, the number of teachers who recognize different groups of learning difficulties and/or dissability of the students has doubled, half of the teachers still do not differ and recognize all groups.

» The majority of the teachers (94%) believe that they cater to the needs of most students with special educational needs (compared to 2014 that number has doubled).

» More than half of the teachers believe that they possess most competences for inclusive education to a satisfactory level (the self-assessments for possessing competences for working in the school inclusion team have significantly improved).

» The majority of the teachers (83%) took part in trainings in inclusive education, but above 70% of the teachers are interested in more such trainings.

» The teachers who are teaching the Roma students believe that the majority or some of those students have learning difficulties (compared to 2014, the number of teachers who believe that the majority have learning difficulties, has decreased). Often, according to the teachers, their learning difficulties are in the cognitive functioning and the social background, and in addition according to the subject teachers in the mistakes in the previous learning as well.

» Almost every teacher, the teachers in the lower grades in particular, assess that they mostly provide the necessary support to these students (compared to 2014, this number has increased).

» Compared to 2014, there is a significant improvement of the perception of the teachers regarding the interest of the parents of the Roma students and they are supporting their children's learning.

» The majority of the teachers believe that the school greatly contribute for the Roma students to be able to successfully complete primary education, which is a significant positive change compared to 2014.

» When working with the Roma students who need learning assistance, the teachers expect the biggest assistance from the support staff in schools.

» The majority of the teachers believe that making an effort is the most important factor for having success in learning. Compared to 2014, there is a decrease in the number of the teachers who assign great importance to the socio-cultural background.

» Almost every teacher (94 %) believes that the intelligence and the characteristics of the individual can mainly be improved, if an effort is made. Compared to 2014, their number has significantly increased (at that time it was 67%).

INDICATOR 2

INCLUSIVE POLICIES AND PRACTICES IN THE SCHOOLS.

SHORT DESCRIPTION

- Inclusion of Roma students and identification of the students with special educational needs.
- Undertaken activities for inclusion at the school level.
- Self-assessment of inclusive policies and practices at the school level.

KEY FINDINGS

» In the schools which are included in the programme Inclusive education for marginalized children, the percentage of students of Roma ethnicity is 46,4%. Compared to 2014, the percentage of Roma students remained unchanged in three schools, and in the other four, it changed between 2% and 10% (in one school the percentage has decreased, and increased in the others).

» The schools reported that the percentage of students with special educational needs, compared to the total number of students in the schools, has decreased between 0,5% and 6% in four schools, and it has increased between 0,4% and 6% in the other three.

» In one of the schools, the percentage of students with physical and intellectual disabilities has increased for nearly 5% (it is the same school where the percentage of students with categorization has decreased by 6%), while in the other schools this percentage has decreased.

» Ever since their schools were included in the Programme, the teachers believe that the most common positive changes are: the improved collaboration with the support staff, the improved identification of the students with special educational needs and the drafting of plans for working with those students, the provided teaching means for working with them, clothes and increased self-confidence, socialization and students achievements.

» The schools maintain the trend to assess highly their own inclusive practice in many areas. The average self-assessments are above the arithmetic average value. For all seven areas, the self-assessments in 2016 are higher than the ones in 2014 (the increase is from 0,4 to 0,8 units at a scale from 0 - 4).

» Almost every school has quite favourably assessed itself (average of 3,6) relating to the area: Administration, Management and Policy Creation. This positive change, compared to 2014, is a result of the trainings and support that the schools received for the past two years for drafting the school inclusion plan and for establishing the inclusion team.

» Every school gave the most negative assessment (average of 2,2) to the inclusive practice regarding the availability of teaching and learning materials and human resources for inclusive education.

» According to the self-assessment of the schools, there is greater progress regarding the inclusive policies and practices for the students with disabilities than the other groups of students.

INDICATOR 3 STUDENTS' ACHIEVEMENTS AT THE END OF THE FIRST CYCLE OF PRIMARY EDUCATION.

SHORT DESCRIPTION

- Students' achievements on the test in reading comprehension and the test in writing.
- Students' achievements on the test in mathematics.

KEY FINDINGS – READING COMPREHENSION AND WRITING

» The students' results on the test in reading and writing have improved compared to the study from 2014, but are still lower (the average percent on the test is 46%) than the expected results prescribed in the curriculum for the third grade. The results are improved among the Roma students and the other students.

» The average result among the Roma students is by 21 percentage points lower than the average score among the other ethnicities. Compared to the baseline study, in 2016 the difference between the achievements of the Roma students and the students of other ethnicities has increased.

» The results on the test in reading are higher (the average percent is 57%) compared to the results on the test in writing (the average percent is 37 %) among all students.

» The students whose mothers have completed more than primary education, and whose fathers have completed more than the fourth grade and are employed have greater achievements. Compared to the parents of the other's, the parents of the Roma students have lower level of education and are more often unemployed.

» The Roma students who had better knowledge of the language of instruction, prior to starting school, have higher achievements compared to the ones who did not speak the language of instruction. Every third student of Roma ethnicity was not sufficiently familiar with the language of instruction at the time of his/her enrolment in the first grade.

» Not having books in the home (owning less than 10 books) is linked to lower results in reading and writing. There are small number of books in the homes of the Roma students.

» Frequent mutual activities of the adults in the family with the student, in relation to reading, are also connected to greater achievements. Compared to 2014, the frequency of these activities has increased. постигања. Во однос на 2014-тата Year се зголемила зачестеноста на ваквите активности.

KEY FINDINGS – MATHEMATICS

» The achievements of all students on the test in mathematics have improved compared to the study in 2014 by 11 percentage points. The results of the Roma students have improved by 5,5, and among the other students by 14,2 percentage points. Compared to 2014, the difference between the achievements of the Roma students and the achievements of the students of other ethnicities has increased.

» In 2016, the average result of the tasks given only with numbers, numerical expressions or which were presented graphically is 42,1% (compared to the results from 2014, there is a statistically significant improvement of 10,7 percentage points).

» In the 2016 study, the average result of the textual tasks is 35,3% (compared to 2014, there is a significant improvement of 10 percentage points).

» Both in the 2016 study and in the 2014 study, the students have significantly lower results in the textual tasks compared to the tasks that are given only with numbers or graphically.

» The students whose parents have completed more than primary education and who speak the language of instruction at home, have greater achievements; though not many Roma students fall in that group.

» The parents' greater interest in learning mathematics together with the child is related to greater achievements on the test.

INDICATOR 4

STUDENTS' ACHIEVEMENTS AT THE END OF THE SECOND CYCLE OF PRIMARY EDUCATION.

SHORT DESCRIPTION

- Students' achievements on the test in reading comprehension and the test in writing.
- Students' achievements on the test in mathematics.

KEY FINDINGS - READING COMPREHENSION AND WRITING

» The results on the test in reading and writing have improved among all students, compared to 2014. However the Roma students, same as in the previous study, have significantly lower achievements.

» The results on the test in reading (the average percent is 60%) are on a satisfactory level as regards the results prescribed in the curriculum and are on the same level as the 2014 achievements.

» In 2016, significantly higher results were achieved on the test in writing compared to 2014, but still they are below average (the average is 31%). The results on the writing tasks among the students of other ethnicities is nearly twice as good compared to the average score of the Roma students.

» In general, the students with parents that had completed higher education have better achievements on the test in reading and writing, while among the Roma students there are differences in the achievements between the children whose mothers and fathers completed only the fourth grade and those whose parents completed secondary education.

» The students of employed mothers and fathers have greater achievements than the ones whose parents are unemployed. Such a connection was not detected among the Roma students.

» The students who have better learning home environment like their own room, desk and internet and at least the minimum number of books, have greater achievements. In average, the Roma students have poorer learning circumstances.

» The students who are supported by the adults at home when learning Macedonian/Albanian language and literature have greater achievements in reading and writing.

» The language spoken by the Roma students in their homes is not connected to their achievements in reading and writing on the subject Macedonian/Albanian language and literature.

KEY FINDINGS – MATHEMATICS

» The students' achievements on the test in mathematics in 2016 are on the same level as the ones in 2014.

» The Roma students made progress compared to 2014, and the students from the other ethnicities achieved somewhat lower results – so the difference between the Roma students and the other students has decreased (the difference of 21,3% has decreased to 14,2%), but it is still significant.

» In 2016, the average result on the tasks given only with numbers, numerical expressions or which were presented graphically is 39,5% for all students, compared to the results from 2014, there is an decrease of 2 percentage points.

» In the 2016 study, average on the textual tasks is 22,7% and compared to 2014, there is a significant improvement of 7.2 percentage points.

» The students whose parents have completed more than primary education and who speak the language of instruction at home, have greater achievements; though not many Roma students fall in that group.

Discussion about the findings

First of all, it has to be emphasized that the results of this study refer solely to the seven schools included in the programme *Inclusive education for marginalized children*. A generalization of the findings for every school, for all teachers and for the students in the third and sixth grade in the country, is not acceptable and scientifically not justified.

Generally speaking, the Programme in the seven schools resulted in *better results of all children;* which was actually its basic objective. However, according to the results of the test in reading and writing and in mathematics for both age groups, the students of other ethnicities made greater progress although the results of the Roma students are statistically significant improved.

Seeing that in the current realization of the Programme there is no approaching towards one of the long-term expected results: to decrease the difference in the achievements between the Roma students and the students of other ethnicities, however it has increased. It is not unexpected, considering the short period of realization of the Programme, on the one hand, and the reasons for the learning difficulties of the Roma students, on the other hand. The reasons for the learning difficulties are mostly of socio-cultural and economic character, and the school has limited capacities to contribute to their surmounting. In order to find more specific proof-based explanations, further deepened and primarily qualitative studies are necessary.

The understating of the educational staff as to the speciffic educational needs of different groups of students has improved; almost all of them attended the trainings foreseen with the Programme, they received the guiding materials; they improved some of the competences for inclusive education; they changed their understanding about the character of the abilities, there is an increase in the number of teachers who believe that intelligence and abilities are not fixed, that they can be developed; the teachers became more sensitive to the different needs of the students who encounter learning difficulties; there is an increase in the number of teachers who believe that the school can do a great deal for their Roma students to be able to complete primary education; inclusion teams were established and the collaboration with the school/teachers support staff has improved. Those are all preconditions for successful inclusive practice. In

addition, it can be concluded that the teachers, to a great degree, were focused and involved in drafting the individual educational plans (IEP) for the children with disabilities, which is probably a result of the legal obligations.

In addition, the schools as a whole have improved their inclusive policies and practices: they became more responsible in registering and collecting data about their own school entities; the school climate has improved as regards the acceptance of marginalized students; they became more sensitive in recognizing the learning difficulties of the children and their needs and they became more aware of their own capabilities and needs in providing access, involvement and greater student achievements. The schools informed about the increased collaboration with the students' parents, with the other schools and institutions at local level, including the NGOs, but mostly about the improved communication, collaboration and mutual support in the school itself.

Recommendations

The abovementioned findings and their analysis, in addition to being used for assessing of the effects of the activities undertaken during the realization of the programme *Inclusive education for marginalized children*, should also be used for planning and more successful realization of the inclusion activities at the level of an entire system. The recommendations were generated having this in mind, and are are arranged according to the domains of the school's inclusiveness. The majority of the recommendations apply to the seven schools included in the Programme or to other shools that will use the approaches developed in the Programme, as well as to the institutions that provide support.

Teaching plans and curricula

- The support for the school teams, responsible for developing educational plans for the marginalized students, should continue, as well as for realization of those plans and for monitoring the realization. The Bureau for Educational Development should provide expert support and accredit trainings in differentiated contents and teaching approach, with a particular emphasis on catering to the needs of the Roma students.

- In the schools that still have segregated classes composed of only Roma students, it is necessary to continue with the activities with all the parents in order to change the views that lead to segregation and larger integration of Roma students should be ensured. The schools should receive support for using the government's and the NGOs funds for interethnic integration, inclusion and Roma support.

- The schools should be allowed to establish mechanisms and draft special programmes for quicker inclusion and for complementing the most substantial curriculum content for the students who are „seasonally" absent from instruction (the majority of these students are Roma), as a minimal basis which will enable continuous learning.

Students' achievements

- The schools, in collaboration with the parents and the local community, should continue working on increasing the access to schools and participation of all students, particularly of Roma students. They should cooperate with the ECD centres and the NGOs that work with preschool marginalized children. UNICEF should continue supporting the Government as regards the opening of new ECD centres in environments with many children that are not covered by preschool education, within the marginalized communities in particular.

- The teachers should be trained in using strategies that will assist the students in building a flexible model of thinking, i.e. to experience success when they make an effort, as well as learning experiences where mistakes will be used as an opportunity to learn. The Bureau for Educational Development (BED) should accredit such trainings.

- The schools, in collaboration with the BED, should develop mechanisms for monitoring and supporting the learning of the marginalized children, which will include the drafting of in-depth analyses with reference to students' achievements (according to social background, ethnicity, language that the students speak at home, and similar). Also, some activities should be undertaken in order to increase the school's influence on the students' achievements.

Learning and teaching

- The BED advisers, together with the teachers from the schools, should analyze the progress measurement test results on reading, writing and mathematics. They should also assist the subject teachers' in finding teaching approaches which will play a part in the rapid progress of the Roma students.

- Additional support should be organized for the Roma students who are not fluent in the language of instruction at the time of their enrolment in the first grade, in order to improve their knowledge. These activities should include the ECD centres, the volunteer teachers and the non-governmental sector.

- The teachers, together with the support staff, should draft strategies on differentiated approaches to teaching and work as teams on their realization (e.g. by establishing measures and school communities for sharing experiences, exchange of teachings materials, mutual works in teachers-teaching-triads and similar.)

- The teachers and the support staff should work on action research on inclusive education for the marginalized children in own schools and to use the findings to improve instruction.

Supporting the students

- Strategies for peer support in learning, for the Roma students, should be introduced in the schools.

- The schools should expand the collaboration with the local community, civil society organizations and similar, so as to obtain material support for the Roma students and means for out-of-school activities.

- Speciallized professional gidelines, manuals and other materials should be drafted and the support staff should be trained in providing individual support to the students.

School climate and relationships within the school

- The seven schools should continue their collaboration and be a core of the network of inclusive schools focusing on marginalized children. This network should be used as a platform for mutual exchange of experiences, support and will be model-schools for other similar schools.
- The activities for involving marginalized children in out-of-school activities and in the activities of the student community should continue.
- The school staff should be trained in collaborating with parents, particularly those belonging to socially vulnerable groups. UNICEF should support such trainings, both professionally and financially. The programmes for parent counselling are already regulated by law and introduced into the primary education system and as regards the counselling of the parents of the Roma students, they should be more flexible, as opposed to the current practice. The BED and SEI should not insist just on formal realization of this counselling.

Resources

- The Ministry of Education and Science (MoES) and the municipalities should continue with completing the teachers support staff teams in the schools that have many marginalized students.
- The schools should deepen and strengthen peer learning and support, as a method to increase the competences of teachers for working with socially vulnerable groups of students.
- The school staff should be trained in adapting the official learning materials, finding and exchange of adapted materials for the teachers and students.
- With the support from the BED advisers and the SEI inspectors, regional teams for supporting the schools for inclusion of marginalized children should be established.

Administration, management and policy creation

- To strengthen the quality of work of the school inclusion teams and peer support on issues relating to the inclusion of marginalized children.
- The school management team, in collaboration with the local community, should undertake continuous measures for ensuring maximum inclusion and attendance of the marginalized groups of students in the school, with a particular emphasis on the Roma students.
- The school should undertake measures for ensuring the participation of the marginalized groups of students within every activity.
- The school should continuously monitor and analyze the progress of the Roma students and undertake measures for ensuring their active participation in class and in out-of-school activities.

This findings, conclusions and suggestions should be used during the upcoming realization of the Programme, as well as for developing strategies and introducing practices by the educational institutions for greater inclusiveness in education.

PART I

BACKGROUND INFORMATION

This chapter contains basic information about the Programme *Inclusive Education for marginalized children* and the activities that were carried out in the period March 2014 – May 2016, i.e. from the start of the Programme until the progress study.

The former Yugoslav Republic of Macedonia is still dealing with the challenges in the educational system relating to the inclusion of the marginalized group of children[8] and in response providing opportunities to them to learn and acquire applicable knowledge of the 21-st century.

During the previous period, UNICEF has supported programmes to help the Government in dealing with these challenges by strengthening the inclusiveness of the education system and improving mathematical and language literacy in the early grades - as basic foundations for learning and teaching of all children. Two programmes[9] were supported (since 2009), for the professional development of the teaching staff in understand the principles of quality teaching and learning mathematics and language. Moreover, the programmes support the teachers in applying the newly acquired knowledge to enable the students within their classes acquire basic

8 Only 10% of the children with special educational needs (UNICEF, 2010-The Assessments of the inclusiveness of the education system) and 63% of the Roma children (UNICEF, 2011 - The Right of Roma Children to Education: Position Paper. Geneva: UNICEF Regional Office for Central and Eastern Europe and the Commonwealth of Independent States (CEECIS)) are included in primary education.

9 UNICEF supported Programme's Thinking mathematics and Language Literacy in early grades.

mathematical and language literacy, as well as to ensure greater students' achievements. Both programmes are directed towards the provision of quality teaching for all children in the country and they contribute to an effective teacher professional development. Baseline studies and progress studies at the end of the first cycle[10] were conducted for both programmes and they have shown a statistically significant improvement of students' achievements in the project-schools (in which trained teachers worked with the children) compared to the control-schools (schools in which the teachers were not trained). The progress studies have shown differences in the achievements between the different groups of students and they confirmed the need to undertake activities which will support the learning process of at-risk children and the children from the marginalized groups, particularly the Roma students.

The latest studies of the education of Roma children in the former Yugoslav Republic of Macedonia indicate the following:

- The majority of Roma children speak the Roma language at home and do not attend any preschool institutions. In 2010, only 36% of the Roma students attended a preschool institution in the year before starting the first grade11. They are included in primary education with a limited knowledge of the language of instruction (96.9 % of the Roma students who attend primary school are in schools/classes where Macedonian language12 is the language of instruction).
- Even though primary education is mandatory, in 2011, 85,6% of the school-aged Roma children were enrolled in the schools, but it was also assessed that only 63% of the 7-year-old children, coming from the poorest families, attended school[13].
- There are limited opportunities for integration because a significant number (around 23%) of the Roma children attend schools in which schoolmates are mainly Roma or they are in segregated classes - segregated schools[14].

10 Three school years following the implementation of the Programme.

11 UNICEF Multi-cluster indicators study (2011).

12 According to Roma Education in Comparative Perspective, UNDP/World bank/EK regional Roma survey report (2012), 66% of the children 0-6 years speak the Roma language at home.

13 Pfaffe, Smulders, Silvestrini, Nguyen, and Tadevosyan, (2014), 2014 CEE/CIS and Baltic States: Multi-Country Evaluation (MCE): Including All Children in Quality Learning in CEE/CIS (RKLA 4), http://www2.unicef.org:60090/evaldatabase/index_81157.html (report founded on data from state institutions).

14 Kushen, R., (Ed.). (2015), Macedonian Roma inclusion index; Roma Education in Comparative Perspective, UNDP/World bank/EK *Regional Roma survey report,* (2012); Council of Europe Commissioner for Human Rights report for Macedonia in section II: Human rights of Roma (2013).

- The national mathematics and mother tongue assessments of students in the fourth and eighth grade have shown that the students whose parents have higher level of education achieve greater results in both subjects, and in most cases they are related to the mother's level of education. On the other hand, in the former Yugoslav Republic of Macedonia, almost 50% of the Roma population between 25 and 64 years of age have stated that they have no formal education or they have completed only the ISCED level 1[15]. The people in this age group are either the parents or the grandparents of the Roma students in primary education.
- The Roma students have lower academic self-concept and lower expectations as regards their future profession compared to the students of Macedonian ethnicity[16].

The abovementioned leads to the conclusion that the teacher is an essential factor for better education of the Roma students, particularly for early literacy and acquiring language and mathematical skills.

However, according to the findings in the Roma Early Childhood Inclusion - Macedonian Report (2011)[17]:

- The teachers are not trained for assisting children in mastering language skills, i.e. the language of instruction;
- The teachers have low expectations regarding the achievements of Roma students, and they do not use or use to limited extent interactive and differentiated instruction;
- Among the teachers, there is a low level of awareness and knowledge about Roma culture and tradition and their characteristics.

In the Johnstone[18] report it is concluded that there is a shortage of qualified teaching staff on the languages of the ethnicities, particularly for the Roma students. For example, it was found that within the ethnic group, there is one qualified teacher for each 14.5 Macedonian children, one Albanian teacher for

15 Roma Education in Comparative Perspective, UNDP/World bank/EK *Regional Roma survey report,* (2012).

16 Kolozova K., Mickovska G., Cheshlarov M., unpublished report – *Research on the education of Roma students in 10 schools included in the activities for supporting the Roma in Macedonia.*

17 Eminova E., Janeva N., Petroska-Beška V., Bennett J., *Roma Early Childhood Inclusion – Macedonian Report,* (2011), Open Society Foundation London, Roma Education Found Budapest, UNICEF Geneva.

18 Johnstone, C., (2010). INCLUSIVE education as part of a child-friendly schools framework, Results and recommendations from a study in Macedonia,Skopje: Ministry of Education and Science of the Republic of Macedonia.

19,7 students, one teacher of Turkish ethnicity for 29,8 students, while the ratio of teachers of Roma ethnicity to students of Roma ethnicity is one teacher to 524,5 students. It was also concluded that there are no adapted sources of learning. The teachers themselves are trying to adapt the tasks and activities to be suitable to the students' abilities and previous knowledge, but these materials are not shared with the other teachers.

1. SCHOOLS INCLUDED IN THE PROGRAMME

The Programme is implemented in seven primary schools, i.e. one school in seven municipalities. These are schools with significant number of Roma students and a nearby ECD centre, established with UNICEF support. The information on the basic characteristics of these schools is given below.

TABLE 1: *Schools according to the language of instruction, city and number of students*

SCHOOL	CITY	LANGUAGE OF INSTRUCTION	TOTAL NUMBER OF STUDENTS	% OF ROMA STUDENTS
Gjorgji Sugarev	Bitola	Macedonian	597	78 %
Edinstvo-Bashkimi-Birlik	Gostivar	Macedonian – Albanian -Turkish	1253 (358*)	20 %** (72 %***)
11 Oktomvri	Kumanovo	Macedonian	482	18 %
Dobre Jovanoski	Prilep	Macedonian	1069	71 %
Brakja Ramiz i Hamid	Skopje	Macedonian	1997	97 %
Naim Frasheri	Tetovo	Albanian	1610	0,5 %
Dimitar Vlahov	Shtip	Macedonian	974	12 %

**The number of students that attend school in Macedonian language of instruction in the school is 358. The Roma students are in the classes in Macedonian language of instruction.*

*** Percentage of Roma students in relation to the total number of students in the school.*

****Percentage of Roma students in relation to the number of students who attend classes in Macedonian language of instruction..*

Compared to the data for the same schools from 2014, in 2016 the percentage of Roma students, compared to the total number of students in the schools, remained the same in three of the schools, and in the other four it has changed between 2 and 10% (in one school it has decreased, and it increased in the others).

The schools are specific according to the number of students who need greater and specific support in learning. Data was collected on the number of students with special educational needs and the number of students with specific physical and intellectual disabilities from every school, bearing in mind the OECD[19] operational definition. (The three agreed cross-national categories are referred to as "A/Disabilities", "B/Difficulties" and "C/Disadvantages" respectively. Cross-National Category "A/Disabilities": Students with disabilities or impairments viewed in medical terms as organic disorders attributable to organic pathologies e.g. in relation to sensory, motor or neurological defects.

The educational need is considered to arise primarily from problems attributable to these disabilities. Cross-National Category "B/Difficulties": Students with behavioural or emotional disorders, or specific difficulties in learning. The educational need is considered to arise primarily from problems in the interaction between the student and the educational context. Cross-National Category "C/Disadvantages": Students with disadvantages arising primarily from socio-economic, cultural, and/or linguistic factors. The educational need is to compensate for the disadvantages attributable to these factors.)

The data obtained from the schools are given in the tables below.

19 The operational definition of OECD covers the following categories: A: special educational needs resulting from intellectual or physical developmental disability; B: learning difficulties due to socioemotional and behavioural causes; and C: special educational needs due to education disadvantages arising from socio-economic, cultural, and/or linguistic factors. https://www.oecd.org/edu/school/40299703.pdf

TABLE 2: *Number of students with special educational needs/learning difficulties (special educational needs mean needs that are a result of the differences in the psycho-physical abilities, ethnicity, culture, mother tongue, religion, social and economic status)*

SCHOOL	MACEDONIAN	ALBANIAN	TURKISH	ROMA	SERBS	VLACHS	BOSNIAKS	%*
Edinstvo-Bashkimi-Birlik	3	1		7				1
Gjorgji Sugarev	12			46				9
11 Oktomvri	12			20	19			11
Dobre Jovanoski	12			39				5
Brakja Ramiz i Hamid	2			12				3
Naim Frasheri		12						1
Dimitar Vlahov	31		3	37				8

** Percentage of students with special educational needs in relation to the total number of students in the school.*

TABLE 3: *Number of students with physical or intellectual disabilities (children for whom the schools have a medical note: intellectual disability, students with visual impairment, students with hearing impairment, with physical disability, speech impairments, autism and autistic disorders, as well as students with combined developmental disabilities)*

SCHOOL	MACEDONIAN	ALBANIAN	TURKISH	ROMA	SERBS	VLACHS	BOSNIAKS	%*
Edinstvo-Bashkimi-Birlik	4			1				0,4
Gjorgji Sugarev	22			9				5
11 Oktomvri	10			8	11			6
Dobre Jovanoski	5			5				1
Brakja Ramiz i Hamid				6				0,3
Naim Frasheri		2						0,1
Dimitar Vlahov	1			1				0,2

** Percentage of students with physical or intellectual disabilities in relation to the total number of students in the school.*

It is specific that in the school in Bitola there are special classes for each grade where thirty children with physical or intellectual disabilities are being taught. The educational process and the other activities for these classes are implemented by special education teachers employed in the school, but there is almost no collaboration between the teaching staff in the regular instruction and the staff that works with the children in the special classes.

In general, compared to the 2014 data on the percentage of students with special educational needs and the students with physical and intellectual disabilities as to the total number of students, the following is evident:

- The percentage of students with special educational needs/learning difficulties compared to the total number of students in the school has increased between 0,4% and 6 % in four schools, and in the other three it has decreased between 1 and 4%;
- The percentage of students with physical or intellectual disabilities (that have a medical note) has increased by nearly 5% in one school (the same school where the percentage of students with special educational needs/ learning difficulties has decreased by 6%), while in the other schools this percentage has decreased.

It can be assumed that this change in reporting on the school situation is a result of the improved understanding and increased sensitivity of the teachers about identifying and differentiating the students with special educational needs/ learning difficulties and the students with physical or intellectual disabilities according to the OECD definition. However, according to the numbers indicated by some schools, it can be assumed that not all schools are sufficiently insightful about the different special educational needs of the students (confirmed by the answers in the teacher questionnaires).

In 2016, the data on the socio-economic status of the students' parents were not collected from the schools[20], bearing in mind that the period of two years between the two measurements is very limited for a major change to happen. According to the data from 2014, the parents of more than 30% of the Roma students have no education, of more than 30% have completed the fourth grade and the parents of about 20% of the students have completed primary education. The parents of more than 40% of the Roma students are unemployed. Among the other ethnicities, the number of parents with less than primary education is insignificant, and the unemployment percentage is less than 20 percentage points.

20 In 2016, these data were collected with the student questionnaire, using 2 questions, but the reviewers are somewhat reserved about their full validity for the students in the third grade.

During the 2015/2016 school year, 3,2 % of the total number of students in the seven schools has left their education. The percentage of Roma students that has left their education compared to the total number of Roma students is 0.6%.

The schools reported that, during the 2015/2016 school year, 142 first graders (of which 59 are Roma) were not enrolled in the school in their district, but they were enrolled in a different primary school. For 192 students (most of whom are Roma -135), the schools have information that they are not enrolled in any school.

Compared to 2014, when the schools did not have any or had incomplete information, the above-mentioned indicates that the schools show increased concern about the coverage and providing access to education for all students, including the Roma students.

As it was previously mentioned, the data on the qualified teachers to students' ratio in the former Yugoslav Republic of Macedonia are devastating for the teachers of Roma ethnicity (one teacher to 524,5 students). In the seven schools in which the Programme is implemented, this ratio is one teacher to 195 students, the number of Roma teachers in seven schools is 25.

Compared to 2014, when three schools stated that some Roma parents are members of a school body (Parents' Council, School Board), in 2016 this is the case in five schools and the total of 156 Roma parents were involved in the work of the school bodies.

The collaboration between the schools and the organizations and institutions relating to education of marginalized children has continued during the 2014-2016 period (the schools indicated 5 institutions and 15 civil organizations with which they have close collaboration), and they are also satisfied with the support and collaboration they receive from the local self-government (on a scale from 1 to 4, the average level of collaboration is assessed as a 3).

When the schools were asked to write down five changes/improvements relating to the education of marginalized groups of students which occurred in the period from 2014 until May 2016, the schools indicated the following:

- Change in the working approach (5 schools);
- Developing individual educational plans (4 schools);
- Collaboration with the parents (7 schools);

- Improved school climate (4 schools);
- Improved knowledge of the teachers about inclusion (2 schools);
- Greater coverage and improved attendance of the Roma students (4 schools);
- Increased number of Roma students in the free activities for students (3 schools);
- Improved team work in the school (4 schools);
- Improved registration and documenting of activities relating to marginalized children (3 schools);
- Increased number of students that selected to study the subject – Language and culture of the Roma[21] (3 schools).

21 In 2016, this subject was studied by 1 501 student which is 40 % of the total number of Roma students in the seven schools, half of these students are in the third, fourth or fifth grade. When the realization of the Programme started, these students were in the first, second or third grade.

2. ACTIVITIES REALIZED IN THE PROGRAMME

Trainings and dissemination of the trainings

Based on the findings in the studies regarding the necessary knowledge and skills of the teachers who work in the schools with many students from disadvantaged backgrounds, and the findings on the situation in the seven schools included in the Programme, a training programme was prepared for the school staff. The trainings consisted of basic modules for inclusive education (carried out from June 2014 until April 2015) and specific modules (carried out from November 2015 until March 2016) emanating from the teachers' needs which were observed during the support visits and the findings from the baseline study.

Bearing in mind the responsibilities of the entire school staff, the following participants took part in the trainings: the school principals and the school support staff, the early grade teachers and the subject teachers of mother tongue and mathematics. In order to provide institutional support and involvement in the activities relating to inclusive education, the training also included BED advisers responcible for monitoring and support in the schools, inspectors from the SEI who are working in the municipalities of the schools included in the Programme, and MoES representatives with particular responsibilities in inclusive education. The trainings were organized in a cascade model. The international and local consultants were engaged to train the selected school representatives, who afterwards, acting as school trainers, disseminated the training within their own schools. In total, 320 participants from the seven schools took part in the trainings with the international and national consultants. Till april 2016, 1107 trainees took part in the dissemination within the schools.

The basic trainings consisted of one introductory and three modules for inclusive education[22] on the following topics:

22 The trainings for the school trainers lasted 4 days for each module and were conducted by the international consultant Prof.Dr. Judith Hollenweger with the support of 5 mentor teachers who were included in the Inclusive education programme from 2012. The disseminations lasted 3 days for each module and were realized by the school trainers with the support of the mentor teachers.

- *Inclusive education: Creating a Foundation – Learning about Concepts*

During the training, through presentations, discussions and exercises, the participants were introduced to inclusive education with the purpose of acquiring a common understanding and definition of the same; the meaning and the "knowledge" of the "inclusive teacher"; the most important dimensions of student diversity, valuing and the importance for all students to be supported by the teacher, the school and the broader community. The training was founded on the assumption that inclusive education should be understood as a process where the teachers have the largest contribution, but is also influenced by the local community and the educational system.

- *Working with others – Finding a common language – becoming a team*

The training focused on the participants' understanding of the importance of communication, collaboration and participation, which was followed by the introduction of the participants to the ICF-CY[23] and its importance for inclusion of children. The participants were introduced to the meaning, composition, opportunities and the activities of the school inclusion team.

- *Supporting all learners – Planning together and implementing together*

The participants worked on creating effective goals, on adapting situations to learners' requirements and developing tools to support all learners.

The specific trainings emanating from the teachers' needs lasted 3 days for each module, on the following topic:

- *First and second language acquisition – Ethnic and linguistic diversity in the classroom*

The training activities were directed towards teaching the language of instruction, valuing the first language (language different than the language of instruction) and supporting the students of different linguistic background in learning, with a particular emphasis on the Roma students.

- *Formative assessment of students with learning difficulties*

The work with the participants was focused on their understanding of formative assessment in the lower grades and the specifics of formative assessment of students with learning difficulties; planning the instruction and setting clear

23 *International Classification of Functioning, Disability and Health*, World Health Organization Geneva: WHO.

goals and outcomes, as well as planning on the basis of reflection; asking questions, discussion and constructive feedback during the assessment; self-assessment and peer assessment and informing the parents. In addition, some specific directions for making an initial assessment were elaborated and examples were given about making a student profile, as well as for adapting the learning process and monitoring the students with specific disabilities that cause learning difficulties (ADHD[24], dyslexia and dysgraphia, dyscalculia, diminished intellectual capacity and autism).

Supporting the application of the newly acquired knowledge

The introduction and support for the changes in the seven schools, for their transformation to inclusive schools, is monitored by BED advisers, SEI inspectors and mentor teachers with greater experience in inclusive education (every school has its team of an advisor, inspector and mentor). In the last time period, the goal of the support was the following:

- To assist the school trainers in disseminating the trainings within their schools;
- To assist the schools in the establishment and later in the work of the school inclusion team;
- To share the findings from the baseline study, to discuss the findings at school level and to develop an action plan for improving the situation, which will be followed by an implementation of the plan;
- To support the teachers in the introduction of inclusive practices in their classrooms, by providing directions, tools, models and ideas for adapting the instruction and learning resources needed in the classroom.

During the period from October 2014 until April 2016, each of the seven schools was visited five times in order to support the school trainers in the dissemination of the training, and there were additional eight visits to support the inclusion team, teachers, support staff and the school principal in applying the newly acquired knowledge and improving the school's inclusiveness.

For the school itself to be able to explore the practice that is founded on data, and to undertake activities for improvement and sustainability of the inclusiveness,

24 Attention Deficit Hyperactivity Disorder.

one member of the support staff from each school was trained in conducting action research in the educational practice, in January 2016.

Within the Programme, several Handbooks were published and submitted to the schools and are available on the UNICEF website, which represent an addition to the limited literature regarding inclusive education in the country.

The following Handbooks were published:

1. Inclusive Education – Training Modules

http://www.unicef.org/tfyrmacedonia/Modul_za_Inkluzivno_obrazovanie-MODUL_1_2_i_3_MK_ZA_WEB.pdf

http://www.unicef.org/tfyrmacedonia/Modul_za_Inkluzivno_obrazovanie-MODUL_1_2_i_3_ALB_za_web.pdf

2. Practicum Towards Inclusive Education Training Modules

http://www.unicef.org/tfyrmacedonia/Praktikum_kon_priracnikot_za_Inkluzivno_obrazobvanie_MK.pdf

http://www.unicef.org/tfyrmacedonia/Praktikum_za_zbogatuvanje_na_modulite_za_WEB-ALB.pdf

3. Formative Assessment for Lower Primary Education

http://www.unicef.org/tfyrmacedonia/Formativno_ocenuvanje_vo_oddelenska_nastava-_MK.pdf

http://www.unicef.org/tfyrmacedonia/Formativno_ocenuvanje_vo_oddelenska_nastava-_ALB.pdf

4. Formative Assessment for Children with Learning Difficulties

http://www.unicef.org/tfyrmacedonia/Formativno_ocenuvanje_kaj_ucenicite_so_poteskotii_vo_ucenjeto-_MK.pdf

http://www.unicef.org/tfyrmacedonia/Formativno_ocenuvanje_kaj_ucenicite_so_poteskotii_vo_ucenjeto-_ALB.pdf

5. Action Research in Primary Education

http://www.unicef.org/tfyrmacedonia/Akciono_istrazuvanje_vo_vospitno-obrazovnata_praktika-MK.pdf

http://www.unicef.org/tfyrmacedonia/Akciono_istrazuvanje_vo_vospitno-obrazovnata_praktika-ALB.pdf

PART II

RESULTS

The findings from the progress study are shown in this chapter and grouped in accordance with the defined indicators. The findings are moved in the following sections:

1. **Students' achievements:**
   - At the end of the first cycle (third grade) in reading and writing and in mathematics;
   - At the end of the second cycle (sixth grade) in reading and writing and in mathematics.
2. **Understanding of inclusive education and inclusive practices of the teachers:**
   - Understanding students with special educational needs and identification of different types of educational needs;
   - Meeting the needs of the students with special educational needs;
   - Meeting the needs of the Roma students and their educational needs;
   - Teachers' understanding of the different factors of successful learning and of intelligence and the individual (mindset) as fixed or flexible category.

3. **Understanding of inclusive education by the other educational staff and the inclusiveness of the school as a whole:**
    - Understanding the category of students with special educational needs and identification of the different types of special educational needs of the students in the school;
    - Inclusive policies and practices at school level.

The data represent a crosscut of the progress made as regards the indicators which are relevant for monitoring the effects of the Programme in the schools. An emphasis is placed on the inclusion of Roma students, as well as on the comparison between their achievements and the achievements of the other students, as well on the comparison between the students' achievements in both studies. The data show the progress of the seven schools, but considering the limitations of the sample, they cannot be generalized to the entire populationin the country. The data can serve for the subsequent longitudinal monitoring of the changes which will occur in these schools, and which are related to the activities of the programme *Inclusive education for marginalized children*.

1. STUDENTS' ACHIEVEMENTS

Language and mathematical literacy are considered crucial for the learning in other school subjects and therefore it is important for every child to acquire them at an early age. UNICEF is supporting the activities for acquiring fundamental literacy in primary education by supporting the implementation of the programmes *Language literacy in the early grades, Thinking mathematics in the early grades* and *Inclusion of marginalized children*. The Programme, *Inclusion of marginalized children,* aims to contribute to greater achievements of all children, and it is also focused on decreasing the differences in the achievements between the Roma students and the students of other ethnicities. It is expected that the undertaken activities will lead to higher achievements of all students, and greater benefits would be felt by the Roma students, as the largest group of marginalized students on which the Programme was focused.

This part provides the comparative data and informations regarding the students' achievements on the tests in language literacy and in mathematics at the end of the first cycle (third grade) and at the end of the second cycle (sixth grade) in the measurement/studies which were conducted in 2014 and in 2016.

The student tests have a relatively small number of questions from the teaching subject or domain of the relevant grade and it is a limitation in terms of the justification of the generalization of the conclusions as regards the subject of mathematics or the entire domain of reading, i.e. writing. The conclusions refers to the knowledge and abilities which are explicitly measured by the test tasks, and not by all the objectives of these domains in the curriculum for the third and sixth grade.

The tests in reading, writing and mathematics had the same content for all students, and the students solved them on their language of instruction: Macedonian or Albanian language. The same tests were used in both studies – in 2014 and in 2016, and therefore the comparisons were more reliable.

The basic informations on the methods and instruments of measurement are given in the beginning, followed by the results of the students' achievements. The results are shown using the average of the points gained on the tests and the average percentage of the achievement on the whole test and in separate domains. Also, and some findings are shown graphically. The comparison of the students' achievements at the beginning of the Programme *Inclusion of marginalized children* (in 2014) and after two years of implementation (in 2016) is made. Particular emphasis is placed on the comparison between the achievements and progress of the Roma students and the progress of the students of other ethnicities. The comments, as to the reasons for those differences, are made on the basis of the data obtained from the answers relating to the conditions and habits in the family, relevant for the students's learning and the achievements.

1.1 STUDENTS' ACHIEVEMENTS AT THE END OF THE FIRST CYCLE OF PRIMARY EDUCATION

1.1.1. STUDENTS' ACHIEVEMENTS ON THE TEST IN LANGUAGE LITERACY

METHOD OF MEASURING

The language literacy was examined with a test in reading comprehension and a test in writing. The reading comprehension tasks and the writing tasks were physically located into one test-booklet, and were solved during two separate test sessions.

The reading test consisted of three tasks: 1) reading one longer literary text and answering 6 questions related to the contents of the text, 2) reading one short text и answering 3 questions related to the text and 3) reading 2 short literary texts and answering 4 questions, one of the questions referred to the comparison between the characters in both texts. The accurate result was valued by 1 or 2 points, depending on the questions.

The test in writing consisted of one open task (writing a text by using given words) and one closed task, which referred to improving the content of selected parts of a given letter. The open task in this domain was assessed with a list of 6 criteria with three levels of success. The descriptions of the levels were finalized after reviewing the sample of actual answers of the students.

The data on the characteristics of the family environment that could influence the students achievements are obtained with a questionnaire.

The students' achievements in language literacy are shown by the results on the overall test and separately on the domain of reading and the domain of writing. The achievements are shown using tables and graphs, and verbal comments are added. The report considers as statistically significant improvement the difference between the average points, which in the given sample size exceed the critical value of the T-test in order to maintain that it's with the accuracy of 95%. Sometimes, the level of significance of the differences of 0,01 or 0,05 is specially indicated.

The general conclusion in 2016 is that the achievements of all students, compared to 2014, are higher by almost 12 percentage points (or 3 score points), which is statistically significant improvement. However, the average result is still below the expectations and slightly below the prescribed expectations in the national curriculum.

TABLE 4: *Results in reading and writing for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	252	24	32	11	34,2%
2016	244	24	32	14	45,8%

One of the main goals of the Programme was to provide the students of marginalized groups with a support which would increase their involvement in learning activities and better use of their potential, which is expected to lead to a reduction of the difference between the achievements of the Roma students and the other students. The test results in the progress study show that the Roma students made less progress compared to the other students.

TABLE 5: *Comparisons of the average percent on the test in reading and writing*

Year	Average percent All	Average percent Roma	Significance of the difference	Average percent Others
2014	34,2%	28,0%	↔ significant difference at the level of 0.01	39,9%
	↕ significant difference at the level of 0.01	↕ significant difference at the level of 0.01		↕ significant difference at the level of 0.01
2016	45,8%	34,2%	↔ significant difference at the level of 0.01	55,7%

The overall results on the test in language literacy (i.e. the results obtained on the test in reading comprehension and writing), show that the students achieved average percentage of 45.8% – i.e. the average of 14 score points of the possible 32 points. Those are a significantly improved results[26] compared to the ones from 2014.

The differences between the achievements of the Roma students and the other students will be analyzed and given in detail subsequently.

The Roma students have the average percent of 34,2% on the overall test, and the result of the students of other ethnicities is significantly higher – 55,7%. The difference between the achievements on the test in reading and writing between the Roma students and the students of other ethnicities is bigger compared to the one detected in the 2014 study (at that time it was 12 percentage points, in 2016 it is 21 percentage points).

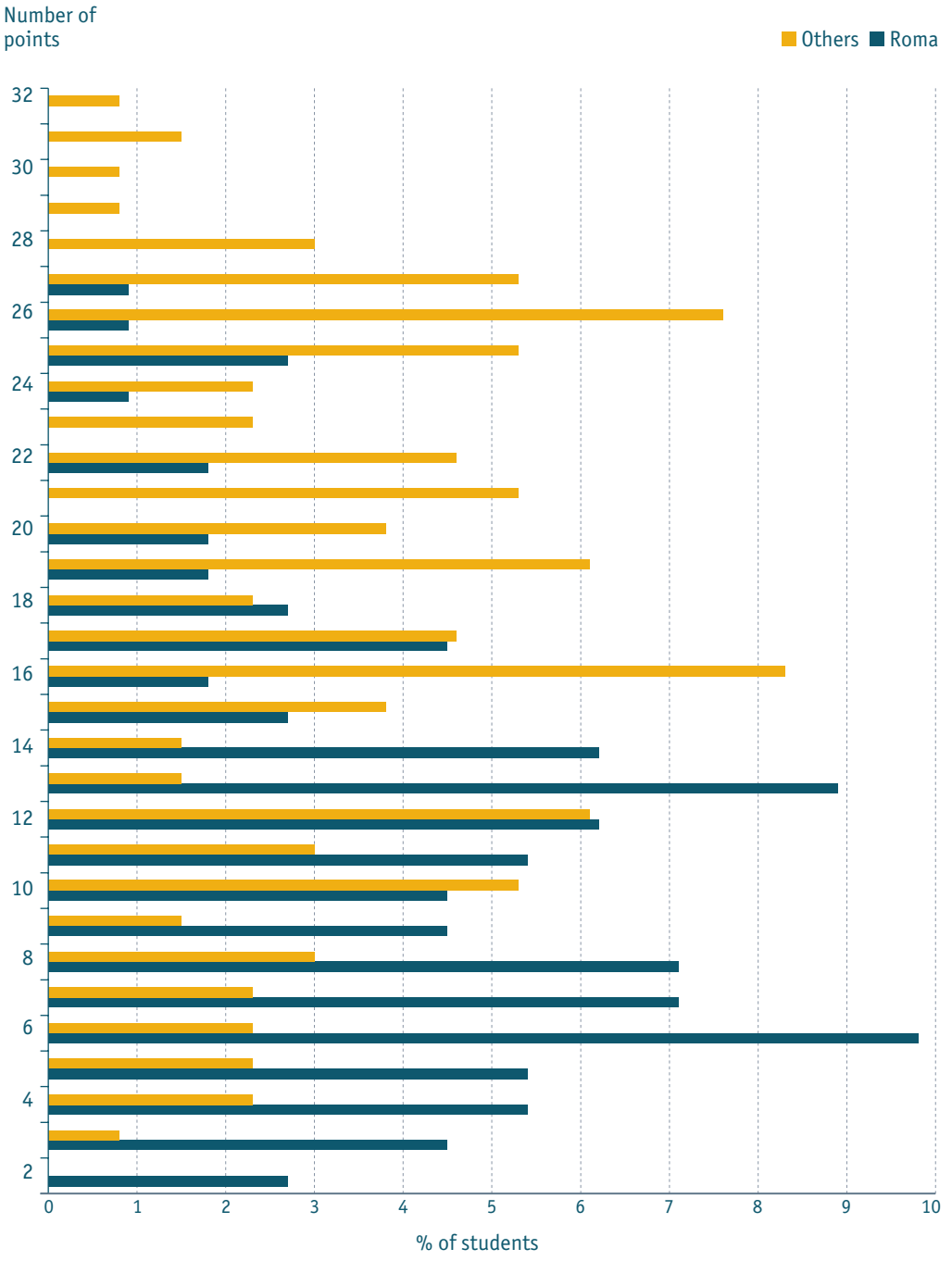
The test achievements of the Roma students and of the students of other ethnicities are shown graphically, in the graph below.

The Graph 1 shows the following:

- The result on the overall test of the majority of Roma students (71%of the students) is below the average (14 points), while the result of the majority of the students of other ethnicities (68% of the students) is above the average.
- The range of the points among the Roma students is from 2 points to 27, and among the other students is from 3 to 32 points. The range of points, both for the Roma students and the others, compared to the baseline study, increased i.e. the distribution of points extends to the right, which means that there are students who achieved better results in the 2016 study.

26 When the expression **significantly** higher (or lower) is used afterwards in this report, it is taken into account that the difference is statistically significant at the level of 0.01 or 0.05.

GRAPH 1. *Results of the Roma students and the other students on the test in reading and writing*



CONCLUSION

- The results on the overall test in reading and writing have improved compared to the 2014 study, but are still below the level of expected results prescribed in the curriculum for the third grade.
- The average result among the Roma students is by 21 percentage points lower compared to the result of the other ethnicities. In the 2016 study, the difference between the achievements of the Roma students and the students of other ethnicities has increased.

1.1.1.1. Students' achievements on the test in Reading

Reading comprehension is of significant learning value for all subjects, because learning in school is founded, to a great extent, on use of written sources.

In order to measure the students' reading and writing ability as regards a read text, the test included texts which required the students: to compare the actions, to identify the characteristics and feelings of the characters; to make conclusions which explain the relationship between the intent, actions and events, as well as to support the conclusions with the facts from the text; to organize the text in a logical order; to make conclusions on the basis of the relationships which are contained in the text; to provide their own opinion and to propose ideas for a title of the given text. The test in reading comprehension consisted of 3 tasks.

- The first task was for the students to read a text and answer 5 questions which refer to explicit and implicit information contained in the text. In two of the questions, the student was asked to explain his/her opinion (to explain why he/she thinks that).
- The second task was for the students to read a short text and answer three questions relating to the text, which was used to evaluate the understanding of the sequence of events, the message of the text and an answer to the question regarding direct information given in the text.
- The third task was to read two short texts and to answer 4 questions, two of which referred to comparing the texts, one to recognizing the literary type, and one referred to figuring out the main idea (giving a title to the text).

Each correct answer awarded one point, and one point was awarded for the explanations of the answers in the tasks. The total number of available points was 14.

TABLE 6: *Results in reading for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	252	13	14	7	51,6%
2016	244	13	14	8	57,3%

The average percent of the test in reading comprehension is 57,3%. This result is somewhat above the average percent (and somewhat better) compared to the students' achievements in 2014.

The results of the test in reading comprehension, by subgroups for the Roma students and the students of other ethnicities, are shown in table 7 and graph 2.

TABLE 7: *Results on the test in reading among the students of different ethnicities*

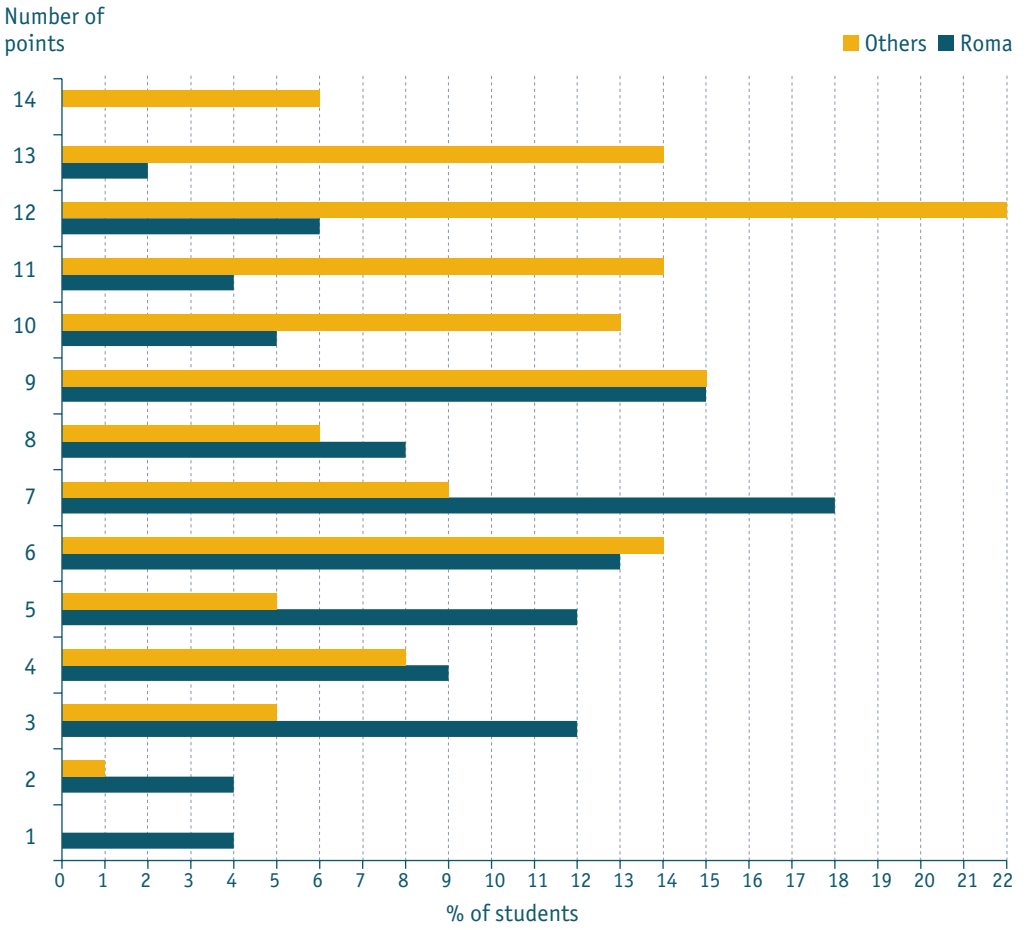
ETHNICITY	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
		2014	2016	2014	2016
Roma	14	6,2	6,6	44,7 %	47,1 %
Others	14	8,1	9,2	58,0 %	65,9 %

In 2016, the Roma students, on the test in reading comprehension, had the average percent of 47,1%, while the students of other ethnicities had the average of 65,9%, which is a significantly better result. The achievements of the Roma students are somewhat below the expected average, while they are significantly above the average among the other students.

Compared to 2014, the average achievements of the Roma students in reading comprehension remain at the same level[27], while they have improved among the students of other ethnicities. It indicates the fact that greater benefit from the inclusive practices was felt by the other students than the Roma students. It is necessary to make an extended analysis of the reasons why the Roma students did not make progress despite the undertaken activities.

27 When there is a difference in the numerical values, and the commentary does not indicate a difference, it means that the obtained difference is within the frames of a statistical error.

GRAPH 2: *Results of the roma students and the students of other ethnicities on the test in reading comprehension*



The graph indicates the following:

- Almost half of the Roma students (54%) achieved less than half of the total available points on the test in reading (7 points), while among the other ethnicities one third of the students (33%) have poor results on the test in reading comprehension;
- Only 12% of the Roma students scored more than 10 points, which would be high achievement, while among the other 56% students scored more than 10 points.

A comparison was made regarding the tasks which were most difficult for the Roma students and for the other students (Appendix B). Some significant differences regarding the content of the tasks were not detected. For example, the most difficult question for every student was the first question (to create the sequence of events) in the following task:

Long ago in India, a boy named Sonu and his mother were walking home from the market. Along the way, Mother stopped and picked up a stick. "Here is a fine stick, Sonu," she said. "I'm sorry it is not a drum I know you have been wishing for one".

"Thank you Mother," said Sonu, taking the long piece of wood. He knew that she would buy him a drum if she had the money.

Soon they met a woman who was trying to start a fire. Her fire would not light. "Here," said Sonu, handing her his stick. The women used the stick to start the fire. Then she gave Sonu a chapati, a round, flat bread.

Next Sonu and his mother met a man and a little girl. The girl was hungry, so Sonu gave her his bread. "Here, take this drum," said the man. "Someone gave it to my daughter, but she doesn't need it."

Answer the questions:

1.1. Arrange the sentences according to the sequence of events in the text. The first one is already marked with the number 1. Mark the other sentences with the subsequent numbers.

____ Sonu handed the stick to the woman who wanted to start a fire.

1. Sonu's mother stopped and picked up the stick she found on the way.

____ Sonu received a drum from the father of the girl.

____ Sonu received bread from the woman.

____ Sonu gave the brad to the hungry girl.

1.2. What did Sonu wished for?

1.3. If Sonu's mother didn't gave him the stick, what would be the different ending to the story?

(circle one)

A. Sonu would not be hungry.
Б. Sonu would not get the drum.
B. Sonu would not wish for a drum

In addition, it was difficult for them to elaborate their answer, no matter whether it referred to giving a title to the text, proposal or an opinion.

Therefore, it can be concluded that the reasons for the poor test scores were not connected to the texts that had to be read and related questions, but they probably apply to some other factors.

CONCLUSION

- The results on the test in reading are somewhat above the expected results prescribed in the curriculum for the third grade and compared to 2014, they have improved.
- The average result among the Roma students is at the same level as in 2014, while the students from the other ethnicities have improved their achievements.
- The average result among the Roma students is by 19 percentage points lower than the among the other ethnicities. The difference is statistically significant and it has increased compared to the one in 2014, when it was 11 percentage points.
- Compared to the other students, the number of Roma students who have higher achievements on the test in reading is twice as bad.
- Both the Roma students and the other students are equally successful in answering the questions related to the content of the tasks.

1.1.1.2. Students' achievements on the test in writing

The results on the test in writing offer an overview of the students' ability to write different types of written expressions and to apply the standard linguistic norms on the test. These tasks were used to check whether the students are able to write a text for practical use and whether they can create a written text upon given directions - given words to write a short story. The test in writing consisted of 2 tasks.

- In the first task, the students were required to improve a given letter – a reaction of children to a given situation that they got from a newspaper. The task required from the students to choose one of the offered responses and with it to improve the structure of particular sentences, the lexis and the composition of the letter (expressing the aim of the letter). For each correct answer on the first task they were awarded one point.
- The second task was of an open type – writing a text upon given words. In the task, were specified characters (friends, a dog); events (a play for children, football match, elastic band, dodge ball), a disagreement (who/which team is better, funny end of the match/game) and places (playground, park). The students were required to write a short story. The students were reminded not to forget to give the title and to be mindful of the punctuation. For objective assessing of the written compositions, criteria for assessment were developed (Appendix A). The second task was assessed according to 7 criteria, where for each criteria could be given 0, 1 or 2 points.

The total available points on the test in writing were 18.

The average percent on the test in writing is 36,8%, which is lower compared to the curriculum requirements and test requirements, but compared to the results of the 2014 study, it is a significantly improved result. There is a significant increase in the number of students that achieved good results: 27% of the students gained more than half of the available points (above 9 points), while in 2014, only 3% of the students gained more than half of the available points.

TABLE 8: *Results in writing for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	252	11	18	3,7	20,6%
2016	244	11	18	6,6	36,8%

The level of success on the test in writing by sub-gropus according different ethnicities is shown in the table and graph below.

GRAPH 3: *Results on the test in writing among the students of different ethnicities*

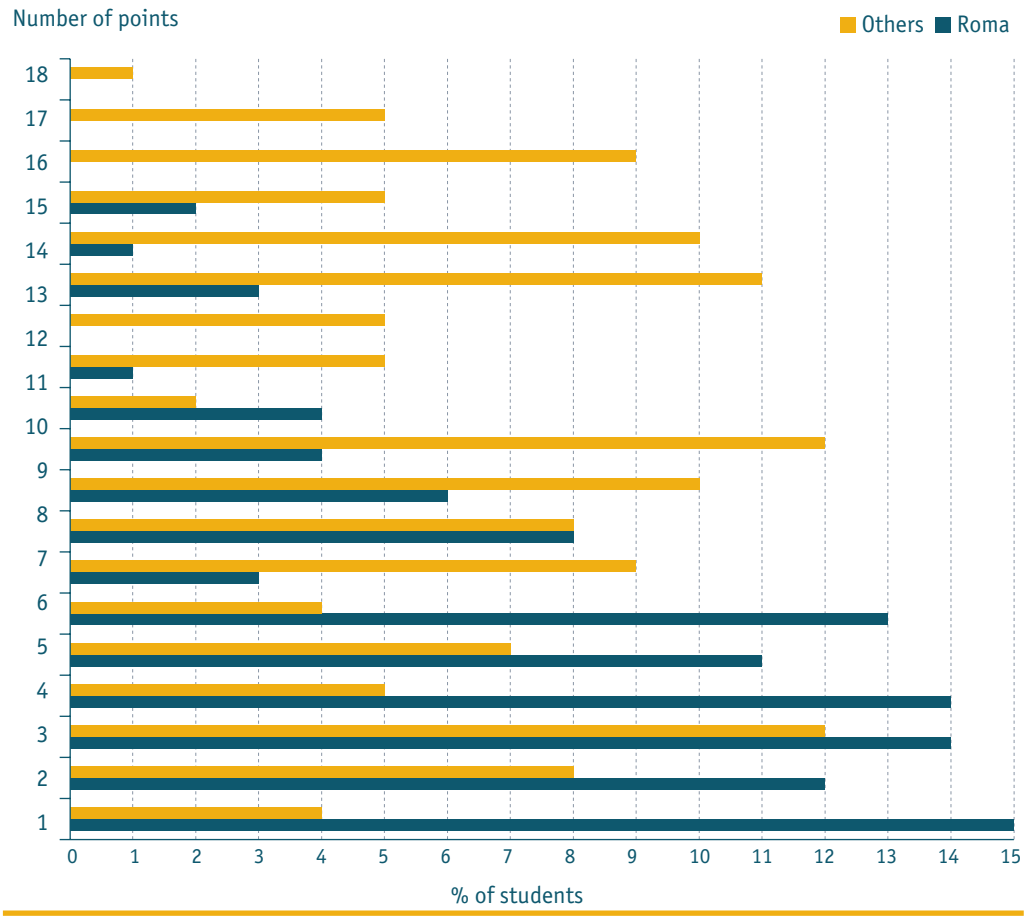


TABLE 9: *Results on the test in writing among the students of different ethnicities*

ETHNICITY	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
		2014	2016	2014	2016
Roma	18	2,7	4,3	15,0%	24,0%
Others	18	4,7	8,6	25,9%	47,7%

The average percent on the writing tasks among the Roma students is 24% (or 4,3 points from the maximum available points - 18), and for the students of other ethnicities, the percentage is twice as high (near 48%).

Both the Roma students and the students of other ethnicities have achieved significantly higher result on the test in writing in 2016, which was one of the objectives of the programmes Language literacy in the early grades and Inclusion of marginalized children. However, contrary to the expectations, the

difference between the achievements of the Roma students and the students of other ethnicities has not decreased, but it has increased.

The Graph 3 indicates the following:

- The Roma students have very poor results on the test in writing. Only 11% of the Roma students have gained more than half (more than 9) of the available points on the test, though for the students of other ethnicities this percent is 53%.
- The percent of Roma students who didn't achieved any point on the test in writing is quite high (15%).
- Compared to the 2014 study, the dispersion of results is higher, i.e. the number of students that achieved above the average number of points (9 points) is significantly increased.

The detailed comparison of the results for every task in the test (Appendix B) indicated the following:

- The first task is solved more successfully (the task was multiple-choice and was used to check the understanding of the process of writing).
- On the second task (writing a story upon given words), the results are significantly lower, particularly among the Roma students. They have lower results on all criteria; they are somewhat more successful in criteria about composition of the text, and least successful on the criterion about the punctuation.

CONCLUSION

- The results on the test in writing are significantly below the expected results prescribed in the curriculum for the third grade. The Roma students have significantly poorer results compared to the other students.
- Compared to 2014, the achievements of both the Roma students and the other students have improved, but the differences between the achievements have not decreased, they have increased.
- The number of Roma students who didn't score any point on the test in writing is quite high. They had particular difficulty with writing a text upon given words.

1.1.1.3. Connection of the results on the test in reading and writing with specific socio-cultural variables

Many studies[28] have shown that the socio-cultural background and the family environment have significant influence on learning success, including the development of language literacy. In addition, exposing the children from an early age to activities related to reading, are crucial factors for the creation of reading habits and greater achievements in reading comprehension29. Because of that, and for offering a better explanation of the results, data was collected relating to the socio-cultural circumstances in the family and as to the students' experiences related to reading activities in the preschool period, as well as their preparedness before commencing school.

METHOD OF MEASURING

The data on the home environment and habits in the family which refer to language literacy, were collected using a short questionnaire that was filled out by the students at the end of the testing.

The questions referred to the: socio-economic characteristics of the family, approximate number of books in the family, activities within the home related to reading, language spoken within the home, knowledge of the language of instruction before commencing school and knowing how to read before commencing school.

SOCIO-ECONOMIC STATUS OF THE PARENTS

The studies of the influence of the family on the students' achievements show high influence of the socio-economic status. The families that have good living conditions provide better support for learning both at school and at home. The parents who have better education show greater interest in their children's learning and they also give them assistance and support.

The table below shows the achievements of the students whose parents have completed a certain level of education.

28 Hatie J., Visible Learning, 2009, Routlage, New York, p. 61–70.

29 I.V.S. Mullis , M.O. Martin, A.M.Kenedy, P. Foy, PIRLS 2006 International Report. Chesnut Hill, MA: Boston College, p. 106.

TABLE 10: *Results on the students' test according to the education of the parents*

EDUCATION OF THE PARENTS		COMPLETED 4TH GRADE	COMPLETED 8TH GRADE	SECONDARY	HIGHER
		Average percent	Average percent	Average percent	Average percent
Mother	Roma	34,4%	32,0%	36,1%	35,3%
	Others	37,2%	58,3%	57,1%	58,4%
	All	35,4%	39,0%	50,8%	50,4%
Father	Roma	25,2%	37,8%	37,9%	33,7%
	Others	30,6%	58,3%	58,3%	56,4%
	All	26,6%	43,4%	51,0%	48,6%

- The students whose mothers have completed more than primary education and whose fathers have completed more than the fourth grade, have greater achievements on the test in reading and writing compared to those students whose parents have lower level of education.
- There are no differences between the achievements of the students whose parents have completed secondary education, compared to those students whose parents have completed higher education. The primary education of the fathers and the secondary education of the mothers is the level where differences can be observed.
- Among the Roma students, the education of the mothers is not connected to their achievements, but those students whose fathers have completed more than the fourth grade have greater achievements compared to the ones that only have completed the fourth grade or less.

The parents of the Roma students, compared to the other students, often have lower level of education (completed primary education or less). This is partial explanation for their poor results on the test in language literacy.

TABLE 11: *Results on the students according to the employment of the parents*

EMPLOYMENT OF THE PARENTS		EMPLOYED	UNEMPLOYED
		Average percent	Average percent
Mother	Roma	36,5%	33,8%
	Others	53,8%	64,1%
	All	47,1%	46,7%
Father	Roma	37,1%	29,4%
	Others	56,4%	51,2%
	All	48,7%	33,6%

The school data indicated that around 35% of the mothers of the tested students and 12% of the fathers are unemployed. Those percentages are around 20% higher among the Roma students.

The results indicate that the employment of the mothers is not related to their children's achievements in language literacy. We have a different situation as regards the employment of the fathers; it is related to their children's achievements, particularly among the Roma students.

EDUCATIONAL RESOURCES IN STUDENTS' HOME

The studies[30] show that the success of the students, in specific educational domains, is closely related to the availability of educational resources in the students' home.

In general, the students from families who have more resources for learning, reading in particular, achieve better results in reading comprehension. To improve the skill for reading comprehension, the students have to read and discuss what they read with someone else. In order to encourage the desire to read and develop reading skills among the students, it is important for the family to serve as an example, pass on the reading enthusiasm and highly value reading.

The number of books in the family is an indicator that is often used for the reading habits in the family and the attitude towards reading of the other family

30 I.V.S. Mullis , M.O. Martin, A.M.Kenedy, P. Foy, PIRLS 2006 International Report. Chesnut Hill, MA: Boston College.

members is a model for the young students for developing reading habits. The data on the number of books in the family and the students' achievements in reading and writing are shown in the table below.

TABLE 12: *Number of books in the home and achievements on the test in reading and writing*

NUMBER OF BOOKS IN THE HOME	NUMBER OF STUDENTS	AVERAGE PERCENT
0 – 10 books	62	36,9%
11 – 25 books	61	54,6%
26 – 100 books	48	55,5%
101 – 200 books	16	58,2%
More than 200 books	15	51,7%

There aren't many books within the homes of the tested students. 60% of the students who answered the question about the number of books within the home have up to 25 books at home, and half of them have up to 10 books. The Roma students have fewer books within their homes compared to the homes of the other students.

There are significant differences in the achievements in reading and writing only between the students who have up to 10 books at home and those who have more than 10. According to the data, the subsequent increase in the number of books in the home is not connected to higher results in reading and writing. The obtained findings are only in partial accordance with the correlations which are obtained with the international measurements of reading.

The number of books in the home relates to the employment of the father, which means to the entire financial status, and therefore the connection with the number of books in the family is not so unequivocal.

SUPPORT FROM THE FAMILY FOR THE DEVELOPMENT OF LANGUAGE LITERACY

The family is very important for monitoring the progress of the students and for development of individual abilities for reading, as well as for acquiring reading habits. As regards the support from the family, the students were asked to answer questions on: how much they read, whether they discuss about the book they read with a family member, whether the adults are helping them with their homework

in Macedonian/Albanian language, or whether they discuss about what they have learned on the classes in Macedonian/Albanian language. The Programme for inclusion of marginalized students implies working with the parents for giving advices on how to support their children's learning. The comparative indicators for the support from the family and the students' achievements on the test are shown in the table below.

TABLE 13: *Activities related to reading at home and the achievements on the test in reading and writing*

SUPPORT FROM THE FAMILY	2014		2016	
	Number of students	Average percent	Number of students	Average percent
They read books together				
Almost never	19	26,2%	19	41,3%
Sometimes	68	43,8%	66	49,0%
Often	80	36,4%	108	52,5%
The adults help them with their homework in Macedonian/ Albanian language				
Almost never	55	37,6%	74	53,9%
Sometimes	49	41,0%	64	50,9%
Often	49	37,1%	47	45,9%
They tell their family members what the learned at school, on the classes in Macedonian/ Albanian language				
Almost never	16	34,0%	20	38,4%
Sometimes	35	40,3%	37	43,8%
Often	94	41,2%	118	55,6%

In general, according to the students' answers, the parents or the adults in the family often devote some of their time, during the week, to listen to their children read or to discuss with them about what they are learning on the classes in Macedonian/Albanian language. Compared to the 2014 study, there is an increase in the percentage of parents that often exercise these activities with their children.

The average achievement among the students who often read books together with their family members is significantly higher. The difference in the test score between those who never read and those who read every day is 11 percentage points. In 2014, the help with the homework in Macedonian/Albanian language was not related to the results on the test in language literacy. In 2016, it has negative effect: the students who often receive help from their parents, have lower achievements. It is probably because the parents usually help the children with learning difficulties. Compared to the 2014 study, the percentage of parents who discuss with their children about what they learned on the classes in Macedonian/Albanian language has not significantly changed. Whereas in 2014, there was no correlation with the achievements on the test in reading and writing, in 2016 the students who often tell their parents what they learned achieved better results on the test in language literacy.

KNOWLEDGE OF THE LANGUAGE OF INSTRUCTION

Part of the Roma students, who attend classes in Macedonian and Albanian language of instruction, usually speak Roma language at home. It was assumed that it might influence the poor achievements in reading and writing. However, according to the data shown in the table below, that assumption was not confirmed[31].

TABLE 14: *Language spoken at home and achievements on the test in reading and writing among the Roma students*

LANGUAGE USUALLY SPOKEN AT HOME	NUMBER OF STUDENTS	AVERAGE PERCENT
Roma	30	32,9%
Macedonian	51	37,0%
Albanian	10	37,5%

Better indicator of the learning success in reading and writing can be the knowledge of the language of instruction prior to starting school. According to own assessments, approximately 2/3 of the Roma students had good understanding and knowledge of the language of instruction. Their achievements on the test, at the end of the third grade, are higher compared to the students who had poor knowledge of the language of instruction. This indicates that the Programme

31 The differences in the average score are within the frames of a statistical error.

for Inclusive education did not contribute towards overcoming the problem of inadequate knowledge of the language of instruction among some students, who ipso facto belong to the group with specific/special educational needs.

TABLE 15: *Results and knowledge of the language of instruction prior to starting the first grade among the Roma students*

KNOWLEDGE OF THE LANGUAGE OF INSTRUCTION	NUMBER OF STUDENTS	AVERAGE PERCENT
Have little understanding and have difficulties when speaking	12	28,9%
They understand, but had difficulties when speaking	22	32,4%
Good understanding and spoke the language	60	39,3%

PRIOR KNOWLEDGE OF THE STUDENTS AT THE ENROLMENT IN THE FIRST GRADE

It was assumed that the prior knowledge of reading, at the time of enrolling in the first grade, will be related to the achievements in reading and writing at the end of the third grade. That assumption was not confirmed in any of the studies – neither in 2014 nor in 2016. This implies an insufficient differentiation of learning approaches to reading and writing in the first three grades, which lead to loosing the initial advantage of the level of literacy.

The 2016 data are shown in the table below.

TABLE 16: *Prior knowledge of the students at the time of enrolling in the first grade and achievements on the test in reading and writing*

PERCENTAGE OF STUDENTS ACCORDING TO THEIR PRIOR KNOWLEDGE BEFORE COMMENCING SCHOOL							
They knew some letters		They knew every letter		Read and wrote words		Read sentences	
Number of students	Average percent	Number of students	Average percent	Number of students	Average percent	Number of students	Average percent
81	46,2%	80	46,6%	36	50,4%	26	45,9%

CONCLUSION

- The students whose mothers have completed more than primary education and fathers more than the fourth grade, have greater achievements. The parents of the Roma students have completed mostly primary or lower level of education.
- The students whose fathers are employed have greater achievements compared to the students whose fathers are unemployed. This ratio does not exist with the issue of the mothers' employment. There is high unemployment rate among the mothers and fathers of the Roma students, compared to the other students.
- The Roma students who had good knowledge of the language of instruction, before commencing school, have greater achievements compared to the students who had no knowledge. Every third Roma student had poor knowledge of the language of instruction at the time of enrolling in the first grade.
- The lack of books in the home (owning less than 10 books) is related to poorer results in reading and writing. On average, the Roma students have fewer books in the home.
- The prior knowledge of reading, before commencing the first grade, did not contribute to greater achievements in reading and writing at the end of the third grade.
- The level of help from the parents with learning and with the Macedonian/Albanian language homework has a negative effect on the achievements in reading and writing. It is assumed that the parents often help their children if they have learning and writing difficulties.
- When the adults often read to the students or the students read together with the adults then they have greater achievements in reading and writing, compared to the ones who don't do that regularly.
- The children of parents who show interest in their learning and who often tell their parents about what they learned on the class in mother tongue, have greater achievements in reading and writing compared to the children of parents who do not show great interest.
- Compared to 2014, the students inform that there is an increased support from the family in 2016. This could be an indicator of the influence of the activities to support inclusiveness.

1.1.2. STUDENTS' ACHIEVEMENTS ON THE MATHEMATICS TEST

METHOD OF MEASURING

The assessment of the students' achievements is based on the results on the tasks that measure conceptual and procedural knowledge, understanding and application of natural numbers, the four basic mathematical operations and their properties, as well as solving textual tasks and problems.

The test for students consisted of 21 requirements, distributed in 19 tasks, which measure the knowledge and skills in the domains of: number, operations and properties and problems.

For easier understanding of the text given hereafter, which describes the test results, only the phrase "task" will be used in the Report and it will refer to both the tasks and the requirements in the test.

Same as for language literacy, in the presentation of the results in mathematics, the emphasis is on two levels of comparison: comparison of the achievements of the Roma students and the students of other ethnicities; and a comparison of the students' achievements obtained with the 2014 and 2016 studies.

The achievements are shown using tables and graphs and verbal comments are added.

The overall results on the test in mathematics show that the students 39,9%, i.e. the average 14 points of the available 34. Those are significantly better results compared to the ones from the 2014 study.

TABLE 17: *Comparison between the results on the test in mathematics in both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	259	21	34	10	29,4%
2016	245	21	34	14	39,9%

According to the table above, the general conclusion is that in 2016, the achievements of all students on the test in mathematics are higher by 11 percentage points, which is a statistically significant improvement.

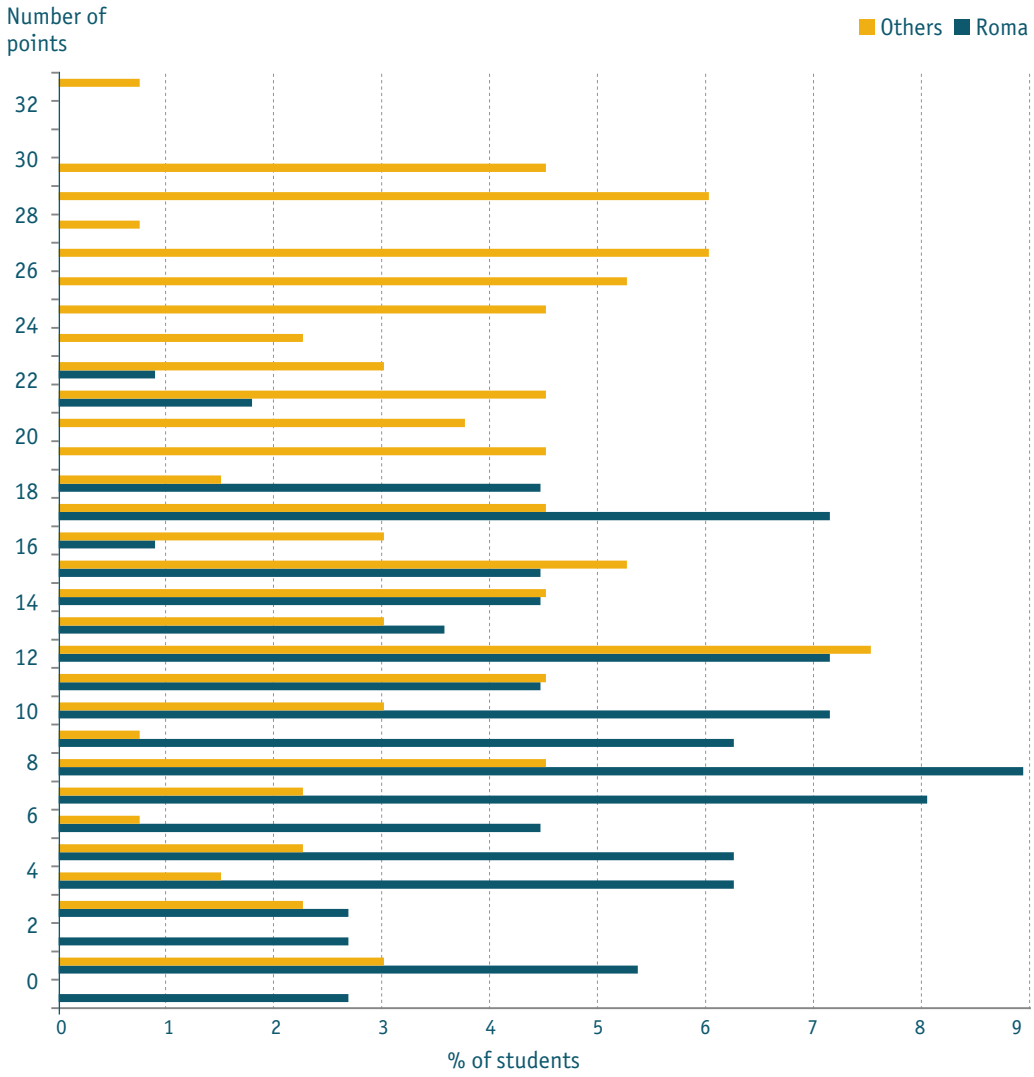
TABLE 18: *Comparisons of the results on the test in mathematics*

Year	Average percent All	Average percent Roma	Significance of the difference	Average percent Others
2014	29,4%	22,2%	⟷ significant difference at the level of 0.01	35,8%
	↕ significant difference at the level of 0.01	↕ Significant difference at the level of 0,01		↕ significant difference at the level of 0,01
2016	39,9%	27,7%	⟷ significant difference at the level of 0.01	50,2%

By analyzing the 2016 results (table 18 and graph 4) the following is observed:

- On the test, the Roma students have the average achievement of 27,7% (9,4 points of the available 34).
- Among the students of other ethnicities, the achievement is significantly higher and is 50,2% (in average 17,1 points of the available 34).
- The test results show that the Roma students made less progress than the other students (the progress of the Roma students is 5,5 percentage points, but the progress of the others students is 14,4 percentage points).
- The distribution of the results is shifted to the left, i.e. the percentage of Roma students who achieved fewer points is larger.
- The majority of the Roma students have achieved 8 points, which is 6 points less than the average result (14 points).
- The distribution of the points of the students of other ethnicities indicates two separate groups: one group of students with poor achievements and one group of students with higher achievements.
- The result of the majority of the Roma students (76% of the students) is below the average (14 points), while the result of the majority of students of other ethnicities (60% of the students) is above the average.

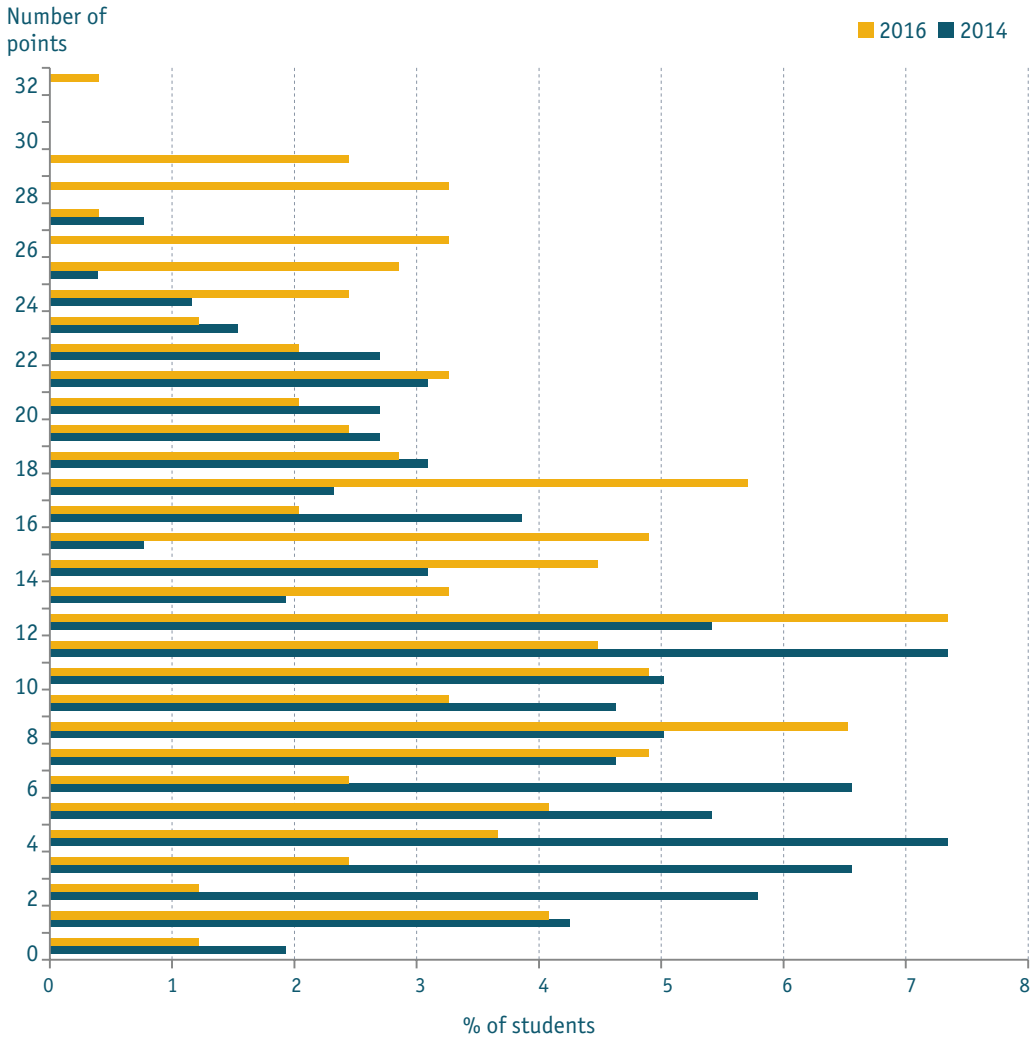
GRAPH 4: *Results of the Roma students and the other students on the test in mathematics*



Graph 5 shows the achievements of all tested students on the overall test, according to the number of points gained, comparatively for 2014 and for 2016.

- The 2016 study has an extended range of points gained, i.e. there are students that achieved higher result than the one which was highest in 2014 (27 points).
- The number of students with 0 points is the same in both studies – 3 students. In both studies, no student has achieved the maximum available points of 34.

GRAPH 5: *Result of all students on the test in mathematics, comparatively for 2014 and for 2016.*



CONCLUSION

- The results on the test in mathematics have improved by 11 percentage points compared to the 2014 study. The results of the Roma students have improved by 5,5 and of the other students by 14,2 percentage points.
- The average result of the Roma students is below the average of the other ethnicities. Compared to the 2014 study, the difference between the achievements of the Roma students and the students of other ethnicities has increased in 2016.

1.1.2.1. Students' achievements according to the method of setting the task

The achievements in mathematics, particularly on an early school age, could be influenced by the ability to read and understand the text of the task. Even though an effort was made not to have much text in the tasks, still there are tasks which required the student to read the text in order to understand the described situation, gather information and data which are necessary for the task, determine the operation or operations which will be used, an afterwards make a numerical expression or find the solution to the task in a different way. In order to check the influence of reading comprehension on the task results, an analysis of the achievements was conducted on two sub-tests, according to the manner of setting the task. The tasks are divided into two groups:

- tasks given only with numbers as a numerical expression, or graphically and with a short question
- tasks with a text describing the situation which the student should understand.

The analysis has shown that there is a significant difference in the results when the achievements are compared according to the manner of setting the task.

ACHIEVEMENTS ON THE TASKS DELIVERED ONLY WITH NUMBERS, AS A NUMERICAL EXPRESSION OR GRAPHICALLY AND WITH A SHORT QUESTION

The test in mathematics contained 16 tasks given only with numbers, numerical expression or represented graphically, where the requirement of the task and operation/operations that have to be used to solve it, was explicitly given.

TABLE 19: *Results for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	259	16	23	7,2	31,4%
2016	245	16	23	9,7	42,1%

- In 2016, the average percent on the tasks given only with numbers, numerical expression or represented graphically, is 42,1% for all students (average number of points is 9,7).
- Compared to the results from the 2014 study, there is a significant improvement of 10,7 percentage points in the 2016 study.

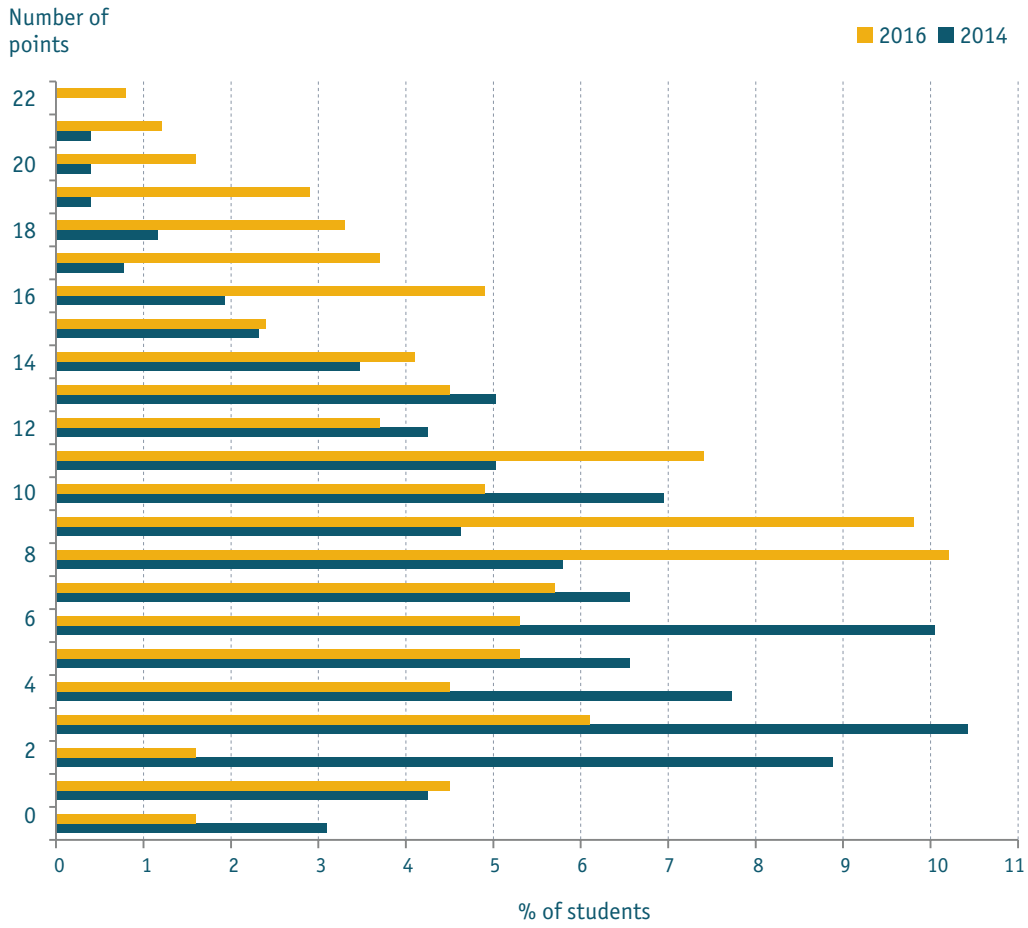
The results of these tasks by subgroups for the Roma students and the students of other ethnicities, are shown in table 20 and graph 6.

TABLE 20: *Results among the students of different ethnicities*

ETHNICITY	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
		2014	2016	2014	2016
Roma	23	5,5	7	24%	30,5%
Others	23	8,8	11,9	38%	51,9%

- The Roma students acievements, on the tasks given only with numbers, numerical expression or represented graphically, is 30,5% and compared to the 2014 study, there is a significant improvement (6,5 percentage points).
- Significant improvement of the average result is observed among the students of other ethnicities (14 percentage points). In 2016, the result on the tasks given only with numbers, numerical expression or represented graphically is 51,9%, while it was 38% in the 2014 study.
- The difference in the achievements between the Roma students and the students of other ethnicities is bigger than the one observed in the 2014 study. In 2014 it was 14 percentage points, while in 2016 it is 21,4 percentage points.

GRAPH 6: *Results of all students on the tasks given only with numbers, numerical expression or represented graphically, comparatively for 2014/2016*

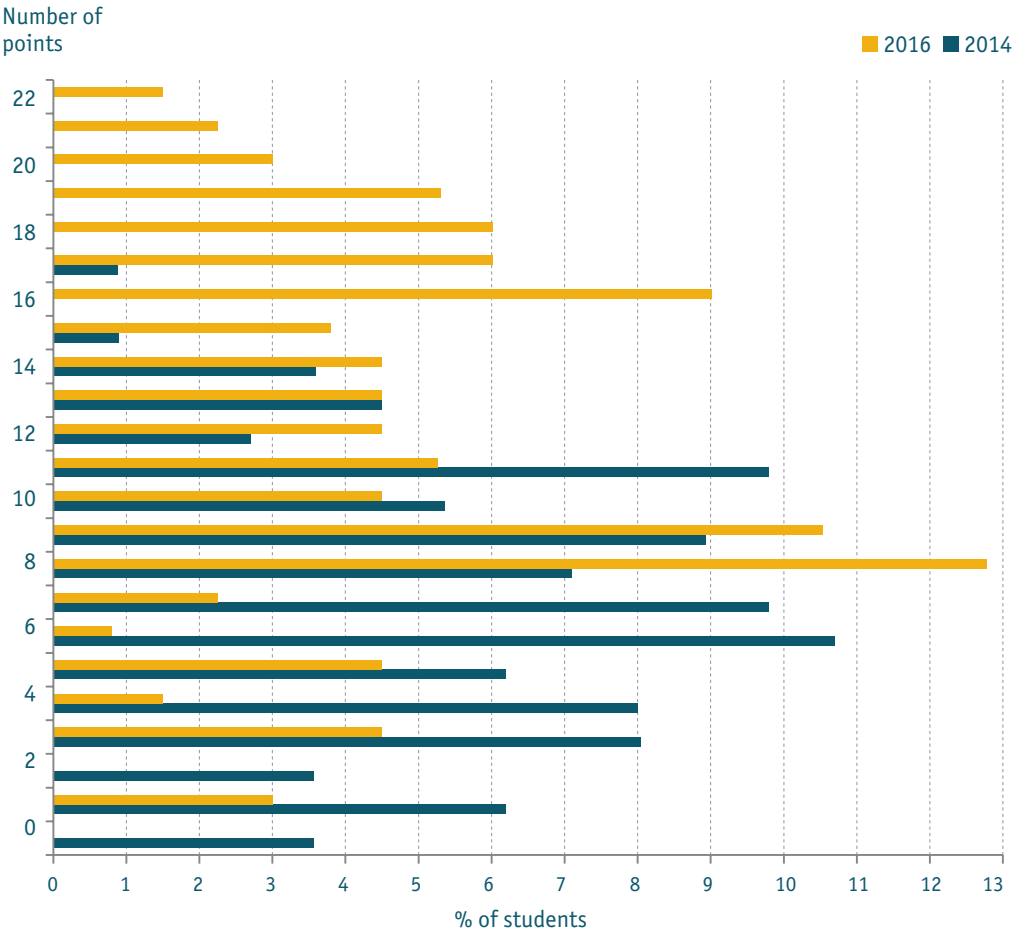


Graph 6 indicates the following as well:

- Decrease of the number of students with 0 points, but even now there are no students who achieved the maximum 23 points. The achievements of the 72% of the students is in the rang from 0 to 9 points.
- In 2014, the highest percentage of students has achieved 3 points and 8 points. In 2016, compared to 2014, higher percentage of students achieved between 14 and 22 points in 2016.

The results of the 2016 study are presented in the graph below, in more detail.

GRAPH 7: *Results of the Roma students and the other students on the tasks given only with numbers, numerical expression or represented graphically*



The following can be concluded:

- The highest result of the Roma students is 17 points and it was achieved by only one student;
- The highest percentage (10,7%) of Roma students have achieved 6 points;
- The result of the students of other ethnicities is 51,9% or average number of points of 11,9;
- Among the students of other ethnicities there are no students with 0 points, the highest result is 22 points and it was achieved by two students, the majority of students achieved 8 points;
- The distribution of points of the students of the other ethnicities is bimodal, i.e. there is a clear distinction between one group of students with poor results and one group of students with higher results.

Achievements on the tasks delivered only with numbers, as a numerical expression or graphically and with a short question were analyzed according to the results on the each task particularly (Appendix C - 1), for both studies and for both subgroups of students.

The analyses indicated the following:

- Compared to 2014, there is an increase in the percentage of students who provided the correct answer for 13 tasks (the total number of tasks is 16).
- As regards one task (subtraction and addition with a story and illustration), compared to 2014, there is a decrease of the percentage of students who provided the correct answer. This is due to the low score on this task of the Roma students (decrease by 12 percentage points compared to 2014).
- The achievement percentage did not change for two tasks (tasks: order of operations, addition and multiplication and order of operations, division and subtraction).
- In 2016, the students had the poorest result (19%) on the following task: assessment of the result of the addition of two digit numbers represented as a sum of tens and ones (given below).
- In 2016, we have the following results by subgroups: among the Roma students there is an increase in the percentage of students who provided the correct answer for 12 of the tasks; and among the students of the other ethnicities there is an increase in the percentage of students who provided the correct answer for 15 of the tasks.

TASK

Task: The children were adding 29+15+30+26 as follows:

Ana: 30+10+30+20

Bojan: 30+10+30+20 and about 20 ones

Vlatko: 20+10+30+20 and about 10 ones

Goran: 3+1+3+2 tens and about 1 ten more

Name the child who is closest to the correct answer?

Answer:

ACHIEVEMENTS ON THE TASKS GIVEN WITH A TEXT

The test in mathematics consisted of 5 textual tasks, which were set as problem situations.

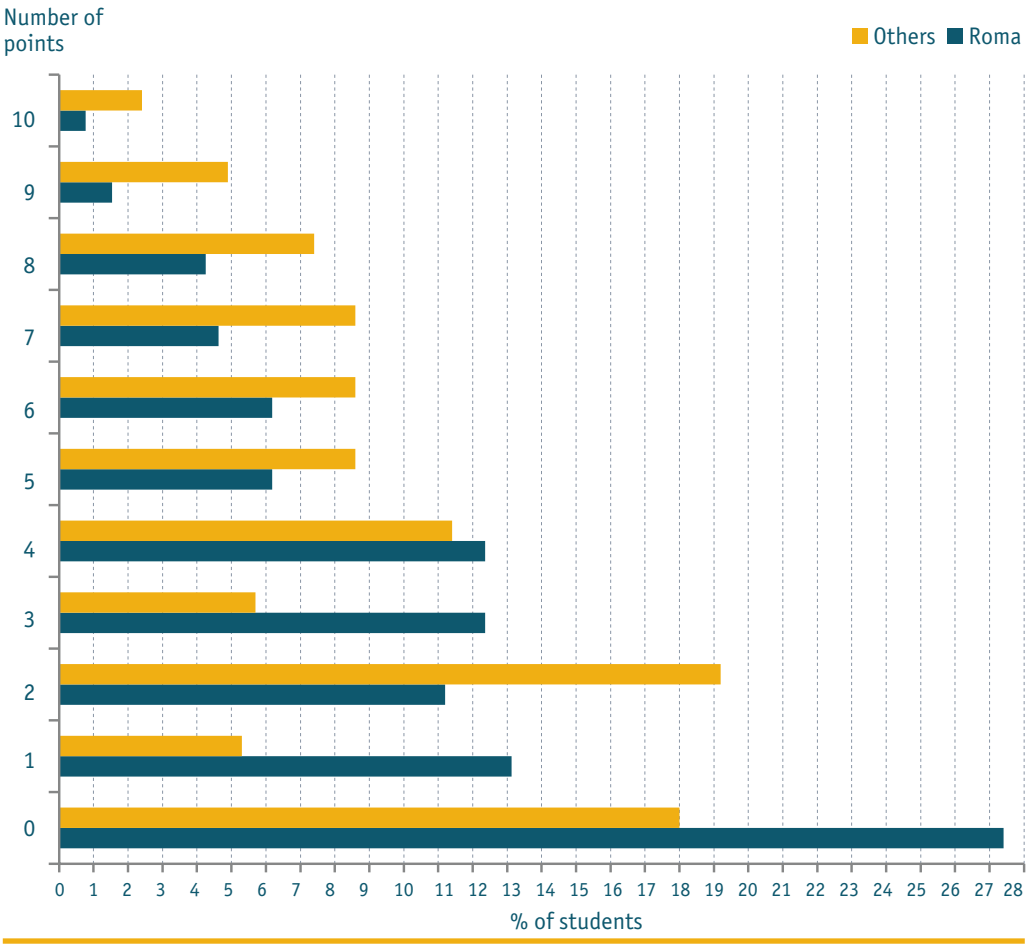
TABLE 21: *Results for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	259	5	11	2,8	25,3%
2016	245	5	11	3,9	35,3%

- In the 2016 study, the average achievement on the textual tasks is 35,3% (the average number of points is almost 4 of the maximum available 11 points).
- Compared to the 2014 study, there is a significant improvement of 10 percentage points.

The results of both studies are presented in detail on the following graph.

GRAPH 8: *Results of the students on the tasks given with a text in 2014 and in 2016*



The following is concluded:

- The number of students with 0 points has decreased (from 30% of the students in 2014, to 18% in 2016); still there are no students with the maximum 11 points. Half of the tested students have achieved a result within the range from 0 to 3 points.
- According to the 2016 study results, one quarter of the students have 7, 8, 9 and 10 points.

The results of these tasks, by subgroups for the Roma students and the students of other ethnicities, are shown in table 22 and in graph 9.

TABLE 22: *Results among the students of different ethnicities*

ETHNICITY	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
		2014	2016	2014	2016
Roma	11	2,1	2,4	18,8%	21,8%
Others	11	3,4	5,1	31%	46,7%

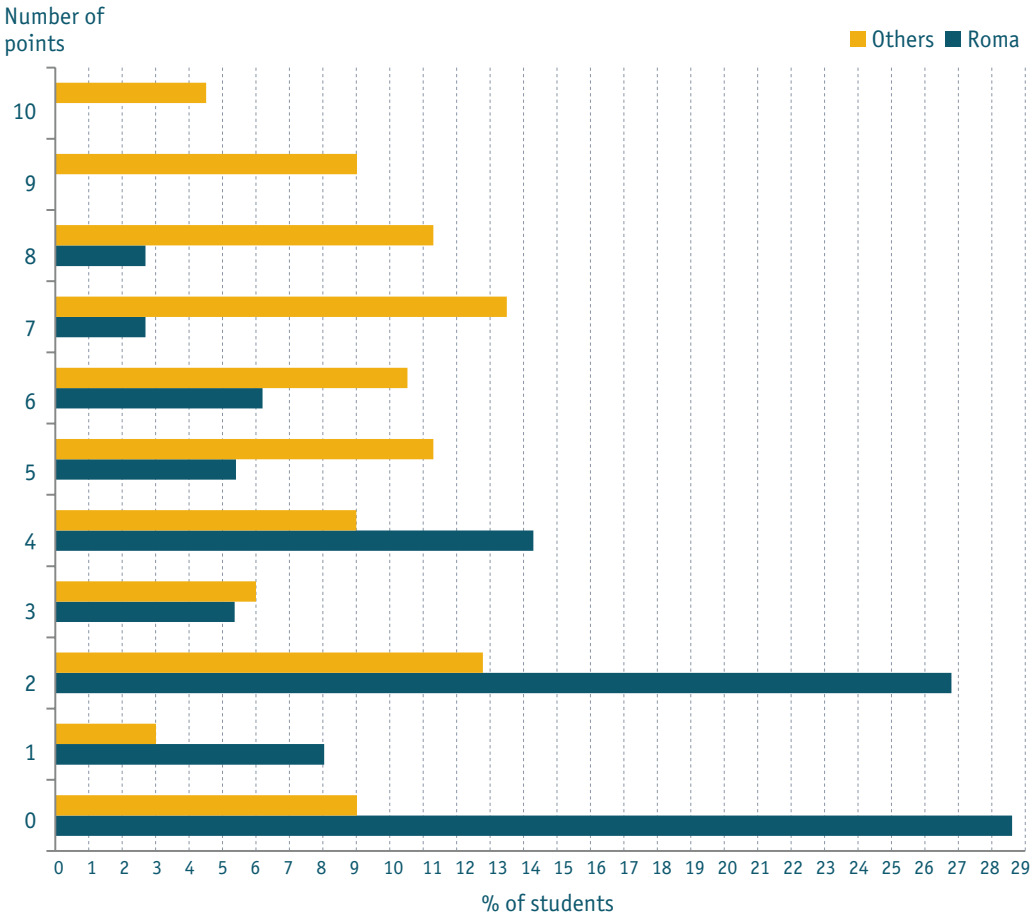
- The average percent on the textual tasks by the Roma students is 21,8% and compared to the 2014 study, there is an increase in the number of children who provided the correct answer for the tasks.
- The average percent of the other students on the textual tasks is 46,7% and compared to the 2014 study, there is a significant improvement of 15,7 percentage points.
- The difference in the achievements on the textual tasks between the Roma students and the students of other ethnicities is twice as high as the one which was seen during the 2014 study (from 12,2 in 2014 to 24,9 percentage points in 2016).

The 2016 results (presented in the graph below) indicate the following:

- For both subgroups, the results on the textual tasks is significantly lower than the results on the tasks given with numbers, numerical expressions or represented graphically.
- The highest achieved score among the Roma students is 8 points (maximum available points are 11) and it was achieved by only 3 students; and almost 28,6% of Roma students did not gain a point.

- The students of the other ethnicities have significantly higher results on the textual tasks than the Roma students. The highest result is 10 points (achieved by 6 students); the majority of students have the result of 7 points; 12 students did not gain a single point.

GRAPH 9: *Results of the Roma students and the other students on the textual tasks*



The students' achievements were also analyzed according to the score on each of the tasks (Appendix C – 2), for both studies and for both subgroups of students.

Seen as a whole, the following could be concluded:

- In 2016, better results were achieved on three of the four textual tasks, compared to 2014 results there is a decrease of the percentage of students who provided the correct answer for one word problem (a simple word problem with subtraction).
- By subgroups, in 2016 there is an increase in the percentage of Roma students who provided the correct answer for 4 of the textual tasks, and there is also an increase in the percentage of the students of other ethnicities who provided the correct answer for all 5 textual tasks.

- Even though there is an improvement of the score by 14 percentage points compared to 2014, again the most difficult task for the students was the one with an open problem situation which could be solved in many ways (the problem is given below).

TASK

The seventh grader Ivo is selling used crayons. Ivo is selling 2 crayons for 3 denars.

// = 3 denars

If Ivo earned 15 denars, how many crayons did he sell?

Shoy your work:

Answer: _____ crayons.

CONCLUSION

- In both studies, the students were more successful in solving the tasks given as numerical expression, with illustrations or graphically.
- Both the Roma students and the other students in 2016 achieved better results in solving the textual tasks, compared to 2014.

1.1.2.2. Connection of the results in mathematics with specific socio-cultural variables

Numerous studies have confirmed the importance of a stimulating family environment in the students' achievements at school.

The studies show that the resources in the home, as are: the education and employment of the parents, the number of books in the home, whether they have their own room, desk and internet, could be considered as indicators of the socio-economic status of the students' families and are in a positive correlation with the students' achievements in mathematics (Hooper, Mullis and Martin, 2015)[32]

32 Hooper, M., Mullis, I.V.S. and, Martin, M. O. (2015). TIMSS 2015 Context Questionnaire Framework. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.

METHOD OF MEASURING

The data on the factors related to the family and to the prior knowledge, which could influence the students' achievements, were obtained with a questionnaire.

The questionnaire contained 8 questions for obtaining information on particular learning resources relating to the greater achievements of the students in mathematics; education and employment of the parents, support from the family with learning mathematics, prior knowledge before commencing first grade and the language which is spoken at home.

SOCIO-ECONOMIC STATUS OF THE PARENTS

The families that have a good standard of living offer more learning conditions, both at school and at home. The better educated parents usually show greater interest in the learning of their children and provide them with assistance and support in learning.

The table below shows the achievements of the students whose parents have completed a certain degree of education (primary, secondary and higher).

TABLE 23: *Results on the students' test according to the education of the parents*

EDUCATION OF THE PARENTS	COMPLETED 4TH GRADE	COMPLETED 8TH GRADE	SECONDARY	HIGHER
	Average percent	Average percent	Average percent	Average percent
Mother	28,3%	32,9%	45,8%	45,5%
Father	23,8%	36,4%	44,1%	44,2%

- The students whose mothers have completed more than primary education and whose fathers have completed more than the fourth grade, have greater achievements on the test in mathematics compared to those students whose parents have lower level of education.
- The parents of the Roma students have lower level of education than the parents of the students of other ethnicities. This partially explains their lower scores on the test in mathematics.

TABLE 24: *Results on the student's test according to the employment of the parents*

EMPLOYMENT	EMPLOYED		UNEMPLOYED	
	Number of students	Average percent	Number of students	Average percent
Mother	137	40,9%	75	41,4%
Father	191	42,9%	25	28,6%

As regards the influence of the parents' employment, the results indicate that the employment of the mothers is not related to their children's achievements in mathematics. We have a different situation as regards the employment of the fathers; the students whose fathers are employed have by 14,3 percentage points higher score on the test in mathematics compared to the students whose fathers are unemployed.

The percentage of parents (both mothers and fathers) of Roma students, who are not employed is significantly larger compared to the one among the students of other ethnicities.

EDUCATIONAL RESOURCES IN STUDENTS' HOME

The studies show that the success of the students, in specific educational domains, is closely related to the availability of educational resources in the students' home.

In general, the students from families who have more resources for learning, reading in particular, achieve better results in mathematics as well.

The data on the number of books in the family and the students' achievements in mathematics are shown in the table below.

TABLE 25: *Number of books in the home and achievements on the test in mathematics*

NUMBER OF BOOKS IN THE HOME	NUMBER OF STUDENTS	AVERAGE PERCENT
0–10 books	61	29,5%
11–25 books	54	49,5%
26–100 books	46	50,1%
101–200 books	15	50,2%
More than 200 books	13	40,7%

There are significant differences in the achievements in mathematics only between the students who have up to 10 books at home and those who have up to 25 books. According to the data, the subsequent increase (starting from more than 25) in the number of books in the home is not related to the higher results in mathematics.

SUPPORT FROM THE FAMILY FOR THE DEVELOPMENT OF MATHEMATICAL LITERACY

With reference to the correlation between the support from the family and the achievements in mathematics, the students were asked to answer questions on: how often adults in the family help them with their homework and how often they discuss with their family members about what they learned at school on the classes in mathematics. The results show the following:

- There is a difference in the results as to whether the students receive help with their homework from the adults in the family. The results among the students who answered that the adults often help them with their homework is 38.8%, and among the students who do not get help from the adults, the test achievement is 49.9%.
- The students who often share with their family members what they have learned on the mathematics classes, have greater achievements on the mathematics test compared to the students who do not share. The results of the students who share what they have learned is 47,0 %, and among the students who do not share what they have learned, the test achievement is 41.3%.

The comparative indicators for the support from the family and the students' achievements on the test are shown in the Table 26.

In 2014, the help with the homework in mathematics was not related to the results on the test in mathematics. In 2016, it has negative effect: the students who often receive help from their parents, have lower achievements. It is probably because the parents usually help the children with learning difficulties.

TABLE 26: *Activities in the home and the achievements on the test in mathematics*

SUPPORT FROM THE FAMILY	2014		2016	
	Number of students	Average percent	Number of students	Average percent
The adults help them with their homework in mathematics				
Almost never	53	36,8%	57	49,9%
Sometimes	32	41,4%	55	41,5%
Often	40	38,2%	48	45,9%
They tell their family members what the learned at school, on the classes in mathematics				
Almost never	16	24,4%	20	41,3%
Sometimes	32	38,5%	39	38,2%
Often	82	40,8%	101	47%

Compared to the 2014 study, the percentage of parents who discuss with their children about what they learned on the mathematics classes has not significantly changed. Whereas in 2014, there was correlation with the achievements on the test in mathematics, in 2016 the students who often tell their parents what they learned achieved better results on the test in mathematics, but only by 5,7% higher than the students who almost never tell the parents about what they learned in school.

KNOWLEDGE OF THE LANGUAGE OF INSTRUCTION

Some Roma students, who attend classes in Macedonian, i.e. Albanian language of instruction, have poor knowledge of the language of instruction, particularly if they usually speak Roma language at home. It was assumed that it might have an influence on the poor achievements in mathematics.

In the course of this study, the students were asked about the language they speak at home, in order to make a comparison whether the language which is spoken at home corresponds to the language of instruction (Macedonian, i.e. Albanian language of instruction).

As expected, the data confirm the assumption that the students who speak the Roma language at home (language which is different than the language of instruction) have lower achievements on the mathematics test.

About 112 Roma students were included in the sample. The average result of the mathematics test of every Roma student was 27,7%; the result of the 30 Roma students who speak the Roma language at home is 24,5% (the difference is 3,2). However, the result of the Roma students who often speak the Roma language at home shows significant difference compared to the results of the students from Macedonian ethnicity who speak the language of instruction at home – Macedonian language (41,4%), and students from Albanian ethnicity who speak the language of instruction at home – Albanian language (51,4%).

A confirmation to the abovementioned conclusion are the data obtained from the Roma students as an answer to the question: *If you speak a different language at home, which is not Macedonian (Albanian), how well did you know the Macedonian/Albanian language before you started the first grade?* Those Roma students who have difficulties with understanding and speaking Macedonian / Albanian language, have a very low result on the test in mathematics - 24%. There is a significant difference between this result and the average among the Roma students who spoke and who had good understanding of the language of instruction – 31,2%.

The 2016 study has shown that the students who had good knowledge of the language of instruction achieved better results than the students who had poorer knowledge. The Roma students often have poor knowledge of the language of instruction before commencing school.

PRIOR KNOWLEDGE IN MATHEMATICS – BEFORE COMMENCING THE FIRST GRADE

The studies show that the inclusion of children in simple playing activities in their daily routine, in the period before commencing school, had a positive effect on the subsequent adoption of mathematical skills.

For example, a large study in England, has shown recently that a compound variable consisting of 7 preschool activities: being read to, going to the library, playing with numbers, painting and drawing, being taught letters, being taught numbers, songs/poems/rhymes, has a high predicting value for the students'

achievements in literacy and numeracy at school. The predicting value is greater than the other studied variables, as are: socio-economic status, parents' occupation/employment, household income (Melhuish et al., 2008)[33].

One question was used to collect information from the students about their prior knowledge in mathematics, before commencing the first grade. It can be concluded that the students with a basic prior mathematical knowledge, before commencing the first grade, as: counting, reading of numbers, addition and subtraction (up to 10 or more than 10), have higher test result in the 2016 measurement.

TABLE 27: *Results of the students' test according to their prior knowledge*

Year	PERCENTAGE OF STUDENTS ACCORDING TO THEIR PREVIOUS KNOWLEDGE BEFORE COMMENCING SCHOOL									
	Able to recognize numbers		Can count to 10		Can count more than 10		Add and subtract to 10		Add and subtract more than 10	
	Number of students	Average percent	Number of students	Average percent	Number of students	Average percent	Number of students	Average percent	Number of students	Average percent
2014	17	26,1%	80	35,4%	44	32,8%	10	34,1%	27	31,1%
2014	23	39%	57	39,5%	59	41,2%	24	40,4%	37	44,6%

The data indicate that the encouragement of teachers to understand the importance of the previous knowledge of the students and to put them in teaching situations and activities which represent a challenge to them and require the use of their previous knowledge, should continue.

33 Melhuish, E. C., Phan, M.B., Sylva, K., Sammons, P., Siraj-Blatchford, I. & Taggart B. (2008). Effects of the Home Learning Environment and Preschool Center Experience upon Literacy and Numeracy Development in Early Primary School, Journal of Social Issues, 64 (1), стр. 95–114.

CONCLUSION

- The students whose parents have more than primary education have greater achievements, and the parents of the Roma students mostly have completed primary or lower level of education.
- The level of help from the parents with learning and with homework is not related to the achievements in mathematics; however the greater interest of the parents in learning mathematics at school is related to the students' achievements.
- The prior knowledge in mathematics, before commencing the first grade, is not related to the achievements in mathematics in the third grade.
- The knowledge of the language of instruction (Macedonian or Albanian), before commencing the first grade, is greatly related to the achievements in mathematics.
- Compared to 2014, the students inform that there is an increased support from the family in 2016. This could be an indicator of the influence of the activities to support inclusiveness.

1.2 STUDENTS' ACHIEVEMENTS AT THE END OF THE SECOND CYCLE OF PRIMARY EDUCATION

1.2.1. STUDENTS' ACHIEVEMENTS ON THE TEST IN LANGUAGE LITERACY

METHOD OF MEASURING

The students' achievements were measured using: 1) test-tasks in reading and comprehension of different types of texts and 2) tasks in writing different types of texts.

The test for measuring the ability for reading comprehension consisted of:

- two short texts (stories) which should provide the answers to 6 questions;
- informative text which comprehension is verified with 6 questions;
- information given in a table which are related to 7 questions;
- narrative text which was related to 11 questions.

The test for measuring the ability to write consisted of the following tasks:

- to write (finish up) a letter;
- to write a text of practical purpose (extensive notification of accomplished activities) with a set number of words;
- to write a text – a detailed description of a person with given writing directions..

The results on the tasks about the ability to write were assessed with a list of criteria, which was established in advance. The first and the third text were assessed according to 6 criteria, and the second according to 5 criteria. For each criterion, the available points were from 0 to 2. The criteria are provided in Appendix D.

The tasks were physically moved into one test-booklet, and were solved during two separate test sessions.

The students' achievements are shown by the average results of the overall test and in the individual domains for reading comprehension and for writing.

The results obtained on the overall test in language literacy (reading comprehension and writing), for all students, are shown in table 28.

TABLE 28: *Results on the test in reading and writing in 2016 and 2014*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	249	47	67	26,0	39,3%
2016	254	47	67	30,2	45,0%

In 2016, the average result on literacy test is 45,0%, i.e. the average number of gained points is 30 (of the maximum 67). These achievements are somewhat below the level prescribed in the curricula.

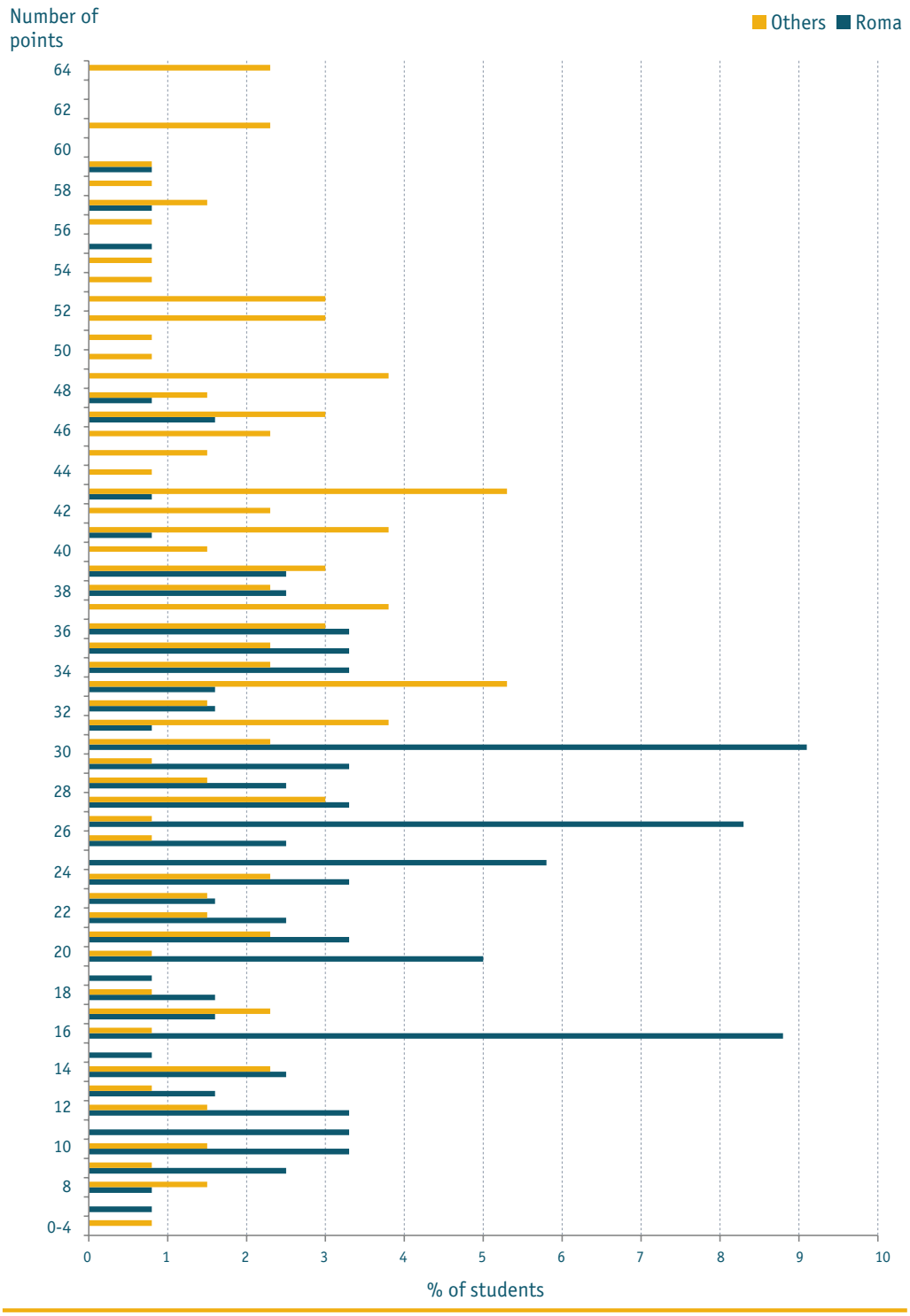
The goal of the Programme was for all students to achieve better results. According to the obtained results, both among the Roma students and among the students of other ethnicities, the average in 2016, compared to the 2014 achievements, is higher by around 6 percentage points, meaning that the goal of the Programme – for all students to achieve better results, was accomplished for a short time period. The results shown in table 29, indicate that despite the progress made, the difference between the Roma students and the students of other ethnicities is still large, 16 percentage points, same as in the previous study. Therefore, the support that the Roma students have received was sufficient for them to follow the progress of the other students, but not to advance more than the others, which points to the fact that it is necessary to work on providing bigger support for the marginalized students in the Programme, in order to decrease the differences between the Roma students and the other students.

TABLE 29: *Comparisons of the average results on the test in reading and writing*

Year	Average percent All	Average percent Roma	Significance of the difference	Average percent Others
2014	39,3%	30,6%	↔ Significant difference at the level of 0,01	47,0%
Significance of the difference	↕ significant difference at the evel of 0,01	↕ significant difference at the evel of 0,01		↕ significant difference at the evel of 0,01
2016	45,0%	36,5%	↔ Significant difference at the level of 0,01	52,8%

The differences in the achievements, in 2016, of the Roma students and the other students, will be shown in detail and analyzed further.

GRAPH 10: *Results of the Roma students and the students of other ethnicities on the overall test (reading and writing)*



The Graph 10 indicates the following:

- The majority of the Roma students, according to the number of points gained, are grouped in the part of the scale with fewer points, while the students of other ethnicities are in the part of the scale with more points.

- Only 18% of the Roma students gained more than half of the available points on the test – above 33 points, while that percentage is much larger among the other students – 58%.

- The range of the points gained among the Roma students is from 5 to 59, and among the other students it is from 4 to 64 points.

CONCLUSION

- The results on the overall test in reading and writing have improved compared to 2014, but are still somewhat below the level of expected results prescribed in the curriculum for the sixth grade.
- Both the Roma students and the students of other ethnicities have achieved higher results, by 6 percentage points, compared to the 2014 study.
- The Roma students, same as in the previous study, have achieved significantly poorer achievements. The average result among the Roma students is by 16 percentage points lower compared to the average of the other ethnicities, which is the same as in the 2014 study.

1.2.1.1. Students' achievements on the test in reading comprehension

The result of the test in reading comprehension is almost 60%, same as in the 2014 study. Those are achievements above the average.

TABLE 30: *Results on the reading test in 2014 and in 2016*

YEAR	NUMBER OF STUDENTS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	249	33	19,6	59,5%
2016	254	33	19,7	59,7%

Table 31 shows the comparison between the achievements of the Roma students and the students of other ethnicities.

TABLE 31: *Results on the test in reading among the Roma students and the students of different ethnicities in both studies*

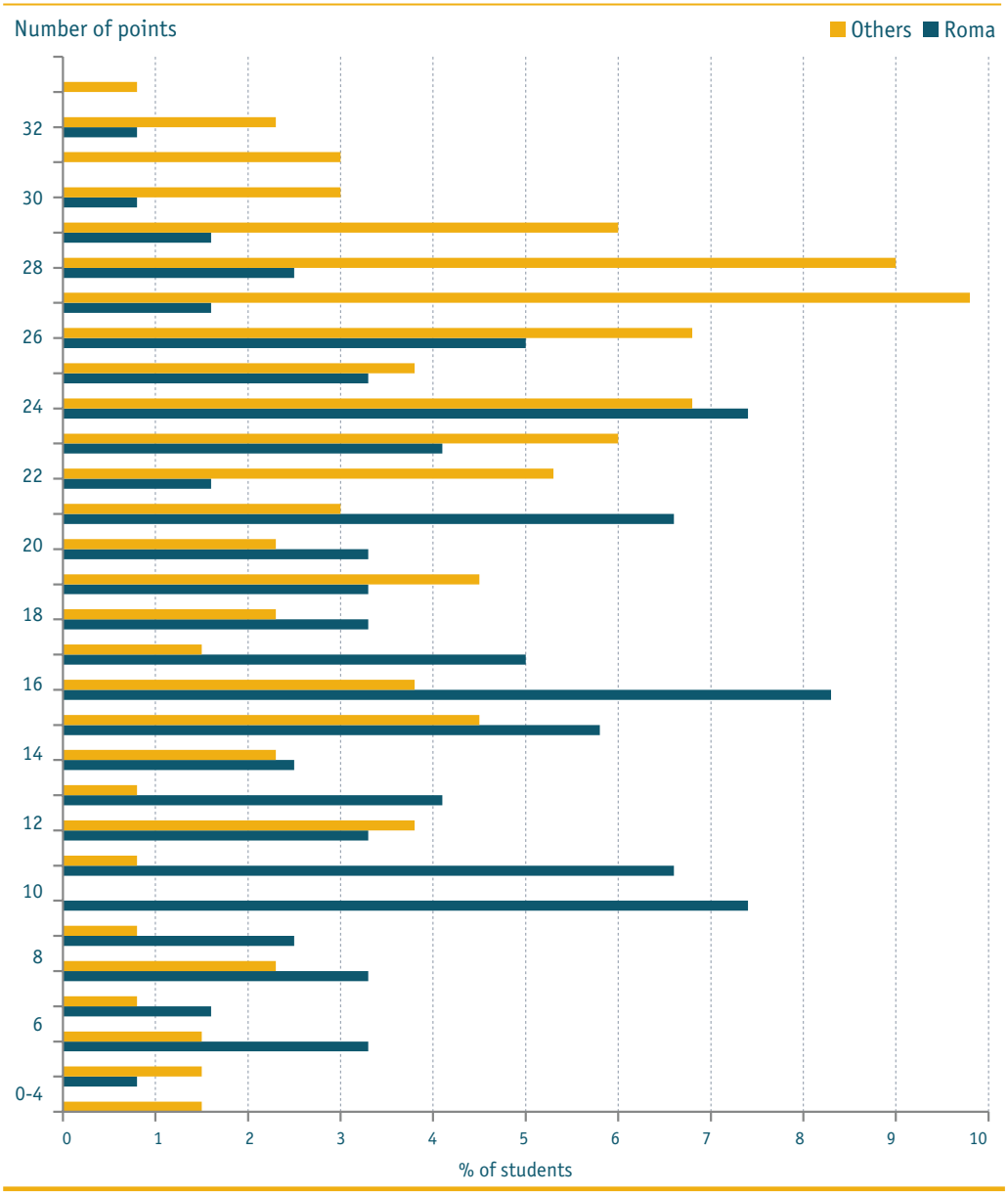
ETHNICITY	NUMBER OF STUDENTS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
			2014	2016	2014	2016
Roma	121	33	16,0	17,2	48,6%	52, %
Others	133	33	22,9	21,9	69, %	66, %

The Roma students, on the test in reading comprehension, had the average of 52%, which means they gained a little more than half of the available points in average. However, that average percentage is significantly lower than the result of the other students which is 66%.

Compared to 2014, the results of the Roma students are slightly higher, and the results of the students of other ethnicities are slightly lower. The achievements of the Roma students are still by 6,2 percentage points lower than the achievements of the students of other ethnicities.

Graph 11 shows the achievements of the Roma students and the students of other ethnicities in detail, according to the 2016 study.

GRAPH 11: *Results of the Roma students and the students of other ethnicities on the test in reading comprehension*



The graph indicates the following:

- The distribution of the Roma students, according to the points gained, is almost normal. The highest percentage of students (8,3%) gained 16 points, which is almost the arithmetic mean of the test points – 17. Half of the students gained more than 50% of the points. No student gained less than 5 points.
- The students of other ethnicities, according to the points gained on the test in reading, are mostly grouped in the upper part of the scale. 75% of the students gained half or more than half of the available points.

SPECIFIC ANSWERS TO THE TASKS IN THE TEST IN READING

The test in reading comprehension consisted of different types of texts and different types of questions related to them, since the type of text required a different analytical approach to understanding what was read. According to the method of answering, the test consisted of 27 multiple-choice questions and 13 open-ended questions.

The analysis of the results shows that all students were not equally successful in answering the multiple-choice tasks and the tasks were they wrote down the answer. The students achieved significantly high score percentage on the multiple-choice tasks, regardless of the type of text - 70% in average. On the tasks where the students had to formulate and write down the answer or make a conclusion using their own words, the percentage of the average score is significantly lower - 48%. These indicators are obtained in others tests as well, as a result of the possibility to guess the correct answer in the multiple-choice tasks. This tendency is the same both for the Roma students and for the students of other ethnicities. The difference between the results on the multiple-choice tasks of the Roma students and the students of other ethnicities is 8 percentage points, while the difference between students results on the tasks requiring to produce a short answer is larger - 24 percentage points. The abovementioned points to the fact that the Roma students encounter great difficulties when they need to write down the answer related to understanding the read text.

Table 32 shows the score on the two types of tasks in the test, of the students of different ethnicities.

TABLE 32: *Results on the different types of reading tasks of the Roma students and the students of other ethnicities*

ETHNICITY	NUMBER OF STUDENTS	MULTIPLE-CHOICE TASKS	SHORT ANSWER TASKS
Roma	121	66,2%	34,4%
Others	133	74,0%	58,4%
All	133	70,3%	48,4%.

All students are more successful in solving the tasks related to literary texts, and less successful in solving in the tasks related to understanding informative texts. There is a similar tendency in the 2014 study. This is a significant indicator which should be taken into account, as learning, to a great extent, is founded on understanding informative texts.

While making a comparison between the average results (Appendix E) of the Roma students and the other students, there are similarities regarding which tasks were the easiest and which were the hardest. The easiest (above 80%) were the multiple-choice tasks which required to draw explicit information about a character or scene in a story, information on the scene given in an informative text or to draw specific information from a given table. The hardest tasks (around 25%) for the Roma students were the ones which required to draw implicit information from an informative text, to draw multiple explicit information from a table with data and write down and explain what has happened at the end of the story they had to read. The lowest result of the students of other ethnicities (average of 36%) was on the task which required them to write down and explain what has happened at the end of the story they had to read.

CONCLUSION

- The results on the reading test are on a satisfactory level compared to the goals prescribed in the curriculum for the end of the second cycle and are at the level of the achievements in 2014.
- The ability for reading comprehension is relatively good among all students, which should provide the basis for their continuous successful learning and progress.
- The average result among the Roma students has increased, but it still is significantly lower (by 16 percentage points) than the average score of the other ethnicities.
- The results of the Roma students on the test in reading comprehension, even though lower than the others, are quite good, in average they gained almost half of the available number of points.
- All students, same as in 2014, were more successful in the multiple-choice tasks compared to the tasks that required the students to formulate and write down the answer.
- All students, same as in 2014, were more successful in the tasks related to reading and understanding literary texts, compared to the tasks related to understanding informative texts.
- All students have higher achievements on the tasks which required them to draw explicitly given information or to recognize the type of the text, and hardest were the tasks which required implicit information or explanations of the answer.

1.2.1.2. Students' achievements on the writing test

The writing ability was checked with three tasks which required the students to write different types of texts: letter, notification and description of a person. All written compositions were assessed according to the following criteria: composition, clarity of the composition, punctuation, orthography and sentence construction, while the letter and the description of a person were also assessed according to the criterion of originality. The maximum number of points awarded for each criterion was two; therefore the maximum number of points was 34.

As it can be seen in table 33, the students, in 2016, achieved significantly higher results on the writing test (by 10 percentage points) compared to 2014. Regardless of the significant improvement, the achievements are low (result of near 31%) compared to both the objectives of the curriculum and the expected level of success on the tasks in the test.

TABLE 33: *Results on the writing test in 2014 and in 2016*

YEAR	NUMBER OF STUDENTS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	249	34	6,6	19,6%
2016	254	34	10,5	30,8%

Table 34 shows the comparison between the achievements of the Roma students and the students of other ethnicities for both studies and graph 12 shows the comparisons for the 2016 study.

TABLE 34: *Results on the test in writing among the Roma students and the students of different ethnicities in both studies*

ETHNICITY	NUMBER OF STUDENTS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
			2014	2016	2014	2016
Roma	121	34	4,5	7,2	13,1%	21,2%
Others	133	34	8,6	13,4	25,3%	39,5%

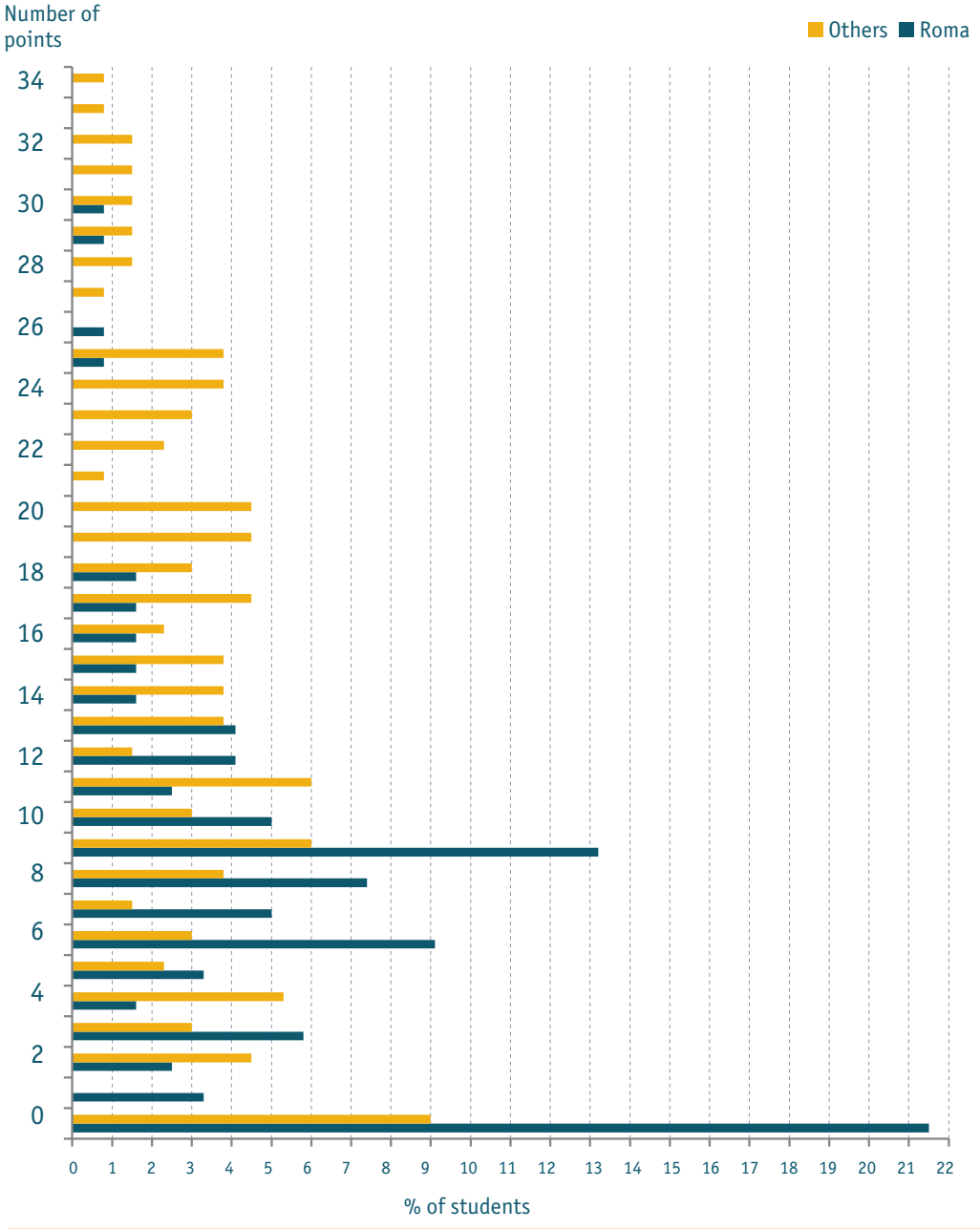
When making a comparison between the results of the Roma students and the other students, in both studies, the following can be concluded:

- Both the Roma students and the students of other ethnicities achieved significantly better results in 2016. The improvement among the Roma

students is by 8 percentage points, and among the other students it is by 14 percentage points.

- The difference between the achievements in writing of the Roma students and the other students has not decreased, on the contrary, it increased – it was 12 percentage points and it increased to 18 percentage points.

GRAPH 12: *Result on the test in writing of the students of different ethnicities*



The Roma students have achieved significantly poorer results on the tasks in writing compared to the students of other ethnicities.

Graph 12 shows the results from 2016 and it indicates the following:

- The results in writing are low both among the Roma students and the other students. As regards the average number of points gained, almost all Roma students are below the average number of points on the test, while the other students are distributed more evenly on the entire range of the scale.
- The number of Roma students that did not gain a single point on the writing test is quite large – 21% and significantly larger compared to the students of the other ethnicities where only 9% of the students did not gain a single point.
- Only 7% of the Roma students achieved half or more than half of the available points. Among the students of other ethnicities, that number is significantly larger - 37%.

CHARACTERISTIC ANSWERS ON THE TASKS IN THE WRITING TEST

The achieved average results on the writing test show that the students have the ability to write different types of written expression and apply the writing norms and standard linguistic norms, which are used in the test. These tasks were used to check the objectives of the curriculum domain: *Expression and creation*.

In the first task, the students were required to finish a started letter, which checked the extent to which the students are able to write a letter as a written form of expression and respect the requirements related to composition, clarity, sentence construction, respect the orthographic principles and use the adequate punctuation, as well as to possess the necessary level of originality. The percentage of average points gained by criteria is from 17% to 44%, which is an improved achievement compared to 2014 (Appendix E). The Roma students, compared to the other students, have lower average achievements on all criteria.

In the second task, the students were required to write a text of practical purpose (extension of the description of accomplished activities) using previously given number of words. The average percentage of points gained by criteria is from 21% to 40%. These are improved achievements compared to 2014. The Roma students have lower achievements compared to the other students on this task as well.

In the third task, the students were required to formulate a written text which will represent a detailed description of a person with given directions for the description, with an offered list of words and using a specific number of words. The average percentage of achievements, for the criteria for this type of written text, is from 17% to 44%, which is an improved achievement compared to 2014. Same as for the other tasks, the Roma students have significantly lower results on all criteria.

The table below shows, in detail, the students' achievements on every task.

TABLE 35: *Average percentage of points gained according to the criteria for the tasks in writing among the students of different ethnicities*

CRITERION	AVERAGE PERCENTAGE								
	TASK 1 – LETTER			TASK 2 – NOTIFICATION			TASK 3 – DESCRIPTION		
	All %	Roma %	Others %	All %	Roma %	Others %	All %	Roma %	Others %
Composition	40	34	45	32	30	34	38	29	47
Clarity of the composition	44	39	49	40	35	44	44	35	52
Punctuation	30	17	42	29	16	40	33	23	42
Orthography	30	18	41	29	17	39	29	18	39
Sentence construction	27	14	38	21	9	33	24	11	36
Originality	17	7	25				17	6	26

The results presented in the table above, show the following:

- All students have achieved the highest result in the criterion clarity of the composition, i.e. the extent to which they understand the topic they should write about and the extent to which they are able to focus on the topic they have to write about. The average of this criterion of the Roma students is between 35% and 39%, and among the other students is between 44 and 52%.
- All students were least successful on the criterion originality of the composition. The achievements of the Roma students are particularly low.

- As regards which criteria for successful writing were more difficult and which were easier to fulfil, there are no differences between the Roma students and the students of other ethnicities. All students have below-average achievements in all criteria, but on every criterion the students of other ethnicities gained nearly twice as many points as the Roma students.

CONCLUSION

- The results on the writing test in 2016 have improved significantly compared to the 2014 study, but they are still below-average and point to the low abilities of the students to express themselves using different writing forms.
- The average score among the Roma students is almost twice as low as the result of the students of other ethnicities.
- Compared to the previous study, both the Roma students and the other students achieved better results, and the difference in the achievements has increased.
- All students are more successful in fulfilling the criterion: clarity of the composition in terms of the adequate writing topic and least successful in fulfilling the criterion: originality of the composition, regardless of the type of text.

1.2.1.3. Connection of the results on the reading and writing tests with specific socio-cultural variables

The students' achievements, in addition to the efforts of the teachers and the efforts of the students themselves, are influenced by other factors related to the socio-cultural environment. Therefore, for monitoring the Programme effects, it is also important to measure the impact of other relevant factors which cannot be influenced by the Programme, but which could be modified during its realization and could be taken into account when explaining the results.

METHOD OF MEASURING

The data on the socio-economic circumstances and reading habits in the family of the students were collected using a short questionnaire that was filled out by the students at the end of the testing. Nine questions were used to collect data on: socio-economic characteristics of the family; approximate number of books and other educational resources in the family; activities within the home related to learning the mother tongue; language spoken within the home of the Roma students.

SOCIO-ECONOMIC STATUS OF THE PARENTS

As it was previously mentioned in this report, many studies show that the education of the parents is related to the achievements of their children in general, as well as to the achievements in language literacy. Table 36 shows the data on the achievements in reading and writing of the students according to the level of education of their parents.

Generally speaking, the education of the fathers and mothers, up to completed secondary education, has a linear connection to the achievements of their children in language literacy, there is no such connection afterwards. As regards the Roma students, there are differences in the achievements only between the children whose mothers and fathers have completed only the 4th grade and those children whose parents have completed secondary education.

TABLE 36: *Results on the students' test according to the education of the parents*

EDUCATION OF THE PARENTS		COMPLETED 4TH GRADE	COMPLETED 8TH GRADE	SECONDARY	HIGHER
		Average percent	Average percent	Average percent	Average percent
Mother	Roma	32,2%	37,9%	42,1%	35,0%
	Others	20,3%	53,7%	55,8%	57,0%
	All	29,3%	43,8%	51,5%	49,3%
Father	Roma	30,9%	38,7%	39,7%	33,7%
	Others	28,9%	45,6%	56,6%	56,2%
	All	30,4%	41,2%	50,6%	49,3%

As regards the connection between the students' achievements and the employment of their parents, the results show that the achievements of the students whose mothers and fathers are employed are higher compared to the students whose parents are unemployed[34]. As regards the Roma students, there is no such correlation. Among the other students, there is a significant difference between the achievements only when it comes to the employment of the students' mothers.

TABLE 37: *Results on the students' test according to the employment of the parents*

EMPLOYMENT OF THE PARENTS		EMPLOYED	UNEMPLOYED
		Average percent	Average percent
Mother	Roma	36,9%	38,3%
	Others	55,9%	50,6%
	All	49,8%	43,8%
Father	Roma	37,4%	37,6%
	Others	54,2%	56,1%
	All	48,1%	42,6%

34 There is a statistically significant difference at the level of 0.05.

EDUCATIONAL RESOURCES THAT THE STUDENTS HAVE WITHIN THEIR HOME

The educational resources within the home, regardless if those are conditions for learning or habits related to reading and writing, are often related to the students' language literacy[35].

The table below shows the results of the students who have various conditions for learning at home. The students who have their own room, desk and internet have achieved significantly higher results on the test in reading and writing compared to the students who do not possess these conditions for learning. The aforementioned applies for both the Roma students and the students of other ethnicities. Similar results were obtained with the 2014 study. The Roma students rarely possess the abovementioned conditions for learning within the home, and it partly explains their poorer achievements.

TABLE 38: *Test results and the resources within the home*

RESOURCES		THEY DO HAVE		THEY DO NOT HAVE	
		Number of students	Average percent	Number of students	Average percent
Their own room	Roma	67	39,0%	54	33,3%
	Others	108	55,1%	25	42,8%
Desk	Roma	32	42,4%	89	34,4%
	Others	73	58,3%	60	46,1%
Internet	Roma	59	39,4%	62	33,7%
	Others	80	57,9%	53	45,1%

The number of books in the home is an important resource which could be connected to the results in reading and writing, but the data in table 39 show significant differences in the achievements only between the students who have or do not have 10 books at home and those students who have more. There is the same tendency both among the Roma students and the students of other ethnicities, as 37% of the Roma students answered that they have up to 10 books at home, while among the other students that percentage is 14%. Similar data on the connection between the number of books and the success on the test were obtained in the 2014 study.

35 PIRLS 2001: Report on Fourth Grade Student Achievement in Reading Comprehension, BED, 2003

TABLE 39: *Number of books in the home and achievements on the test in reading and writing*

NUMBER OF BOOKS IN THE HOME	NUMBER OF STUDENTS	AVERAGE PERCENT
0–10 books	52	37,3%
11–25 books	74	48,8%
26–100 books	44	52,6%
101–200 books	25	52,3%
More than 200 books	21	54,1%

SUPPORT FROM THE FAMILY

The reading habits are acquired at an early age. Therefore, the presence of books at home is not sufficient, the reading habits in the family are also important.

The frequent reading of books, together with the adults in the family, is related to the greater achievements of the students on the reading and writing tests. There is the same tendency both among the Roma students and the students of other ethnicities. The data are similar to those from 2014, but as regards the previous study, there is an increase in the number of children (by 6 percentage points), who almost never read books together with their parents. The expectations were for these types of activities to increase under the influence of the Programme.

As regards the issue whether the parents help the students with their homework, at the level of the entire group, the parents often help the students who have lower results. However, when reviewing separately the results of the Roma students and the other students and the help from the parents, it can be concluded that there is a connection only among the students of other ethnicities, but not among the Roma students.

The students from families that discuss what the children have learned in the mother tongue classes and sometimes or often ask the child to share his/her experience, are more successful on the test. There is the same tendency for students of all ethnicities, and the data from the 2014 study are similar.

TABLE 40: *Activities related to reading at home and the achievements on the test in reading and writing for both studies*

SUPPORT FROM THE FAMILY	2014		2016	
	Number of students	Average percent	Number of students	Average percent
They read books together				
Almost never	21	32,9%	32	31,2%
Sometimes	120	40,5%	92	50,3%
Often	73	44,7%	72	55,3%
The adults help them with their homework in Macedonian/ Albanian language				
Almost never	70	38,5%	75	54,2%
Sometimes	78	42,8%	70	50,1%
Often	54	44,1%	46	41,4%
They tell their family members what the learned at school, on the classes in Macedonian/ Albanian language				
Almost never	16	34,0%	20	36,9%
Sometimes	35	40,3%	55	53,9%
Often	94	41,2%	120	49,8%

KNOWLEDGE OF THE LANGUAGE OF INSTRUCTION

The Roma students attend classes in Macedonian, i.e. Albanian, language of instruction, and some of them speak Roma language at home. It was assumed that it might have influence on their achievements on the test in Macedonian/ Albanian language. According to the data on the students' achievements, shown in table 41, this assumption was not confirmed. This might be a result of the fact that in the sixth grade, the students have sufficient knowledge of the language of instruction, so their "domestic" language does not influence their achievements.

TABLE 41: *Language spoken at home and achievements on the test in reading and writing among the Roma students*

LANGUAGE USUALLY SPOKEN AT THE HOME OF THE ROMA STUDENTS	NUMBER OF STUDENTS	AVERAGE PERCENT
Roma	36	37,7%
Macedonian	51	40,0%
Albanian	5	30,4%

CONCLUSION

- The students whose parents have higher education have greater achievements on the test in reading and writing.
- Among the Roma students, there is a difference only between the children whose mothers and fathers have completed the 4th grade and those children whose parents have completed secondary education.
- At the level of the entire sample, the students whose mothers and fathers are employed, have greater achievements compared to those students whose parents are unemployed. There is no such correlation among the Roma students.
- Having better conditions for learning at home, as your own room, desk and internet, or at least the minimum number of books, is related to greater achievements in reading and writing.
- The language that the Roma students speak at home is not related to their achievements in reading and writing.
- The students who have the support from the adults when learning mother tongue, as reading together and whose parents are interested in what they learned at school, have greater achievements in reading and writing.
- The students with lower achievements, of other ethnicities, often receive help with their homework. This correlation was not seen among the Roma students.

1.2.2. STUDENTS' ACHIEVEMENTS ON THE TEST IN MATHEMATICS

In the 2016 study, the results in mathematics have to be observed in the context of the modification of the mathematics curricula. The sixth graders who were tested belong to the first generation of students who began to learn mathematics according to the adapted curricula from the Cambridge International Examination Centre. However, when those same students were in the fifth grade, the old curricula were applied at that time. The transition period from one to another curriculum represented an additional challenge for the teachers, the students and for the parents as well. Moreover, within the programme *Inclusive education for marginalized groups,* the activities in the last two years, both in terms of trainings and mentor support, were directed towards the teachers and students in the lower grades, bearing in mind that the knowledge and skills acquired in the lower grades represent a basis for the subsequent learning and successful education.

METHOD OF MEASURING

The assessment of the achievements of the students in the sixth grade is based on the results on the tasks that measure conceptual and procedural knowledge, understanding and application of numbers (natural numbers, fractions and decimal numbers), the four basic operations and their properties, as well as in solving textual tasks and problems.

The maximum number of points on the test was 34, which could have been obtained if the student provided the correct answer to 26 requirements, distributed in 13 tasks, which measure the knowledge and skills in the domains of: concept of number, operations and properties of operations and problem situations.

The data on the possible influences related to the family and the prior knowledge are obtained by a questionnaire.

In the analysis of the results of the study, for the sixth grade as well as for the third grade, there are analyses and comparisons between the achievements of the Roma students and the other ethnicities, as well as a comparison between the students' achievements which were obtained with both the 2014 and the 2016 study. The results of the progress study, conducted after two years of implementation of the Programme, will also provide information which will help with the planning of upcoming activities and dealing with the challenges, particularly in subject teaching.

The achievements are shown using tables and graphs and verbal comments are added.

TABLE 42: *Comparison between the results on the test in mathematics in both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	265	24	34	12,6	37,1%
2016	256	24	34	12,4	36,6%

The students' achievements on the mathematics test in 2016 are at the same level as the ones in 2014 (the difference of 0,5 percentage points is non-statistically significant). The overall results on the test in mathematics show that the students achieved the average of 37,1%, i.e. the average 12,4 points of

the available 34. Those results are not significantly lower compared to the ones from the 2014 study, but the average score is low.

The data in table 43 show that the Roma students made progress, compared to 2014, while the students of other ethnicities have achieved somewhat lower results. The difference between the Roma students and the other students has decreased but it is still significant (in 2014, the difference was 21,3 percentage points, and it decreased to 14,2 percentage points in 2016).

TABLE 43: *Comparisons of the average results on the test in mathematics*

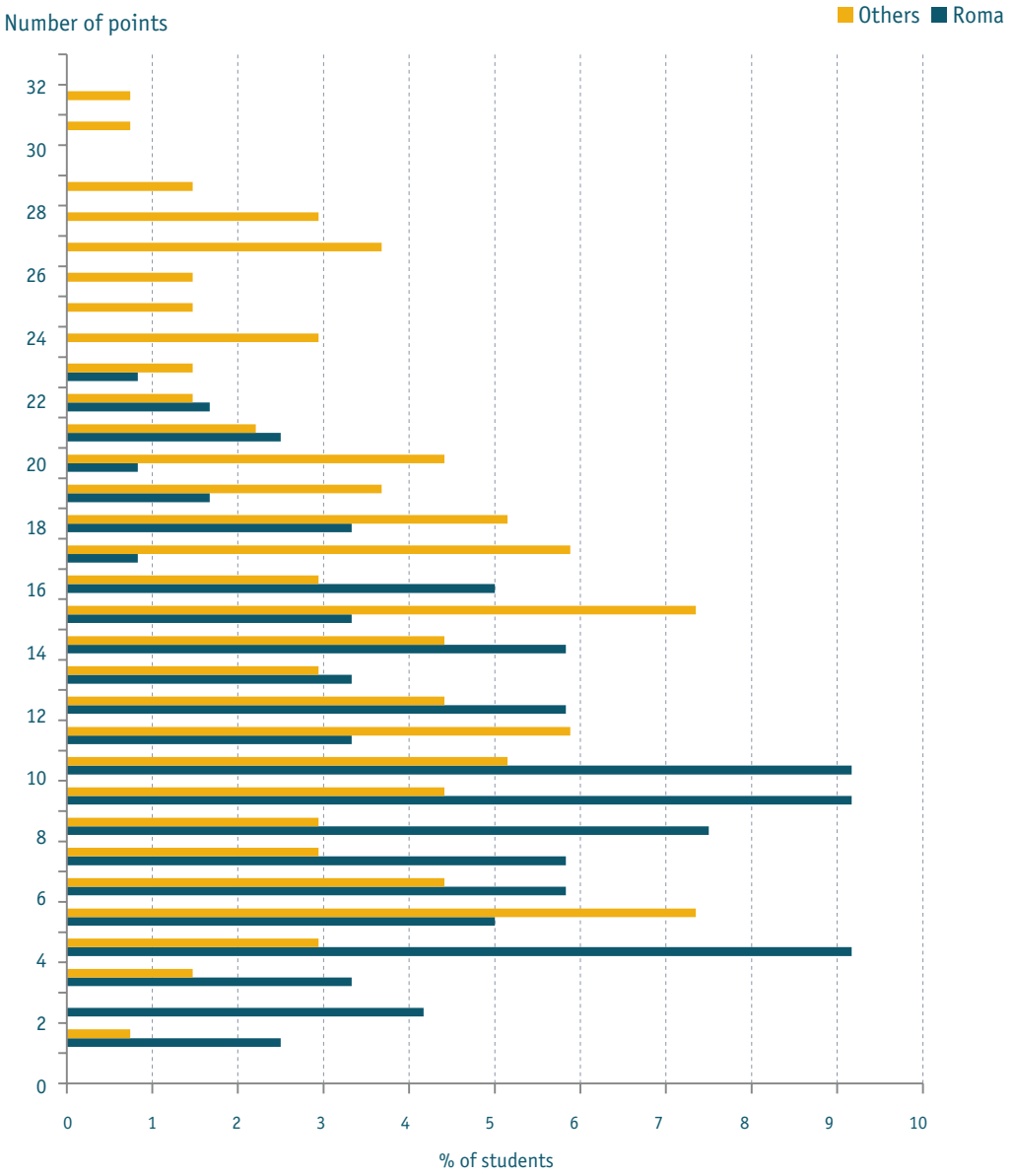
Year	Average percent All	Average percent Roma	Significance of the difference	Average percent Others
2014	37,1%	25,9%	↔ significant difference at the level 0.01	47,2%
	↕ Non-statistically significant	↕ Significant difference at the level of 0,05		↕ significant difference at the level of 0,05
2016	36,6%	29%	↔ significant difference at the level 0,01	43,2%

- In 2016, the Roma students have the average percent of 29% on the overall test (average 9,8 points of the available 34); while the students of other ethnicities have significantly higher percent of 43,2% (average 14,7 points).

Graph 13, according to the points gained by the Roma students and by the other students in 2016, indicates the following:

- The distribution of the results has shifted to the left, i.e. the percentage of Roma students who achieved fewer points has increased.
- The distribution of points of the students of the other ethnicities is bimodal, i.e. there is a clear distinction between one group of students with poor results and one group of students with higher results.
- The result of the majority of the Roma students (74%) is below the average (12,4 points), while the result of 38% of the students of the other ethnicities is below the average.
- The range of points gained is from 1 to 23 points among the Roma students, and among the other students from 1 to 32 points.

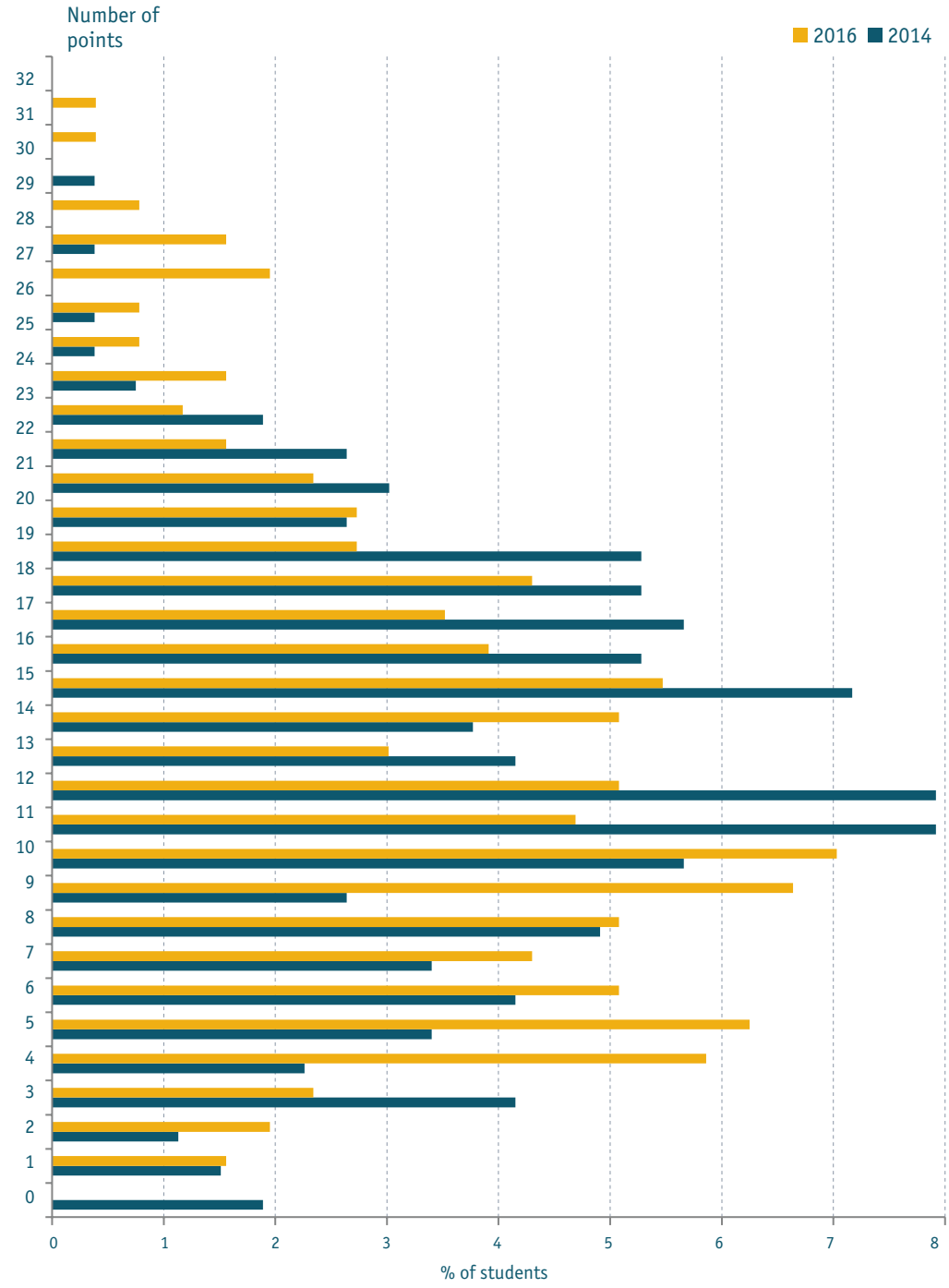
GRAPH 13: Results of the Roma students and the other students on the test in mathematics



Graph 14, below shows the achievements of all tested students on the overall test according to the points gained, both for 2014 and for 2016. The analysis of the results indicates the following:

- In 2016, the distribution of points deviates from the normal, and compared to 2014, it is polimodal.
- The percentage of students (23%) who achieved a result that is higher than the average (more than 17 points) is the same for both studies.
- In 2016, unlike 2014, there are no students with 0 points. However, no student gained the maximum 34 points.

GRAPH 14: *Result of all students on the test in mathematics, comparatively for 2014 and for 2016*



CONCLUSION

- The results of all students on the test in mathematics are at the level of the results of the 2014 study.
- There is insignificant improvement of 3, 1 percentage points in the results of the Roma students, and a decline of 4 percentage points among the other students. This lead to a significant decrease of the difference between the Roma students and the other students (from 21, 3 percentage points in 2014 to 14, 2 percentage points in 2016).

1.2.2.1. Students' achievements according to the method of setting the task

The analysis of the achievements was made according to the types of tasks: 1) tasks given in the form of a numerical expression, with illustrations or graphically and 2) tasks that are given with words where is required to read and understand a relatively longer text to solve them. This division was made to study the possible influence on the students' abilities in the domain of reading comprehension on solving textual tasks.

The analysis has shown that there is a significant difference in the results when the achievements are compared according to the manner of setting the task. The analysis of the results of all students and the results by subsamples (Roma and others) for both types of tasks indicates that the students have significantly lower achievements on the textual tasks.

ACHIEVEMENTS ON THE TASKS DELIVERED ONLY WITH NUMBERS, AS A NUMERICAL EXPRESSION OR GRAPHICALLY AND WITH A SHORT QUESTION

The test in mathematics contained 20 tasks given only with numbers or represented graphically, where the requirement of the task and operation/ operations that have to be used to solve it, was explicitly given.

TABLE 44: *Results for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	265	20	28	12,6	37,1%
2016	256	20	28	12,1	36,6%

- In 2016, the average result of the tasks given only with numbers, numerical expression or represented graphically, is 36,6% for all students (average number of points is 12,1).
- Compared to the results from the 2014 study, there is an insignificant decrease of 0,5 (in 2014, the average correct answers on the tasks given only with numbers, numerical expression or represented graphically, is 37,1% for all students and the average number of points is 12,6).

For 2016, the results on the tasks given only with numbers, numerical expression or represented graphically by subgroups for the Roma students and the students of other ethnicities, are shown in table 45 and graph 15.

TABLE 45: *Results among the students of different ethnicities*

ETHNICITY	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
		2014	2016	2014	2016
Roma	28	8,2	8,8	29,3%	31,6%
Others	28	14,8	13,1	53%	46,6%

- The Roma students results, on the tasks given only with numbers, numerical expression or represented graphically (31,6%) has improved insignificantly (2,3 percentage points) compared to the 2014 study.
- Lower achievements are observed among the students of other ethnicities. The average is 46,6 % and compared to the 2014 study, there is a decrease of 6,4 percentage points.
- The difference in the achievements between the Roma students and the students of other ethnicities, on the tasks given only with numbers, numerical expression or represented graphically, is lesser than the one observed in the 2014 study. In 2014 it was 23,7 percentage points, while in 2016 it is 15 percentage points.

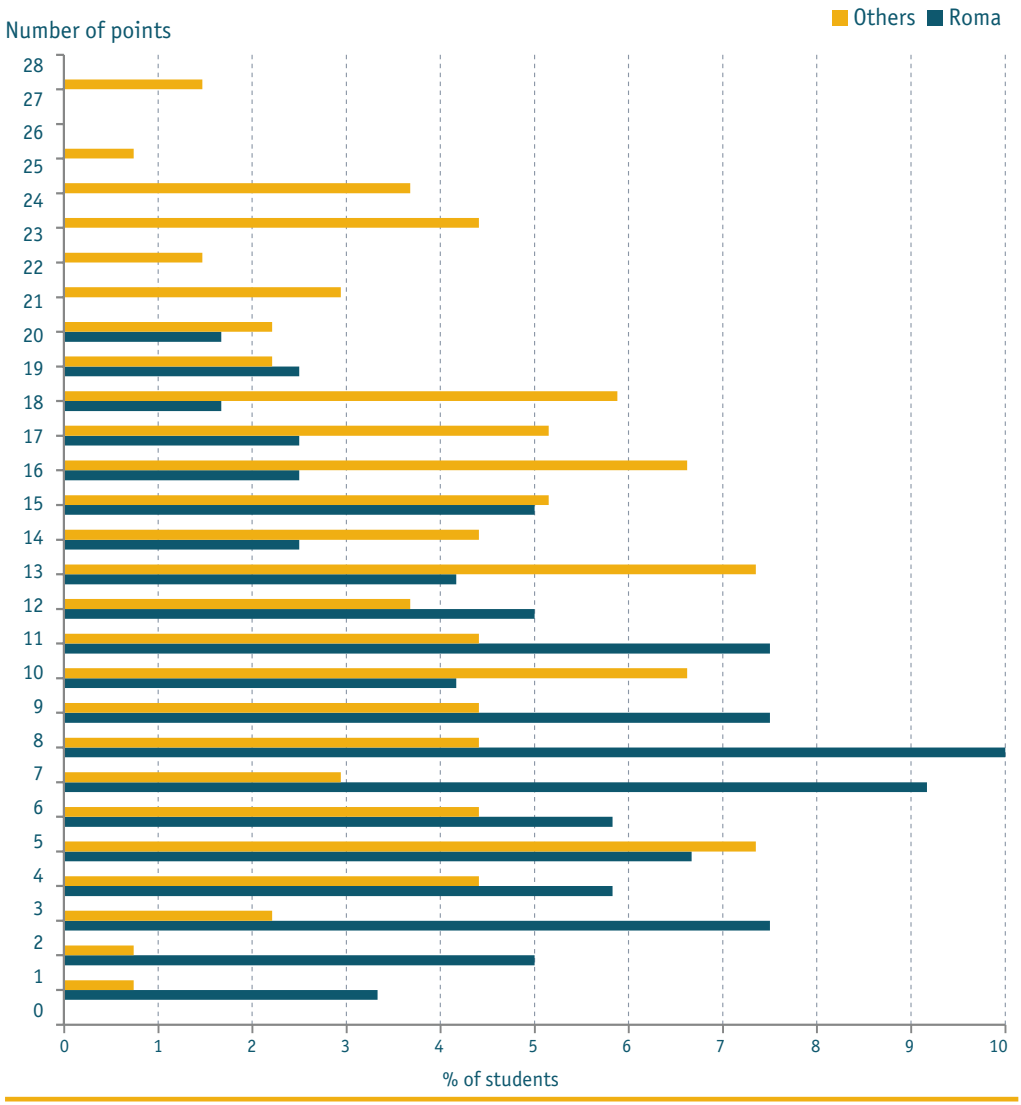
A detailed presentation of the results from the 2016 study, according to the number of the achieved points, is given in graph 15.

The results indicate the following:

- The highest result of the Roma students is 20 points (of the available 28 points) and it was achieved by only two students;
- The highest percentage of Roma students has achieved 8 points.

- The students of other ethnicities have significantly better results than the Roma students (their results have shifted to the right) The distribution of the points of the students of other ethnicities is in a wider range (15% of the other students achieved more than 20 points, which is the maximum for the Roma students).
- Among the students of the other ethnicities, the highest result is 27 points and it was achieved by two students; the majority of students achieved 5 points and 13 points.

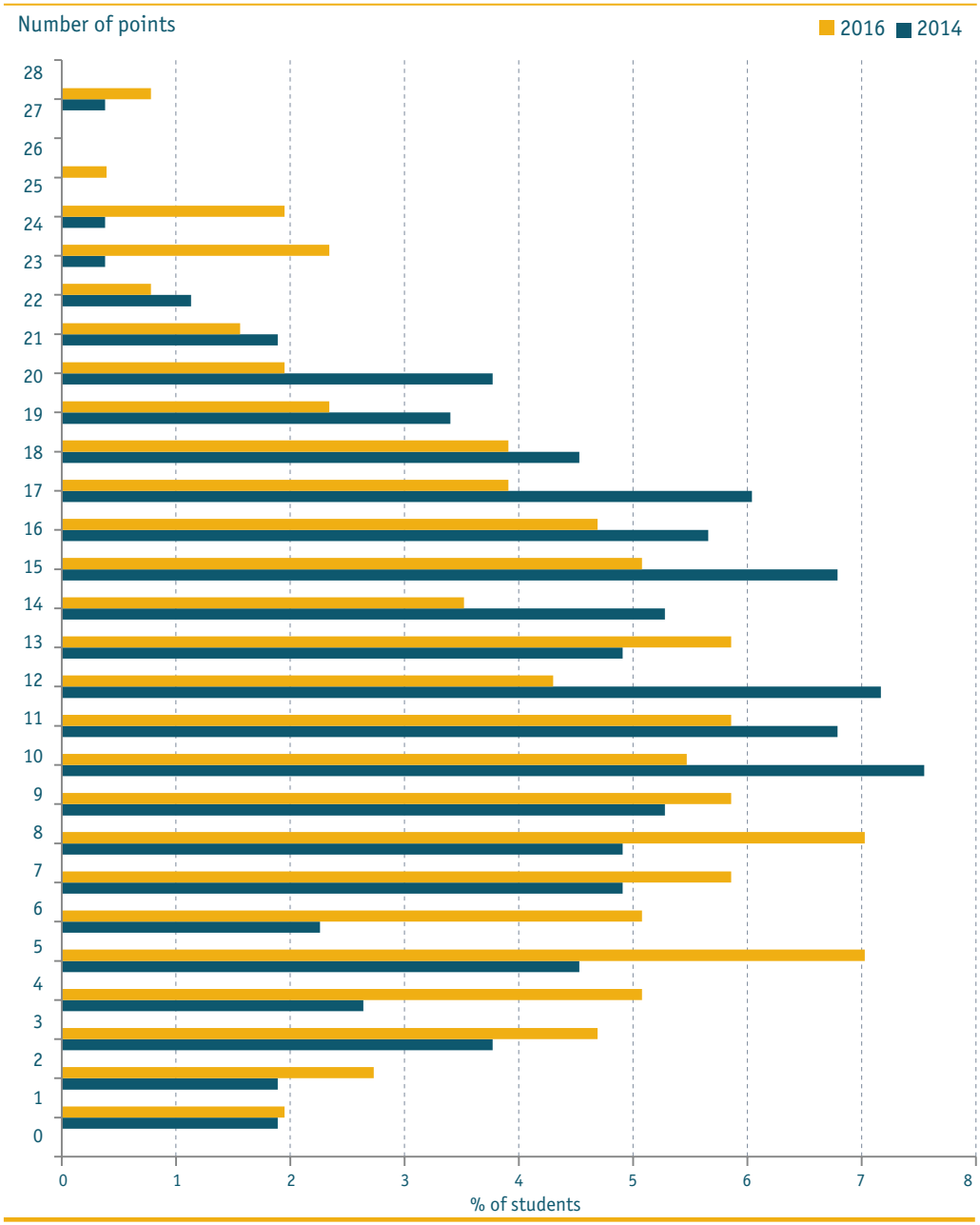
GRAPH 15: *Results of Roma students and the other students on the tasks given only with numbers, numerical expression or represented graphically*



Graph 16 (below) shows, in more detail, the results on the two types of tasks in both studies:

- Unlike in 2014, there are no students with 0 points in 2016, but in both studies there are no students who gained the maximum of 28 points.
- In 2014, the majority of the students gained 10 points, and in 2016 they gained 5 or 8 points.
- Compared to 2014, when 1,1% of the students gained between 23 and 27 points, in 2016, this percentage is 5,5%.

GRAPH 16: *Results of all students on the tasks given only with numbers, numerical expression or represented graphically, comparatively for 2014/2016*



The students' results were also analyzed according to the score on each of the tasks given only with numbers, numerical expression or represented graphically (Appendix F – 1), for both studies and for both subgroups of students.

In general, the following can be concluded:

- Compared to 2014, for 10 tasks (of 20 in total) there is an increase in the percentage of students who provided the correct answer for the tasks (tasks: writing a decimal number/understanding the decimal places in a decimal number; simple equation by subtraction which includes 4-digit numbers and the first requirement of the task where it is required that the students first read and understand the data which are represented graphically).
- For 8 tasks, compared to 2014, there is a decrease of the percentage of students who provided the correct answer, while for two tasks (divide a 5-digit number with a 2-digit number; and numerical expression with two operations and parentheses) there is no change of the score percentage.
- Both in 2014 and in 2016, the lowest score (11%) was achieved on the task which required the students to multiply two decimal numbers (given below).

TASK

Calculate the following: $2{,}56 \cdot 3{,}2 =$

Reviewing by subgroups, it can be concluded that in 2016 there is an increase in the percentage of Roma students who provided the correct answer in 15 tasks and among the students of other ethnicities, there is an increase in the percentage of children who provided the correct answer in 4 tasks.

ACHIEVEMENTS ON THE TASKS GIVEN WITH A TEXT

The test in mathematics consisted of 4 textual tasks, which were set as problem situations.

TABLE 46: *Results for both studies*

YEAR	NUMBER OF STUDENTS	NUMBER OF TASKS	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS	AVERAGE PERCENT
2014	265	4	6	0,9	15,5%
2016	256	4	6	1,4	22,7%

- In 2016, the average achievement on the textual tasks is 22,7% and the average number of points gained 1,4 of the maximum available 6 points).
- Compared to the 2014 study, when the achievement was 15,5%, there is a significant improvement of 7,2 percentage points

The results of these tasks, by subgroups for the Roma students and the students of other ethnicities, are shown in table 47 and in graph 17.

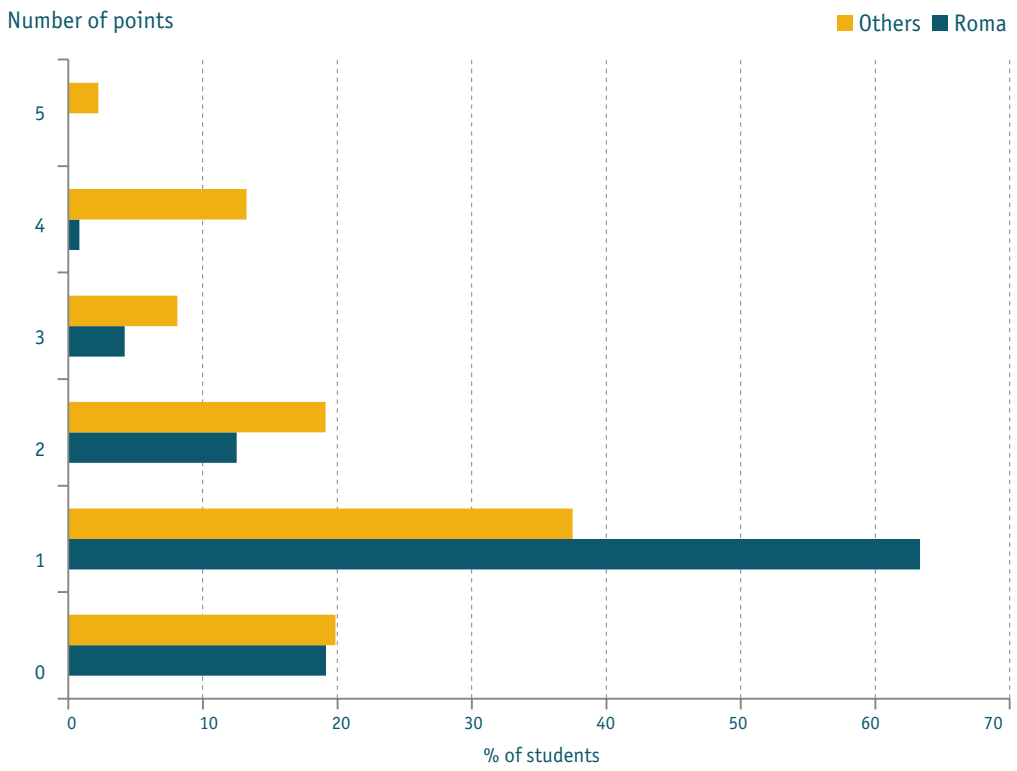
TABLE 47: *Results among the students of different ethnicities*

ETHNICITY	MAXIMUM AVAILABLE POINTS	AVERAGE POINTS		AVERAGE PERCENT	
		2014	2016	2014	2016
Roma	6	0,6	1	10,3%	17,4%
Others	6	1,2	1,6	20,1%	27,3%

- The average result of the Roma students on the textual tasks is 17,4% and compared to the 2014 study, there is a significant increase of 7,1 percentage points.
- The result of the other students on the textual tasks is 27,3% and compared to the 2014 study, there is also an improvement of 7,2 percentage points.
- The difference in the achievements on the textual tasks (10 percentage points) between the Roma students and the students of other ethnicities is the same for both studies.

The graph below shows the results according to the number of points gained on the textual tasks in the 2016 study, by subgroups.

GRAPH 17: *Results of the Roma students and the other students on the textual tasks*

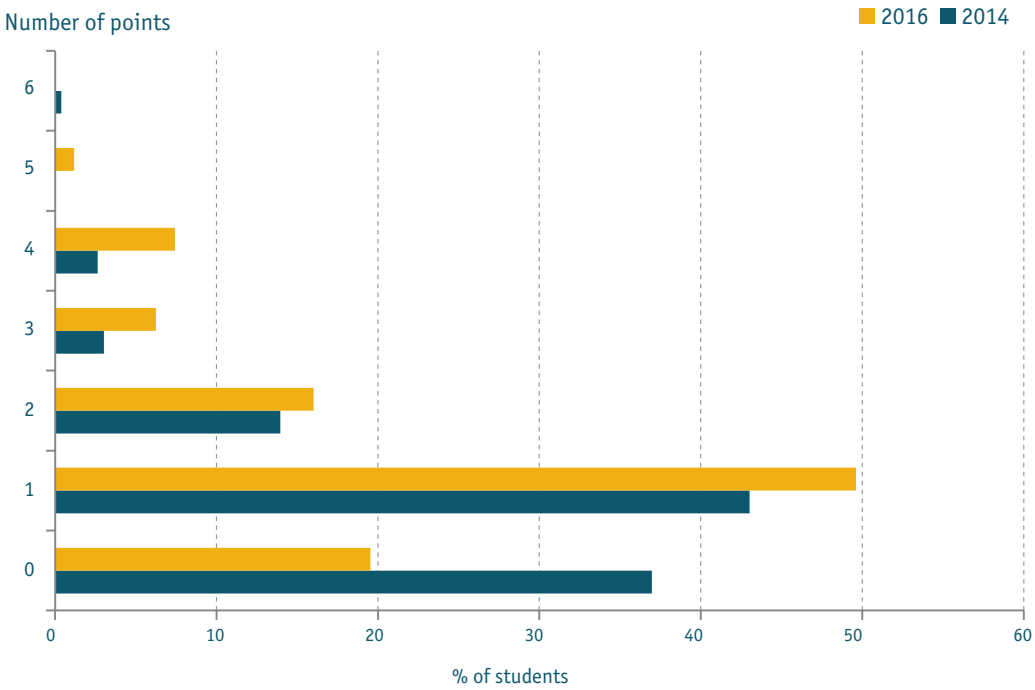


The analysis of the results in 2016 indicates the following:

- The result on the textual tasks is 17,4% among the Roma students – compared to the result on the tasks given only with numbers, numerical expression or represented graphically, it is significantly lower.
- Among the Roma students, the highest achieved result is 4 points (of the maximum 6) and it was achieved by only one student.
- The students of other ethnicities achieved significantly higher results on the textual tasks, compared to the Roma students. Their highest result is 5 points (by 3 students).
- The percentage of students who did not provide the correct answer for a single requirement is around 19%, for both subgroups of students.

The Graph 18 shows, in more detail, the results on this type of tasks for both studies.

GRAPH 18: *Results of the students on the textual tasks in 2014 and in 2016*



- Unlike 2014, the number of students with 0 points in 2016 is significantly lower (by 17,5 percentage points).
- The 2016 study has shown that no student has achieved the maximum 6 points, but in 2014 some students have achieved the maximum points.
- In both studies, the majority of students (almost half of the students) achieved 1 point.
- In the 2016 study, the percentage of students with 3 or more points is 14,8%, while in 2014 it was 6%.

The students' results were also analyzed according to the score on each of the textual tasks (Appendix F – 2), for both studies and for both subgroups of students.

Observed by tasks, the following could be concluded:

- In 2016, better results were achieved on three of the four textual tasks, compared to the results in 2014 (tasks where words are used to describe a situation with addition and/or multiplication of natural numbers; word problem with division and multiplication of natural numbers, which could be solved with or without an equation and a task for identifying a diagram that accurately presents a described situation with fractions).

- For one of the tasks (task where it is required to identify the greatest common divisor) the percentage of students who provided the correct answer has decreased.
- In 2016, both among the Roma students and the students of other ethnicities, there is an increase in the percentage of children who provided the correct answer for three of the tasks.
- Once again, the hardest problem to solve was the one where it was necessary to identify the greatest common divisor. In 2014, that problem was solved by 4% of the students and in 2016, only by 2% of the students.

The word problem is shown below.

TASK

In the flower shop "Violeta", there were 48 white flowers and 72 red flowers. The florist made equal bouquets from all the flowers, and each bouquet contained both red and white flowers.

How many bouquets did the florist make?

CONCLUSION

- In both studies, the students were more successful in solving the tasks given as numerical expression, with illustrations or graphically compared to the textual tasks.
- Among the Roma students, the average result of the tasks given only with numbers, numerical expression or represented graphically has insignificantly improved compared to the 2014 study, and lower achievements are observed among the students of other ethnicities.
- All students have achieved better results in solving textual tasks, compared to 2014.
- The difference is insignificant to conclude that the ability for reading comprehension of the Roma students influenced their success in solving textual tasks more than it influenced the other students.

1.2.2.2. Connection of the results in mathematics with specific socio-cultural variables

METHOD OF MEASURING

The data on the possible influences related to the family were collected with a questionnaire. The questionnaire consisted of 9 questions on:

- Parents' education and employment;
- Conditions for learning at home;
- Support from the family with learning mathematics;
- Language spoken by the students at home.

SOCIO-ECONOMIC STATUS OF THE PARENTS

The students' achievements in mathematics are often associated with the future of a country in terms of its economic power and competitiveness. Therefore, numerous national policy creators and educators are trying to understand and identify the factors that have a significant and consistent connection to the achievements in mathematics. The socio-economic status of the parents, presented by their education and employment, is one of the variables which are often included in the explanation of the percentage of variances in the students' achievements in mathematics (Cresswell & Ainley, 2006)[36].

Within the frames of the programme *Inclusive education for marginalized group,* data on the education and employment of the students' parents were collected in both studies.

As regards the data on the parents' education (shown in the table below), it can be observed that the students whose parents have a higher level of education and who are employed, achieve better results on the test in mathematics compared to the students whose parents have lower level of education. The parents of the Roma students, within the schools included in the Programme (in general as well) have significantly lower level of education and are mostly unemployed.

36 Marks, G. N., Cresswell, J. & Ainley, J. (2006). Explaining socioeconomic inequalities in student achievement. The role of home and school factors. Educational Research and Evaluation, 12(2), p. 105–128.

TABLE 48: *Results on the students' test according to the education of the parents*

EDUCATION OF THE PARENTS	COMPLETED 4TH GRADE	ЗАВРШЕНО VIII ОДДЕЛЕНИЕ	SECONDARY	HIGHER
	Average percent	Average percent	Average percent	Average percent
Mother	21,8%	30,6%	45,2%	44,5%
Father	18,9%	29%	41,3%	44,5%

- The average result of the students whose mother has completed only the fourth grade is 21,8%, compared to the 45,2% of the students whose mother has completed secondary education.
- The average of the students whose father has completed the fourth grade is 18,9%, compared to the 41,3% of the students whose father has completed secondary education.
- It can be observed that the average score is in correlation with the level of education up to completed secondary education.

The connection between the parents' employment and the students' results on the test show that there is a difference in the achievements of students of employed parents compared to the students whose parents are unemployed (the results are shown in the table):

TABLE 49: *Results on the student's test according to the employment of the parents*

EMPLOYMENT	EMPLOYED		UNEMPLOYED	
	Number of students	Average percent	Number of students	Average percent
Mother	111	40,6%	106	34,6%
Father	172	39,5%	44	32%

- The average result of the students whose mother is employed is 40,6 % and of the students whose mother is unemployed is 34,6%.
- The result of the students whose father is employed is 39,5%, compared to the test score of 32% of students whose father is unemployed.

SUPPORT FROM THE FAMILY

With reference to the correlation between the factor - support from the family and the achievements in mathematics, the students were asked to answer questions on: how often do the adults in the family help them with their homework and how often do they tell their family members about what they learned at school on the classes in mathematics.

TABLE 50: *Activities – support from the family and the achievements on the test in mathematics*

SUPPORT FROM THE FAMILY	2014		2016	
	Number of students	Average percent	Number of students	Average percent
The adults help them with their homework in mathematics				
Almost never	60	39,7%	62	41,8%
Sometimes	78	41,6%	79	40%
Often	49	36,6%	45	38,5%
They tell their family members what the learned at school, on the classes in mathematics				
Almost never	29	36,4%	27	34%
Sometimes	43	36,6%	52	40%
Often	119	41,5%	113	41,2%

The results given in the table above show the following for both studies:

- There is no significant difference in the achevement as to whether the students receive help with their homework from the adults in the family. The average score among the students who answered that the adults often help them with their homework is 38,5%, and among the students who do not get help from the adults, the test score is 41,8%.
- The result is not influenced as to whether the students share with the family members what they have learned on the classes in mathematics. The average result among the students who share what they have learned is 41,2%, and among the students who do not share is 34%.

HOME CONDITIONS FOR LEARNING

As regards the possession of resources which are related to the students' achievements (their own room, desk and internet), the data (shown in the table below) indicate that the students who own these resources have significantly greater achievements on the test in mathematics compared to those students who do not own them.

TABLE 51: *Resources for learning within the home*

RESOURCES	AVERAGE PERCENT	
	Нема	Има
Own room	30,3%	39,7%
Desk	29,9%	46,5%
Internet	30,2%	42,2%

The difference in the average score of the students who have their own room, desk and the students who have internet, compared to the students who do not have the mentioned resources for learning at home is between 9,4 and 16,7 percentage points.

KNOWLEDGE OF THE LANGUAGE OF INSTRUCTION

During the study, the students were asked about the language they speak at home, in order to compare whether the language spoken at home is adequate to the language of instruction (to Macedonian, i.e. Albanian language of instruction) and how it is related to the students' achievements.

The data show that the students who speak the Roma language at home (language which is different than the language of instruction) have lower achievements on the test in mathematics (33,1%), compared to the students who speak Macedonian language within their home (42,2%), but not compared to the students who speak Albanian language within the home (29,8%).

CONCLUSION

- The students whose parents have completed more than primary education have greater achievements, and the parents of the Roma students, compared to the others, mostly have primary education or lower level of education.
- At the level of the entire sample, the students whose mothers and fathers are employed have greater achievements compared to those students whose parents are not employed.
- The level of help from the adults in the home, with learning and with the homework is not related to the achievements in mathematics; however, the students who have their own room, desk and internet have greater achievements on the test in mathematics compared to the students who do not have the aforementioned resources.
- The students, who speak a language which is different than the language of instruction (Macedonian) within the home, have poorer achievements compared to the students who speak the language which is also the language of instruction.

2. UNDERSTANDING OF INCLUSIVE EDUCATION AND INCLUSIVE PRACTICES BY THE TEACHERS

The definition of the group of students with special educational needs (SEN) in the laws and policy documents on education in the former Yugoslav Republic of Macedonia is not harmonized with the latest definitions. Even though it is not explicitly defined, it is obvious that some of them[37] understand only the group A of the OECD operational definition which covers the following groups[38]:

- special educational needs resulting from intellectual or physical developmental disability
- learning difficulties due to socio-emotional and behavioural causes and
- special educational needs due to education disadvantages arising from socio-economic, cultural, and/or linguistic factors.

It is important for all participants in the education process to have accepted the broad definition of students with special education needs in order to provide an appropriate educational support to the Roma students (who often fall into the group of: special educational needs due to education disadvantages arising from socio-economic, cultural, and/or linguistic factors – from the abovementioned definition).

The teachers should possess the knowledge and competences in order to be able to recognize the special educational needs of the different groups of students and should possess the competences to successfully cater to them. It is important for the teachers to believe that all students can progress, and to take the responsibility and contribute to making the students use their potential and improve their achievements with adequate teaching approaches. Therefore, one of the objectives of the Programme was to influence the change of the sensitivity and views of the teachers towards the different groups of students

37 "In the country, the Law on primary education and the Law on secondary education use the phrase students with special needs who are included in special education (special schools or special classes within the primary schools); those are children and youths with visual impairement, hearing impairment, children with physical disability, intellectual disability, behavioural problems, children and youth with autism, as well as children and youths with combined disabilities (multihandicapped)". http://bro.gov.mk/?q=mk/obrazovanie-za-deca-so-posebni-potrebi

38 Students with Disabilities, Learning Difficulties and Disadvantages: Policies, Statistics and Indicators© OECD 2007, ISBN 978-92-64-02762-6, http://www.oecd.org/edu/school/40299703.pdf

with special educational needs, as well as the teaching practices for supporting those students.

The questionnaire for the teachers, for both studies (in 2014 and in 2016), covered the issue of their understanding of students with special educational needs and how do they cater to those needs. The content of the Questionnaire is presented in the description of instruments (in Part III of the report – Methodology). The answers of the teachers are presented comparatively for both studies, as regards the following:

- Understanding the group of students with special educational needs (and identification of the different types of educational needs of the students in their classes);
- The educational needs of the Roma students and the support that the teachers provide to them;
- The support needed for the teachers to better cater to the educational needs of the Roma students;
- Training and competences of the teachers for inclusive education;
- Understanding the different factors for successful learning and the abilities as a fixed or flexible category.

The data are shown quantitatively (as absolute values, percentages and arithmetic means) and qualitatively (through content analysis of the answers to the open-ended questions). The answers of all teachers are shown together and separately for the teachers who teach the third, i.e. the sixth grade. Whenever differences were statistically significant[39], they were discussed separately. The emphasis is on the comparison between the answers from the baseline study in 2014 and from the progress study in 2016, following the trainings and practicing the inclusive approaches in the schools for two years.

Considering the essence of the sample, which refers only to the seven schools, the answers can be generalized only at the level of these schools, but not at the level of the entire country. However, they could be a valid indicator of the needs related to the Programme for inclusion of marginalized children.

39 The differences are considered to be statistically significant if p>0.05

2.1. UNDERSTANDING THE GROUPS OF THE STUDENTS WITH SPECIAL EDUCATIONAL NEEDS AND IDENTIFICATION OF DIFFERENT TYPES OF EDUCATIONAL NEEDS

METHOD OF MEASURING

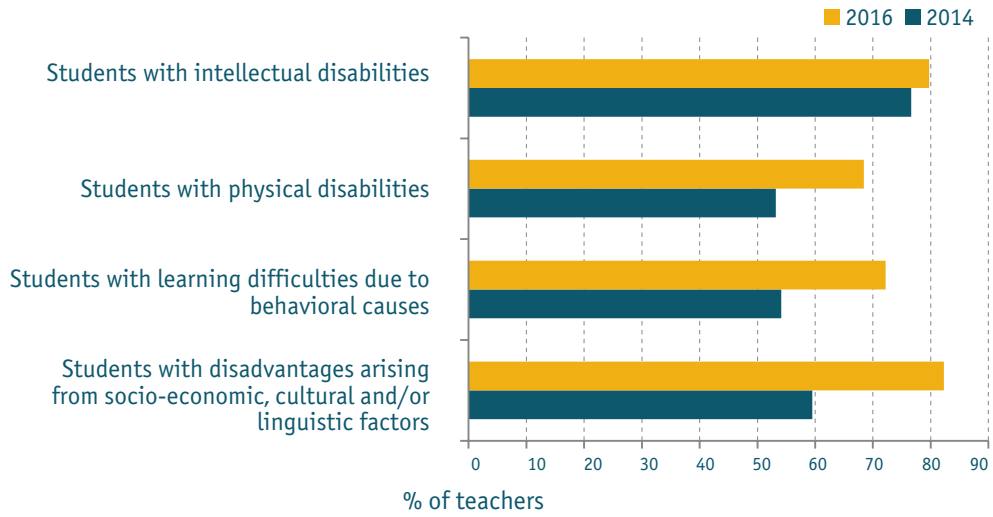
Four questions in the Questionnaire for teachers were used to determine how the teachers understand the students with special educational needs and the types of special educational needs they can identify. The questions referred to:

- The number of students with SEN in their classes in the third, i.e. the sixth grade;
- Understanding of the special educational needs;
- The opportunity for them to meets those needs

Mostly the same questions were used in 2014 and in 2016 in order to be able to effortlessly monitor the changes in both studies.

In order to find out the teachers' understanding who are the students with special educational needs, they were asked to select one or more of the four offered groups of students with special educational needs[40]. Their answers, both for the 2014 study and the 2016 study, are shown in the graph below.

GRAPH 19: *Students who according to the teachers, are students with special educational needs*



Remark: Multiple answers to the question were possible, and the percentages were calculated in relation to the total number of surveyed teachers – 111 in 2014, i.e. 79 in 2016..

40 The answers under 1 and 2 refer to category A of the abovementioned OECD definition, 3 to category B, and 4 to category C.

The following can be concluded from the data:

- Compared to 2014, the understanding of the teachers concerning the special educational needs of the students that do not arise from their intellectual disability has improved. There is a particular increase in the number of teachers who believe that the students with disadvantages arising from socio-economic, cultural and linguistic factors are students with special educational needs, and the Roma students are part of this group.
- The teachers do not have many dilemmas about the fact that the students with intellectual disabilities are students with special educational needs. However, 20% of the teachers did not mark this group as students with special educational needs.
- Slightly more than half of the surveyed teachers recognize the other groups of students with special educational needs.
- The percentage of teachers who believe that all mentioned groups are students with special educational needs has nearly doubled, which is adequate to the extensive OECD definition (in 2014 it was 23, 4% and in 2016, it is 51,9%).
- All four groups of students with SEN are commonly recognized by the teachers in the lower grades (60% of the respondents), compared to the subject teachers (40%).

The teachers were asked to write down how many students with special educational needs are in the third grade, i.e. the sixth grade. This question was not answered by 37% of the teachers (which could be an indicator that they do not know – which unlike the data on their rather good understanding of the different groups of students with SEN might indicate that their theoretical knowledge is not applicable in practice, at least not in identifying the students with SEN or that there are no such students in their classes). The teachers that answered the question (60% are teaching the lower grades, and 40% are subject teachers) have identified 127 such students in total, which is 6,2% of the total number of students in their classes in the third or in the sixth grade. The percentage of students with SEN, as regards the total number of students they are teaching, is between 1 and 49% among the different teachers. The detailed insight into the data shows that in different schools, the number of students with SEN in the classes is quite different. On the one hand, maybe it is the result

of understanding who is a student with SEN, but on the other hand, maybe it is a result of the different number of Roma students in the classes.

Every teacher answered the question about what was meant by special educational needs of their students. According to the answers, the special educational needs mostly arise from difficulties with memorizing, learning and concentration, disturbances in the behaviour of the students, difficulties arising from the socio-economic status of the students' families, and intellectual disabilities and communication difficulties. The answers of the teachers are similar in both studies: in 2014 and in 2016.

TABLE 52: *Reasons for concern with regard to the learning of specific students*

REASON FOR CONCERN	NUMBER OF STUDENTS BY CLASSES			
	2014		2016	
	3rd grade	6th grade	3rd grade	6th grade
Poverty	166	198	210	198
Negligence	123	121	49	91
Reasoning	122	115	36	62
Educational neglect	111	130	61	116
Inconsistent attention	134	136	80	92
Memorizing	97	158	59	136
Communication difficulties	69	62	58	62

The 2014 study has shown that the teachers are sensitive about the different needs of the children (if they are asked about the different causes for concern about their students). The teachers were asked to remember all students who were cause for concern during the school year and to indicate the cause[41]. The most common seven causes are the same in the 2016 study and are shown in the table below. The total number of students in the most frequent groups is bigger than the number of students with SEN (e.g. in 2016, the teachers answered that

41 The following 14 resons were given as an indication that the students have special educational needs: poverty, negligence, abuse, communication difficulties, hearing, vision, reasoning, emotional sensitivity, educational neglect, inconsistent attention, illness, disabilities, adaptation, memorizing. The list of causes was taken from Duncan Little and Ingrid Lewis, (2012), Introductory Guide for trainers, Training Modules on inclusive education for teachers, UNICEF fYR Macedonia.

there are 127 students with SEN in total, and 408 students who have learning difficulties arising from poverty), meaning that some of the causes for learning difficulties are not considered to be special educational needs by the teachers.

The first group of reasons for concern, mentioned by the teachers, is related to the situation in the family (poverty, negligence and emotional neglect) and mostly refer to the Roma students. The second group is related to the cognitive functioning and communication, and this group of causes are common among the sixth graders.

CONCLUSION

- Compared to 2014, the number of teachers who recognize all groups of students with SEN has doubled. However, half of the teachers do not recognize all groups of students with SEN.
- The special educational needs of the students, according to the teachers, mostly arise from causes related to the socio-economic status and the relationships in their families, followed by the causes related to the cognitive functioning.

2.2. MEETING THE SPECIAL EDUCATIONAL NEEDS OF THE STUDENTS

As per the abovementioned indicators, it can be concluded that the teachers can identify the difficulties that their students are facing, but they cannot always recognize that those students have needs which the teachers should cater to in a way. The following text will provide data on the degree to which the teachers, according to their own assessments, are successful in catering to the specific educational needs of the students.

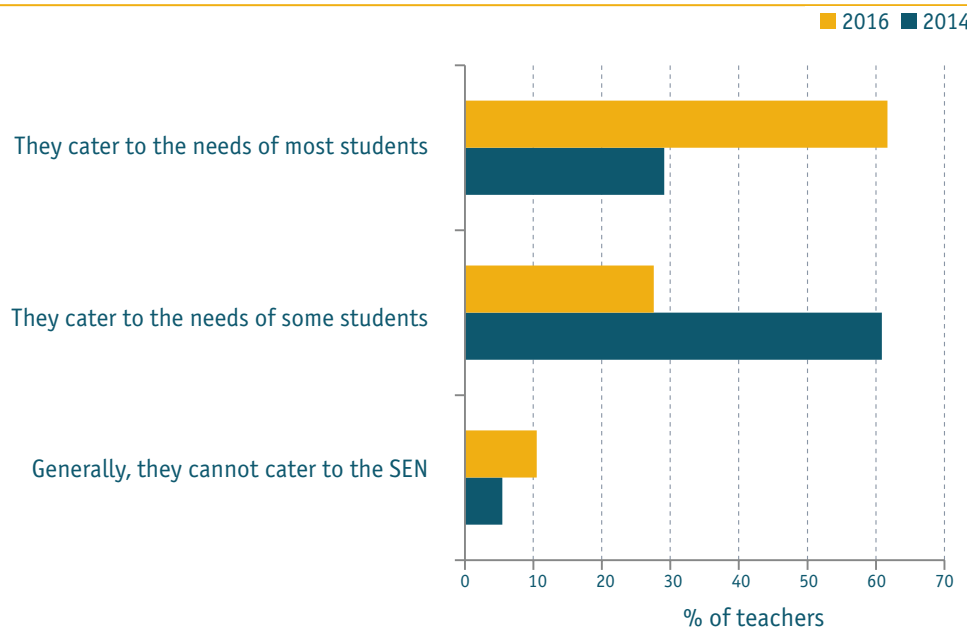
METHOD OF MEASUREMENT

In order to assess the situation related to the support that the teachers provide to the students with difficulties, they were asked to answer questions that referred to:

- How are they able to cater to the educational needs they have identified among the students;
- To what degree they are trained to work with different groups of students with special educational needs;
- To what degree they possess the basic professional competences for inclusive education.

The majority of teachers believe that they cater to most students with special educational needs. Compared to 2014, their number is twice as large, but there is an increase of 5 percentage points among the teachers who believe that they generally cannot cater to the special educational needs. Those changes might be due to their newly acquired knowledge and views, which are a result of the received trainings.

GRAPH 20: *Self-assessment of the teachers for catering to the needs of the students with SEN*



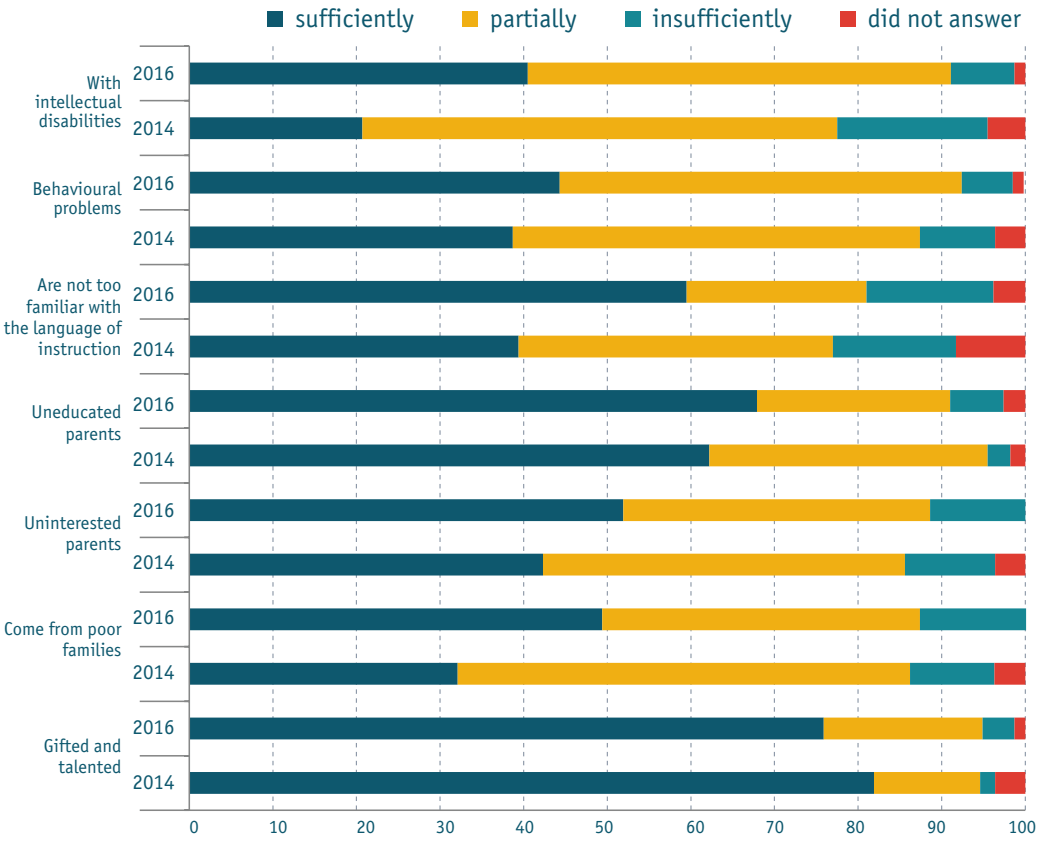
The teachers from the lower grades, compared to the subject teachers, believe to a greater degree that they can cater to the needs of most students (67% opposite 56%). In 2014, there were no differences.

The answers of the teachers are in accordance with their perception regarding the degree to which they are trained to work with students with different educational needs, which is shown in the graph below.

In the 2014 study, the majority of the teachers believed that they are partially or insufficiently trained to work with almost all groups of students who (may) encounter learning difficulties, except with the students who come from families where the parents are barely educated. They feel least trained to work with students with intellectual disabilities, and believe they are mostly trained to work with gifted and talented students.

According to the data presented in the graph below, the situation has changed in 2016 and so there is an increase in the number of teachers who believe they are sufficiently prepared to work with all groups of students, except with the gifted students. One of the primary objectives of the Programme was for the teachers to be trained to work with students with different educational needs. Therefore, this change is probably a result of the attended trainings.

GRAPH 21: *Self-assessment of the teachers on their training to work with separate groups of students with SEN*

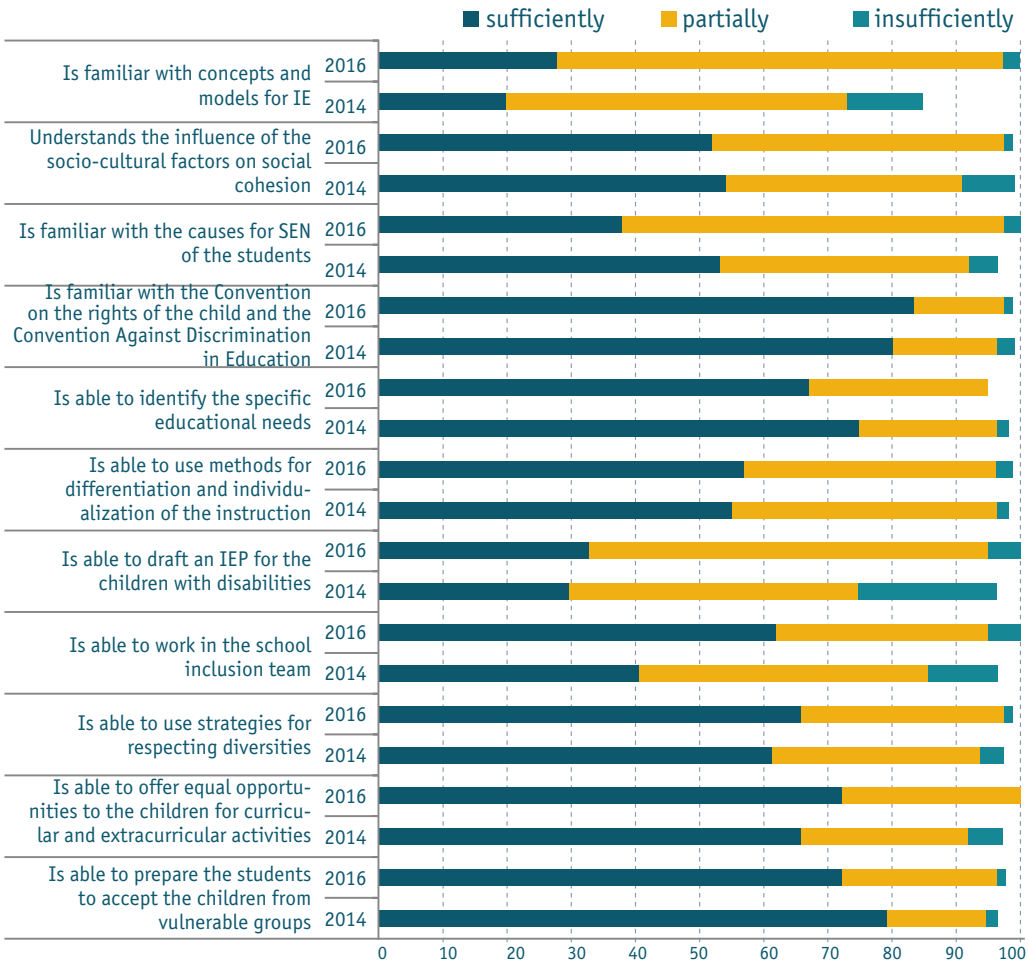


Same as in the 2014 study, there are no differences in the self-assessment of the training of the teachers from the lower grades and the subject teachers, except for the fact that the subject teachers believe they are less trained to work with students with behavioural problems.

The teachers should possess adequate competences to successfully work with the students with special educational needs. The trainings which were organized within the frames of the Programme had the objective to improve some of the competences for working with students with SEN. In both studies, the teachers were asked to assess to what extent they possess the competences for inclusive education from the Catalogue of basic professional teachers' competences[42]. Their answers are shown in graph 22 (for some of the competences the teachers did not provide an answer, so the percentage is less than 100).

42 See: Basic professional teachers' competences – MCEC, 2016. http://bro.gov.mk/docs/USAID/MKD/01%200snovni%20profesionalni%20kompetencii%20i%20standardi%20za%20nastavnici.pdf The working version from 2014 was used in both studies.

GRAPH 22: *Self-assessment of the possession of competences for inclusive education*



More than half of the teachers answered that they possess all mentioned competences to an acceptable extent, except knowing the different models and concepts for inclusive education, knowing the causes for SEN and drafting of individual educational plans. They believe they are most competent for preparing the other students to accept the children from vulnerable groups and for identifying the students with special educational needs and believe they are familiar with the Convention on the Rights of the Child and the Convention Against Discrimination in Education. Compared to the self-assessment of the competences in 2014 – there are almost no differences. There is only a significant increase in the number of teachers who answered that they are able to work in a school inclusion team, and the number of teachers who know the causes for the special educational needs has decreased.

In 2016, there are no significant differences between the self-assessments of the teachers in the lower grades and the subject teachers.

Compared to 2016, the answers of the teachers about their own competences and the answers about to what extent they are prepared and can cater to the different groups of students with special educational needs are more consistent. It is probably due to the attended trainings in the Programme, which contributed to a better understanding of the entire issue of working with students with special educational needs, as well as more realistic assessment of their own competences for inclusive education. Specifically, 83% of the teachers (93% of the teachers in the lower grades and 71% of the subject teachers) attended trainings in inclusive education, unlike 2014, when 80% of the teachers answered that they have not attended trainings in inclusive education or in working with students with SEN. Around 95% of the trainings they mentioned are within the programme *Inclusion of marginalized children*. In addition, 95% of the teachers in the lower grades and nearly 60% of the subject teachers attended trainings in formative assessment[43].

The majority of the teachers attended the basic trainings in the Programme, but almost three quarters of the teachers are interested in attending other trainings in inclusive education. Often they are interested in training for working with children with intellectual disabilities, and the teachers from the lower grades are also interested in training for working with children with ADHD and development an IEP[44]. In 2014, the number of topics they were interested in was more diverse, but even then the work with students with intellectual disabilities was the most mentioned topic. It can be concluded, from this comparison, that many of the topics the teachers were interested in, are probably covered with the trainings they already attended.

43 The training module for formative assessment for the lower grades included the assessment of children with learning difficulties, while the subject teachers attended trainings in formative assessment within the USAID primary education project SEN (2006–2011).

44 The majority of teachers, who answered that they are interested in trainings, did not mention the topic of interest.

CONCLUSION

- The majority of teachers believe that they cater to most students with special educational needs. Compared to 2014; the number is almost twice as high.
- The number of teachers who believe they are trained to work with almost all groups of students who (may) encounter learning difficulties, has increased.
- Same as in 2014, more than a half of the teachers believe that they possess, to a sufficient extent, most competences for inclusive education. The self-assessments of having competences for working in a school inclusion team have improved significantly.
- The majority of the teachers (83%) attended trainings in inclusive education, but more than 70% of the teachers are still interested in attending such trainings.

2.3. MEETING THE EDUCATIONAL NEEDS OF THE ROMA STUDENTS

The majority (76%) of the surveyed teachers teach Roma students. The 55 teachers that answer the question, teach between 1 student and 103 students from Roma ethnicity. The surveyed teachers teach the total number of 1038 Roma students.

The question: Do the Roma students in your classes are facing with learning difficulties? – was answered by more than a third of the teachers (38%), that only a small number of students encounter difficulties. Less than a third of the teachers (30%) believe that the majority of their Roma students have learning difficulties, 20% believe that they do not have difficulties, and around 10% of the teachers failed to answer this question or answered that they have no knowledge. Compared to 2014, the number of teachers who believe that the majority of their Roma students have difficulties has decreased.

The percentage of teachers who believe that the majority of their Roma students are facing with learning difficulties is twice as high among the teachers from the 6th grade compared to the teachers who teach the 3rd grade. The situation was similar in the baseline study. This emphasizes the seriousness of the situation

- rather than overcoming through education the students' learning difficulties related to their socio-economic background, they are increasing[45].

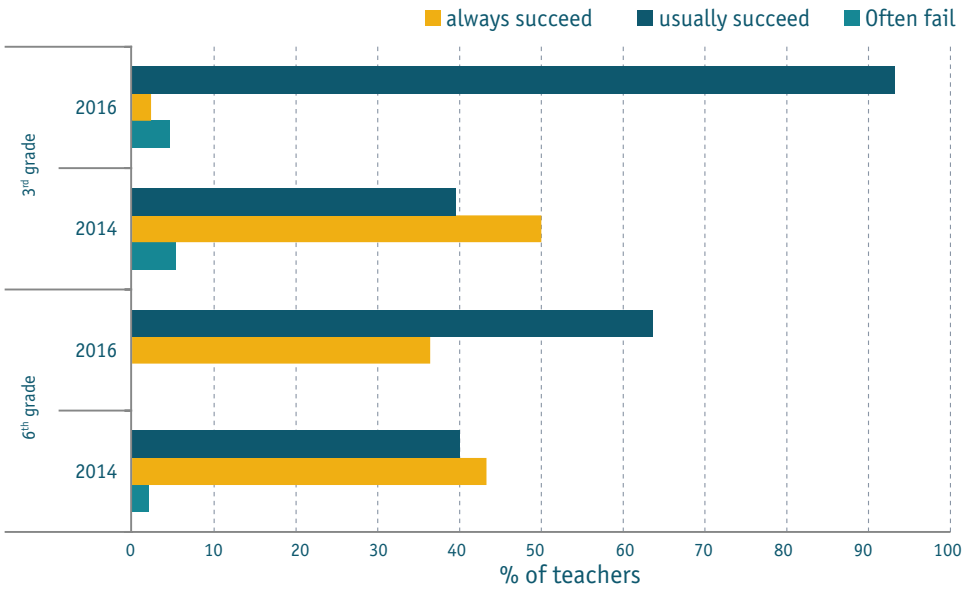
Regarding the question about the type of difficulties their Roma students encounter, both the teachers from the lower grades and the subject teachers often mention the difficulties in cognitive functioning (memorizing, concentration, understanding), difficulties in learning the teaching content, including learning the language of instruction, difficulties arising from the social background (poverty, not having the conditions for learning, illiteracy of the parents), followed by irregular attendance on the classes and lack of interest of the parents about their child's learning. The subject teachers mentioned the poor prior knowledge of the students and the most common difficulties are: literacy, expression and not being familiar with the language of instruction. Small number of teachers believe that the learning difficulties of the Roma students are a result of some other causes, as educational neglect and challenging behaviour.

As regards the question - to what degree they are able to offer the necessary support to their Roma students, almost all teachers (97%) believe that they always or usually succeed in offering those students support. Their number has increased by 7 percentage points, compared to the answers on the same question in 2014. There is a particular increase in the number of teachers who assessed that they always provide the necessary support.

The teachers in the lower grades, compared to the subject teachers, often answered that they always provide the necessary support to their Roma students. Compared to 2014, there are no differences among the teachers in the lowers grades and subject teachers in relation to the self-assessment of the extent to which they succeed in offering learning support to these students.

45 This type of data were obtained through other studies as well, e.g.:
- Havelka, N. and assoc.: The effects of elementary education, Belgrade: Institute of Psychology, 1990
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: a meta-analytic review of research. Journal of Educational Research, 75, p. 436, http://steinhardt.nyu.edu/scmsAdmin/media/users/lec321/Sirin_Articles/Sirin_2005.pdf
- Willms, J. D. (2006). Learning Divides: ten policy questions about the performance and equity of schools and schooling systems, UNESCO Institute for statistic p.67, http://unesdoc.unesco.org/images/0014/001470/147066e.pdf

GRAPH 23: *Self-assessment of the level of success in providing the necessary support to the Roma students with learning difficulties*

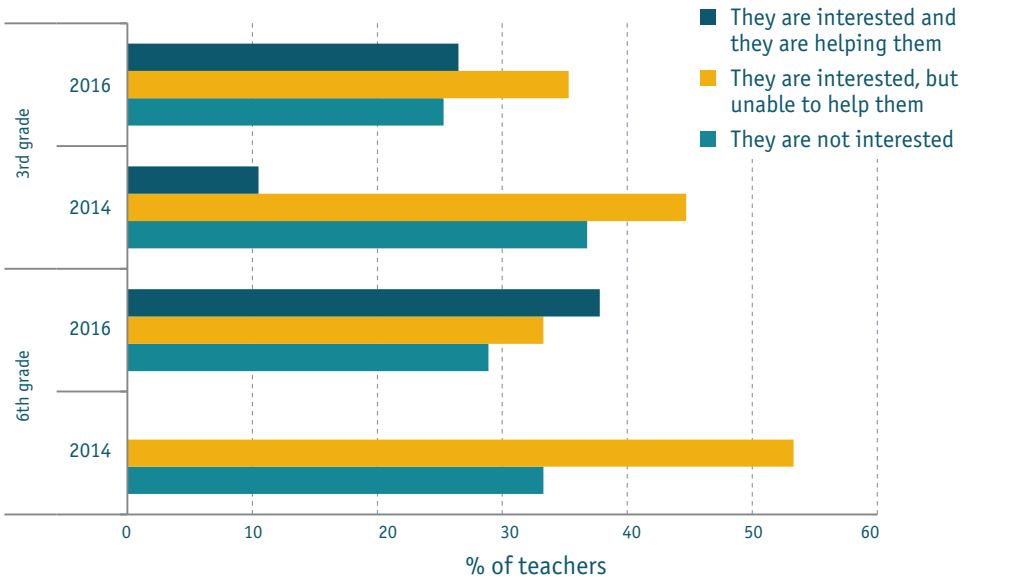


The subject teachers, as reasons for failing to cater to the needs of Roma students, often mention the lack of collaboration and support from the parents and the lack of interest among the students (6 teachers), and that they do not have enough time to work with these students due to the large number of students in the class (4 teachers). Almost all teachers in the lower grades believe that they provide the necessary support to the students, so they did not provide an answer to this question.

Regarding the question: To what extent are the parents of the Roma students interested in their children's learning?, one third of the teachers believe that the parents of their Roma students are interested in the children's learning and do as much as they can/know to help them with their learning; almost the same number of teachers believe that they are interested, but are unable to help them; and one third of the teachers believe that the parents are not interested in their children's learning.

Compared to 2014, there is a significant improvement in the perception of the teachers in the 3rd and in the 6th grade regarding the interest of the parents, or the situation has changed and they have motivated the parents to show greater interest in their children's learning and help them.

GRAPH 24: *Teachers' opinions about the interest of the Roma parents in their children's learning*

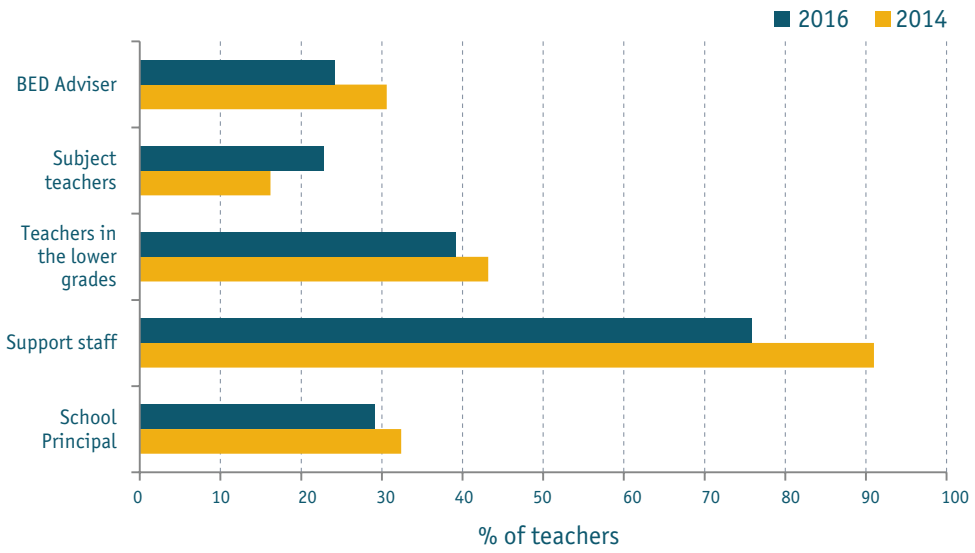


Regarding the question: What could the school do, so the students of Roma ethnicity can complete primary education with success and enrol in high school?, 64% of the teachers believe that the school can do many things, and the others believe that it cannot do much and it all depends on the children and the parents. Compared to 2014, there is an increase of 20 percentage points among the teachers who believe that the school can do many things. This change of the viewpoint is probably a result of the trainings and the experience from the Programme. It is interesting that the optimism regarding the school's possibilities for supporting the Roma students in completing primary education is greater among the subject teachers.

The teachers were asked if the work of the school has improved as regards the education of the Roma students and the students with SEN, ever since the school was included in the Programme. The question was answered by 69% of the teachers in the lower grades and 32% of the subject teachers. The teachers in the lower grades revealed that the collaboration with the support staff has improved, particularly with the special education teacher and with the social worker; the school also provided working tools and clothes for the students and the self-confidence, socialization and the success of the students have increased. The subject teachers rarely revealed specific changes in the school and they often refer to identifying the students with SEN and drafting the individual plans for working with those students.

If they need support for their work with the Roma students, the majority of the teachers (76%) lean on the help from the support staff, and a significantly smaller number expect the support from their teaching colleagues, the school principal or the BED advisers. Compared to 2014, the expectations to receive support from everyone have somewhat diminished, except as regards the subject teachers. Mostly the subject teachers are the ones who hope to get the support from their colleagues subject teachers (41%), but only a small number of the teachers in the lower grades (9%).

GRAPH 25: *The support in working with Roma students that is expected by the teachers*



As an answer to the question: What is important to consider when planning activities related to the education of Roma students as part of the UNICEF supported Programme?, the most common suggestion of the teachers (same as in 2014) is to include and educate the parents, as well as to pay attention to their specific social and family situation. It is also the most common suggestion of the school principals. Moreover, the suggestion of the sixth grade teachers was to find ways for a greater collaboration with the support services in the schools and with the competent institutions.

CONCLUSION

- The teachers who teach the Roma students believe that the majority or some of the students encounter learning difficulties (more often the teachers who teach the 6th grade than the teachers in the 3rd grade). Compared to 2014, the number of teachers who believe that many of their Roma students encounter learning difficulties has decreased.
- According to the teachers from the lower grades, the learning difficulties of their Roma students are often linked to cognitive functioning and social background, and according to the subject teachers, they are also linked to the mistakes in the prior learning.
- Almost all teachers, particularly those in the lower grades, assess that they generally provide the necessary support to these students.
- Compared to 2014, there is a significant improvement of the perception (or the situation has changed) of the interest of the parents of the Roma students in their children's learning and the support they provide.
- The majority of the teachers believe that the school can do many things so the Roma students can successfully complete primary education and enrol in secondary education (in 2014, more than half of the teachers believed that the school is unable to do much).
- When working with Roma students, who need help with their learning, the teachers generally expect support from the support staff.
- Ever since their schools were included in the programme Inclusive education of marginalized students, the teachers believe that these are the most frequent positive changes: improved collaboration with the support staff, improved identification of the students with SEN and drafting plans for working with those students, provided teaching tools and increased self-confidence, socialization and success.
- Same as in 2014, the teachers often suggested for the programme Inclusive education of marginalized students, regarding the education of Roma students, to plan activities for collaboration and education of the families, to provide material support to the families and to provide collaboration with the competent services and institutions.

2.4. THE UNDERSTANDING OF THE TEACHERS RELATED TO THE FACTORS FOR SUCCESSFUL LEARNING AND TO THE FLEXIBILITY /INFLEXIBILITY OF MINDSET

The researches[46] have shown that the understanding of the teachers related to the factors for successful learning, determines the manner in which the teachers will motivate the students to a large extent. In this regard, in recent times, the theory of Carol Dweck caused a great interest and it is related to the teachers' understanding of intelligence, whether it is fixed or it could be developed. According to this theory the people with a fixed/static mindset believe that their abilities, as are intelligence or talent, are fixed, inflexible features. In situations of learning at school, they tend to worry about proving intelligence, i.e. talent, rather than improving them, which requires efforts. Therefore, they avoid the problems for which they think they lack the ability to solve/do or the tasks that require effort and may lead to failure, which would change the opinion about their intelligence. On the other hand, the people with a flexible mindset that can be changed, believe that intelligence and talent can be developed if they are dedicated and work hard and therefore accept the hard tasks, make efforts, are not afraid of mistakes and accept that they can learn from their mistakes, and that approach results in greater success.

It is considered that the teachers' understanding related to the fixed or growth nature of intelligence determines their working method with the students. If they believe that "the student can only do as much", they will not give him/her tasks which are challenging and will not provide him/her with the adequate support using feedback. It is also considered that if the teacher's feedback is directed towards the students' abilities, it will lead to the development of a fixed mindset among the students, and if it is directed towards the made efforts and using the mistakes to change the approach to the task, it will lead to the creation of a flexible mindset and better success.

In Macedonia there aren't any research and experience in using this education theory[47], although there are numerous trainings in formative assessment that

46 Carol S. Dweck, Gregory M. Walton, & Geoffrey L. Cohen, Academic Tenacity: Mindsets and Skills that Promote Long-Term Learning http://web.stanford.edu/~gwalton/home/Welcome_files/DweckWaltonCohen_2014.pdf

47 Ana Mickovska Raleva (2010), Teachers' implicit theories of pupils' intelligence and motivation: a comparative analysis between Macedonian and English teachers. - Skopje: Center for research and

lead to approaches that are adequate for the development of a flexible mindset[48], even though it was not their direct intention.

Other research shows that formative assessment had the biggest influence on improving the success of the students with learning difficulties[49]. Bearing in mind these findings, the trainings in formative assessment were conducted as a special activity in the Programme with an emphasis on the assessment of the students with learning difficulties[50], and the development of a flexible mindset among the students was encouraged. In that regard, the opinions of the teachers were tested on the degree to which specific factors are considered important for successful learning, as well as their opinions on the flexibility/inflexibility of intelligence and qualities of the person.

The teachers were asked about the degree to which different factors are important for the students to learn successfully. As an answer, they had to write down the importance of the following factors in percentages: innate abilities/ intelligence; work/engagement; social/cultural background, and they were also allowed to add some other factor. The teachers' answers about the importance of every mentioned factor were very heterogeneous and between 0% and 80%. The teachers, on average, believe that intelligence and engagement are equally important to successful learning, and the social background is less important.

The graph below shows the teachers' answers from the 2014 and 2016 study, according to the level of importance which is given to separate factors (level 1 means that greatest importance is given to the adequate factor, level 2 means it is second in value, and level 3 means that it is the least important factor of the three offered).

It can be observed that the number of teachers who consider intelligence as most important factor for successful learning has decreased, and also the significance given to the socio-cultural background was reduced. There are no changes regarding the level that the teachers award to engagement. It continues to be the highest level factor for successful learning. This change could be a result of the trainings in working with marginalized students.

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policy making.

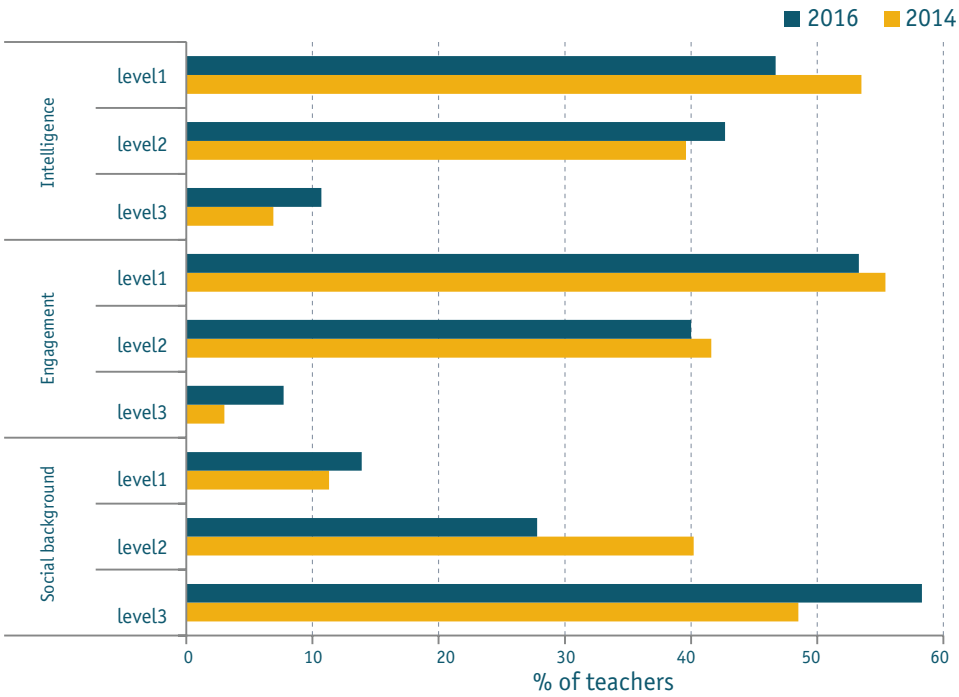
48 Shiel Jary, D. Marchan, K. Poposki, G. Mickovska, (2008), Implementation of the Assessment standards – training materials, USAID Primary Education Project.

49 Black P. Harrison, c., Lee C., Marshal B. & Wiliam D., (2003), Assessment for Learning - Putting it into practice, Buckingham, Open University Press.

50 Mickovska G., Tasevska A., (2015), Formative assessment in the lower grades – Handbook, Bureau for Education Development, Skopje.
Mickovska G., Tasevska A., (2015), Formative assessment of the students with learning difficulties – Addendum to the Handbook on formative assessment in the lower grades, Bureau for Education Development, Skopje.

Unlike the previous study, when the majority of the teachers from the lower grades considered intelligence as the most important factor and the majority of the subject teachers placed engagement as the most important factor for successful learning, there aren't any significant differences in the 2016 study – engagement is the most important factor for both groups of respondents.

GRAPH 26: *Ranking of specific factors for successful learning*



The teachers' understanding of the flexibility/inflexibility of abilities was measured on a scale of attitudes[51]. The scale was adapted and standardized to a sample of teachers from the schools included in the Programme.

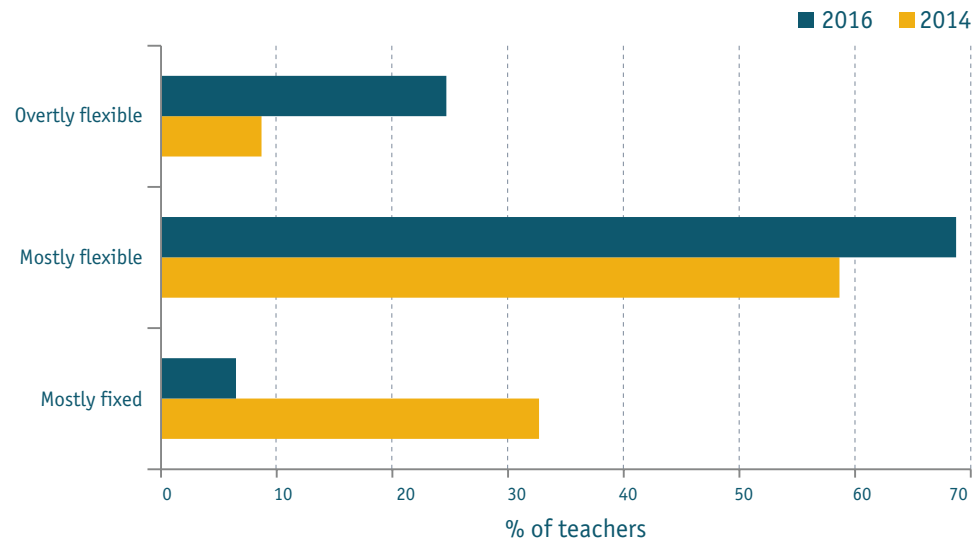
According to the answers on the scale, the respondents are grouped in four groups:

1. strongly flexible mindset – strongly believe that the abilities may be developed;
2. mostly flexible mindset - believe that the abilities may be developed;
3. mostly fixed/static mindset - believe that the abilities are inflexible;
4. strongly fixed/static mindset – strongly believe that abilities are inflexible.

51 The scale was taken from http://www.classroom20.com/forum/topics/motivating-students-with,

The comparative data on the teachers, according to the mindset, are shown in the graph below.

GRAPH 27: *Percentage of teachers according to the understanding of nature of intelligence*



More than two thirds of the teachers (68%) have a mostly flexible mindset and about 25% have overtly/strongly flexible mindset, i.e. they believe that intelligence can be developed. Only 6,5% of the teachers believe that intelligence is mostly static. There are no statistically significant differences between the teachers in the lower grades and subject teachers regarding the understanding of the nature of abilities.

From the comparison of the teachers' answers, on the mindset scale for both measurements, it is apparent that in 2016 the teachers manifested a more flexible mindset, they are more inclined to believe that intelligence can be developed, which is a favourable precondition for providing adequate support to the students with learning difficulties.

CONCLUSION

- The majority of teachers believe that engagement is the most important factor for successful learning. Compared to 2014, the number of teachers, who awarded great importance to socio-cultural background, has decreased.
- The majority of the teachers believe that intelligence and the qualities of the person can mostly be changed, if an effort is made. Compared to 2014, their number has significantly increased.

3. INCLUSIVE POLICIES AND PRACTICES AT THE SCHOOLS

For measuring the effects of the Programme, more specifically for confirming the changes as regards the inclusiveness of the schools, a Questionnaire for self-assessment of the inclusiveness was used in 2016, same as in 2014.

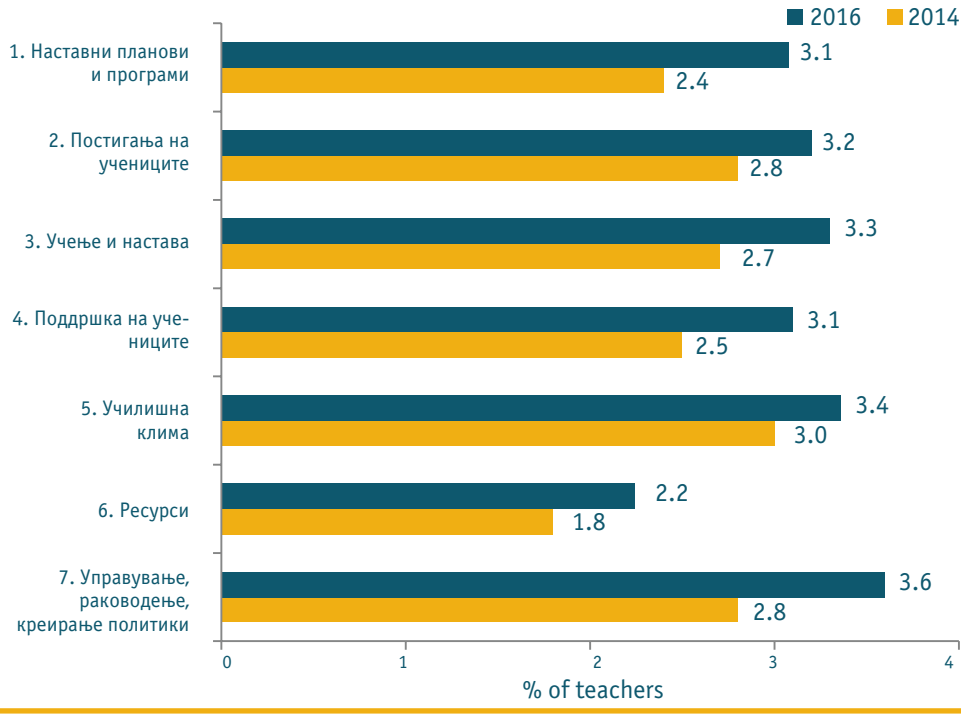
The Questionnaire consists of a set of 127 indicators of inclusive policy and practice at the school. The indicators were grouped in the following seven domains: Teaching plans and curricula; Students' achievements; Learning and teaching; Supporting the students; School climate and relationships within the school; Resources; and Administration, management and policy creation.

The degree of presence of each indicator in the school was indicated on a 4-degree scale: 1 marks the lowest level – still not present, 2 – partially present, 3 – present to a significant degree, and 4 is the highest level of presence.

The graph below shows the average assessments of the inclusiveness of the schools for each of the domains and for both measurements.

The data on the average assessment of each indicator are given separately in Appendix G.

GRAPH 28: *Average self-assessment of the schools of the level of inclusiveness in the different domains of the school in 2014 and in 2016*



The data show that the schools maintain the trend of assessing highly their own inclusive policy in most domains. The average self-assessments are above the arithmetic average value and the values for all seven domains in 2016 are higher than the ones in 2014 (the increase is between 0,4 to 0,8 units on the scale 0 – 4).

The schools gave the most negative assessment (the average of 2.2) to the availability of material and human resources for inclusive education. In this domain the self-assessments vary from school to school and are between 1,4 to 4.

Almost every school has a rather positive self-assessment in relation to: Administration, management and policy creation (the average of 3,6). This indicates that the schools pay attention to the inclusion and conduct a policy against discrimination on any grounds. This positive change, compared to the 2014 study, is a result of the support that the schools received for the last two years regarding the drafting of the school inclusion plan (structured in three sections: our school, we and the local community, we and inclusive education), the training of all school employees, as well as the establishment of inclusion teams. The favourable situation in this domain should be used to improve the creation of school policies and practice, which will enable all children to take part in the school and out-of-school activities (within the domain School climate) where the self-assessment of the schools is quite low (2,7).

3.1. SELF-ASSESSMENT OF INCLUSIVE PRACTICES IN THE DIFFERENT DOMAINS

In order to obtain a more detailed review of the situation with inclusive policies and practices in the schools and the change that occurred between the two studies, what follows is a presentation of the school self-assessments for each of the seven domains. The data are presented comparatively for each domain – from the progress study in 2016 and from the baseline study in 2014.

DOMAIN 1. Teaching plans and curricula

There are 3 individual subdomains within the domain - Teaching plans and curricula

Subdomain 1. *The planning models used in the school focus on students' needs and enable planning of differentiated instruction*

Seven indicators are defined, which refer to the differentiated planning of the teaching work and materials, planning adjustment in line with the previous

achievements, planning of various activities which enable interaction and support among students, freedom of the teachers to modify the planning, and mutual support for planning the inclusion of the marginalized students.

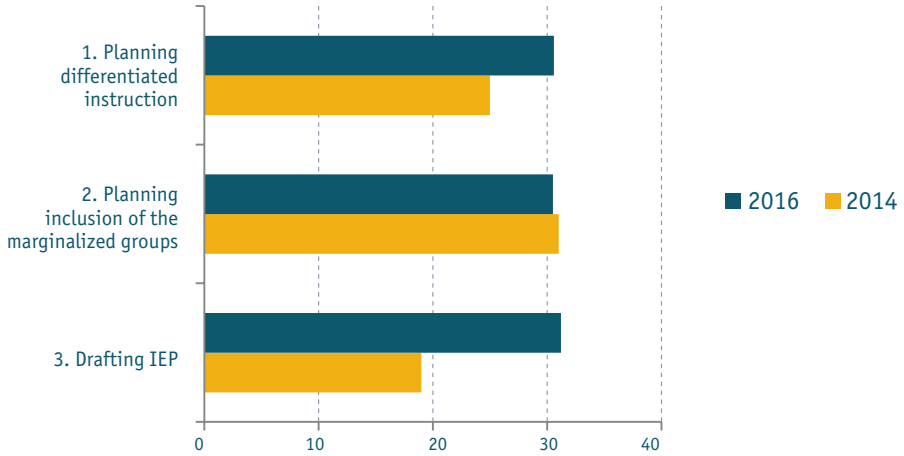
Subdomain 2. *The planning enables inclusion of the marginalized students*

The three indicators refer to the equal distribution of students from marginalized groups in classes, planning of materials and realization of activities which take into account the linguistic and cultural differences among the students and the opportunity to learn the subject: Roma language and culture.

Subdomain 3*. Individual educational plans (IEP) are drafted for children with developmental difficulties.*

The indicators refer to the method of drafting the IEP (for all children with developmental difficulties, based on the previous achievements, joint and extracurricular activities, with real and measurable objectives and previously planned monitoring procedures), involvement of the parents and consideration of the students' socio-cultural background.

GRAPH 29: *Self-assessment of the level of adjustment of the teaching plans and curricula in 2014 and in 2016*



The data in this domain directly indicate the positive influence of the programme activities in the schools. This is particularly visible for the sub-domain: Drafting Individual Educational Plans (IEP). Compared to 2014, the schools have assessed that in 2016 they are prepared and draft the IEPs for the students with disabilities as a team.

The self-assessments of the schools in relation to the acquired knowledge and skills to draft planning models that focus on students' needs and enable planning of differentiated instruction is more positive.

It is indicative that there aren't any changes in the planning of the inclusion of the marginalized groups. It seems that the schools focused on the students with disabilities and during this period they were not dedicated to the inclusion of marginalized students, a group where the majority of Roma students belong.

DOMAIN 2. Students' achievements

The indicators in the domain – Students' achievements are grouped in four subdomains.

Subdomain 1. *Provided coverage of all students from socially vulnerable groups.*

The seven indicators in this subdomain refer to the coverage and attendance of the Roma students, their inclusion in the extracurricular activities and coverage of the students with disabilities in the regular instruction.

Subdomain 2*. The school systematically identifies students from socially marginalized groups and provides them with support according to their special educational needs.*

These indicators refer to the identification and provision of differentiated teaching approaches and support for the students that encounter learning difficulties.

Subdomain 3. *The teachers treat all children (regardless of their background and abilities) in a way which reflects the belief that they may learn and can learn.*

The seven indicators of this subdomain refer to accepting responsibility for the achievements both by the teachers and by the students, sharing the beliefs that all students may progress, creation of co-curricular and extra-curricular situations where the students from marginalized groups will succeed and prevent different types of learning stereotypes attached to marginalized students.

Subdomain 4. *All students achieve maximum results in line with their potential.*

There are 10 indicators in this subdomain related to the records, analysis of the achievements of the marginalized students, measures undertaken for their improvement, progress of the Roma students and reducing the differences in their achievements in relation to the other students.

GRAPH 30: *Self-assessment of the level of inclusiveness in the domain: Students' achievements in 2014 and in 2016*

Improvement within all subdomains can be observed. The greatest improvement of 0,6 is within the subdomain of: Identifying and supporting the students from marginalized groups. The positive issue, after two years of implementation of the Programme, is that the schools began to understand the term "students with special educational needs" in a broader sense and implement an adjusted instruction, individual activities and additional classes for those students.

An increase of 0,5 can be observed in the subdomain of: The teachers believe that all children may learn and can learn. This is particularly important to emphasize as a benefit of the programme activities after two years so that the teachers can become aware that they are the ones who are crucial for the acceptance and learning of the students in the school.

According to the self-assessment in the subdomain of: The students have maximum achievements corresponding to their potential observed by indicators (Appendix G), particularly the indicators which refer to the improvement of the learning of the Roma students - the situation has improved even though it is still lower compared to the other indicators.

When analysed separately, the lowest are the indicators that refer to the coverage and attendance of Roma students, as well as the students with developmental disabilities, who are transferred to special schools during the school year.

DOMAIN 3. Learning and teaching

In the domain – Learning and teaching, the indicators are grouped in three subdomains:

Subdomain 1. *The school has prepared, in advance, the mechanisms for assisting teachers, parents and children in joint work to identify and help the students with special educational needs.*

The six indicators in this subdomain refer to the procedures and involvement of the educational staff in catering to the special educational needs, including the support for the students who are not educated in their mother tongue and advising for the further professional orientation of the marginalized students.

Subdomain 2. *The teachers adapt the curriculum, the lessons and the school activities to the needs of the children of different abilities and background.*

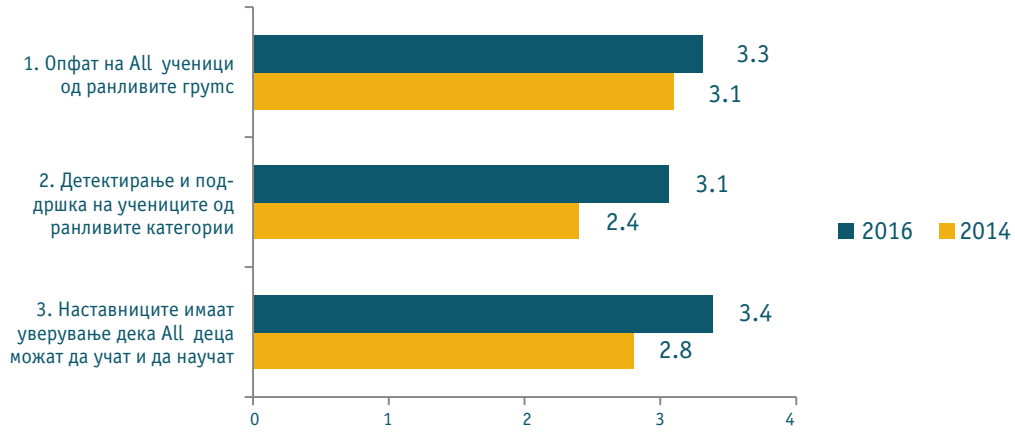
There are nine indicators in this subdomain and they refer to the adjustment of the contents and activities to the needs of the students with different abilities and background, individualization of teaching, provision of appropriate materials, and collaboration with relevant institutions for support of the specific needs and of the interethnic integrated education.

Subdomain 3. *The school has a developed system of diagnostic, formative and summative assessment of the students with special educational needs.*

The eight indicators refer to the different aspects of formative assessment, criteria for summative assessment, assessment of the students who are supported based on IEP and information for the parents about the students' learning.

The graph below shows the self-assessments of each of the mentioned subdomains.

GRAPH 31: *Self-assessment of the level of inclusion in the learning and teaching process in 2014 and in 2016*



Unlike the 2014 study, when the data indicated a better situation in terms of establishment of mechanisms and policies, and a quite worse situation in terms of the application of inclusive practices in the schools, the data from 2016 indicate that the situation, as regards the inclusive practices, has improved. The self-assessments of the schools show that the teachers began adapting the curriculum and school and out-of-school activities to the needs of the students of different background and abilities.

The best self-assessments of the schools refer to the system of identifying, formative and summative assessment of the students with special educational needs, which is probably because they started applying the knowledge that was acquired on the trainings in assessment of students with learning difficulties.

The need to provide/adapt adequate number of learning materials for the children who work according to IEP is still a challenge for the schools.

DOMAIN 4. Support to students

Two subdomains are identified in the fourth domain, which are explicitly related to support to students.

Subdomain 1. *The school modifies and adjusts its policy and practice in order to enable ALL children, (regardless of their background and abilities) to participate in the school and out-of-school activities.*

Seven indicators are defined and refer to the adjustment of the physical conditions in the school to the students' needs in terms of the school's accessibility and equipping classrooms with the proper supplies. Moreover, there are indicators for assessing the school collaboration with the parents, the resource centres and

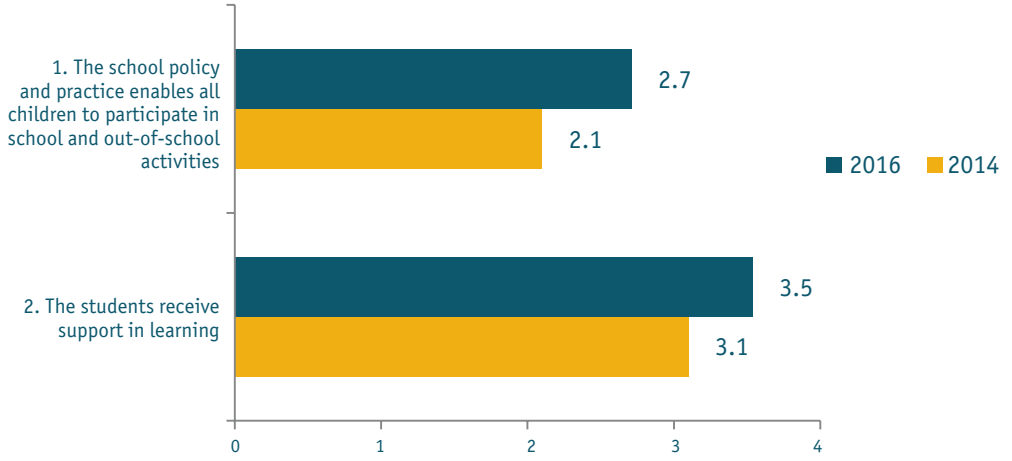
the other relevant institutions and organizations that provide support to children with disabilities/physical disability and from socially vulnerable groups. There are also indicators related to the existence of school procedures and practices for providing funds for helping the students from socially vulnerable families.

***Subdomain 2**. The students receive support for learning.*

The five indicators in this subdomain enable the assessment on whether the school has the mechanisms to help teachers, parents and children with identifying, accepting and assisting students with special educational needs. Moreover, the school may observe whether they are applying types of work that encourage the development of collaboration and communication among the students (students with disabilities, Roma students and other students in the classroom). The subdomain contains an indicator which refers to the fact whether the school has programmes and protocols which define the behaviours of children and adults as psychological and physical violence, as well as instructions for their prevention and management and whether they are strictly applied.

The graph below shows the average school self-assessments for the two subdomains.

GRAPH 32: *Self-assessment on the level of inclusion in the support for students in 2014 and 2016*



The average assessment about the extent to which the school modifies/adjusts its policy to enable students to be actively engaged in the educational work and achieve the expected results is 2.7. The average assessments, separately by schools, show major variations and are between 1,8 and 3,4.

Compared to the 2014 study, there is an improvement of 0,6, but the analysis of the separate indicators within this domain shows low assessment related to

the provision of funds. The greatest challenge for the schools is the provision of supplies adequate to the students' needs, as well as an adapted lavatory for the students with physical disabilities.

In both studies, the self assessment of the school policy in terms of the current level of support provided to students for learning is higher than the school self-assessment on the modification and adjustment in order to enable all children (regardless of their background and abilities) to participate in school and out-of-school activities.

According to data by school, this tendency is seen in all seven project schools and points to the fact that the schools want to show that, despite the inflexibility of the school policy in terms of inclusiveness, they still manage, i.e. try to provide learning support to students (two schools gave the highest grade 4, i.e. the students in their schools receive learning support).

The process of modifying, i.e. becoming an inclusive school, implies a modification/changing of the school policy, i.e. its adjustment to be well suited to all students in the school. Every student, regardless of his/her background and ability, has the right to actively participate in the school and out-of-school activities. The data show that this domain should be improved in the further project activities.

DOMAIN 5. School climate and relationships in the school

In the fifth domain, there are six subdomains in total.

Subdomain 1. *Diversity is respected and the collaboration between the students with different abilities, social, cultural and ethnic background is encouraged.*

Eight indicators are identified in this subdomain and they refer to the creation of a school climate/ambience for overcoming gender, ethnic, religious and other stereotypes and prejudices in relation to the cultural differences, abilities, physical disability, intellectual disability, etc.

Subdomain 2. *There is a mutual collaboration between the employees and students.*

The subdomain includes six indicators for self-assessment of the extent to which the school supports activities in which students help each other in learning and in other activities that help develop confidence, collaboration and friendship and whether the teachers, as models of behaviour for the students, show mutual respect.

Subdomain 3. *The students and parents feel good at school.*

The seven indicators refer to the school openness to actively involve parents in school activities, organization of different types of activities with parents in order to overcome the stereotypes and prejudices on any grounds.

Subdomain 4. *The students and parents are adequately involved in the decision making.*

The indicators refer to involvement of students from socially vulnerable groups (including the Roma students, as well as the students with special educational needs) in the work of the student community on every level, as involving parents from all social and cultural backgrounds (including Roma) in the Parents' Council and in the School Board.

Subdomain 5. *The students' and parents' rights are respected.*

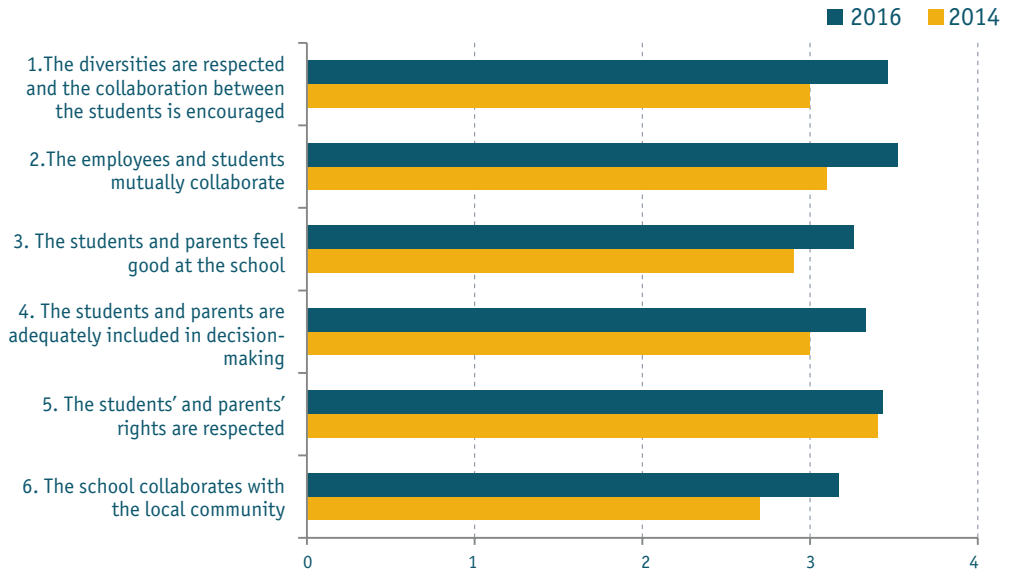
This subdomain contains four indicators which assess the extent to which the school is fostering an approach to developing strategies for prevention of a possible discriminatory attitude of teachers and other students towards Roma students and whether they react accordingly when this happens - whether school employees equitably and respectfully treat all students, irrespective of the gender, ethnicity, social background and abilities.

Subdomain 6. *The school collaborates with the local community on improving the situation related to the marginalized students and students with developmental disabilities.*

The subdomain contains six indicators used to assess the collaboration of the school with the non-governmental organizations for supporting the marginalized students and students with developmental disabilities (enabling coverage and progress of the students). Moreover, it assesses the level of collaboration and exchange of experiences and practices of the school and teachers with other schools that have many students from the marginalized groups.

The graph below shows the average school self-assessments for the six subdomains.

GRAPH 33: *Self-assessment of the level of inclusion in the domain: School climate and relationships in the school in 2014 and 2016*



The 2016 data show that in this domain, the schools gave the highest assessment to the subdomains: Diversity is respected and the collaboration between the students and employees is encouraged and the students collaborate mutually (3,5). This is the greatest improvement compared to the 2014 study. Some other inclusive activities were implemented with intensity during this period (e.g. for inter-ethnic integration), and maybe they influenced the improved inclusive practices in these subdomains.

The schools believe that the students' rights are respected, i.e. the school employees equitably and respectfully behave towards all students irrespective of gender, ethnicity, social background and abilities. It is important to associate the abovementioned data to the high assessment in terms of the schools involving the students and parents in the decision-making process.

Positive change can be seen in the subdomain: The school collaborates with the local community on improving the situation of the marginalized students and the students with developmental disabilities. It is important to mention that unlike 2014, when a low self-assessment was given as to the collaboration between different schools with the aim of exchanging experiences and successful practices for working with students with special educational needs, in 2016 the schools gave the highest assessment to this indicator in particular. This is probably a result of the Programme which organized many activities for the project schools and lead them towards mutual collaboration.

DOMAIN 6. Resources

In the sixth domain, there are two subdomains that refer to the needed/necessary resources for learning and teaching, specific to the marginalized children.

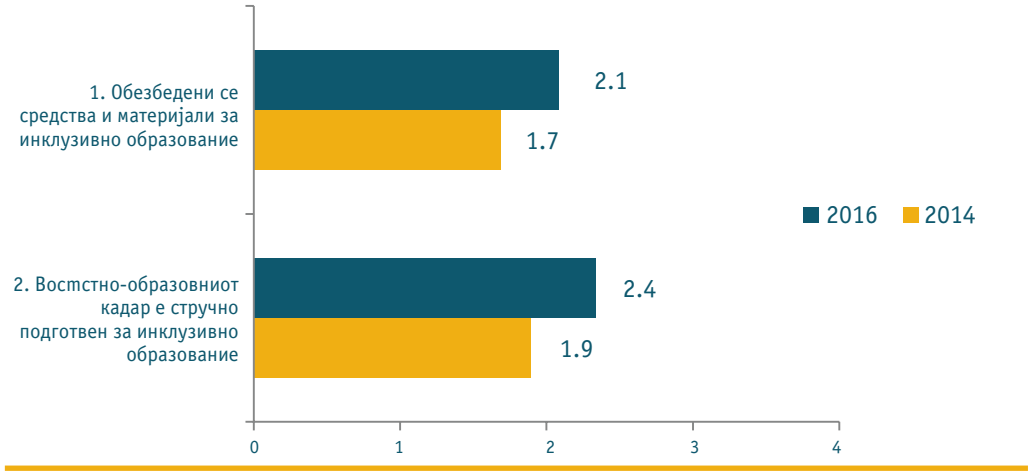
Subdomain 1. *The funds and materials for inclusive education are provided.*

The indicators (three in total) refer to the extent to which the school possesses the needed assistive technology for students with disabilities and whether the students with special educational needs can borrow the teaching aids (games, books, educational software) for learning at home. Moreover, it is assessed whether the classrooms and lecture rooms are supplied with the appropriate teaching materials for learning the language and culture of the students of all ethnicities, including the Roma.

Subdomain 2. *The educational staff is professionally prepared for inclusive education.*

In terms of the educational staff as a resource, the indicators enable assessment of the training/preparedness of the support staff and teachers to identify and work with students with special educational needs and use assistive technology. The indicators also assess whether the school has an employee or a special education teacher at their disposal to support the work with the students and whether the school has employed Roma teachers. The indicators enable the schools to see whether the educational staff is analysing and sharing the successful practice of supporting the students with special educational needs, including the Roma students.

GRAPH 34: *Self-assessment of the level of inclusion as regards the provision and use of resources in 2014 and 2016*



According to the obtained data, the self-assessment of the schools is low for both subdomains in 2016 as well. The schools assess that they do not have the adequate funds and materials for inclusive education (assistive technology, adequate teaching materials and resources), and there is an improvement of 0,5 as regards the professional preparedness of the educational staff.

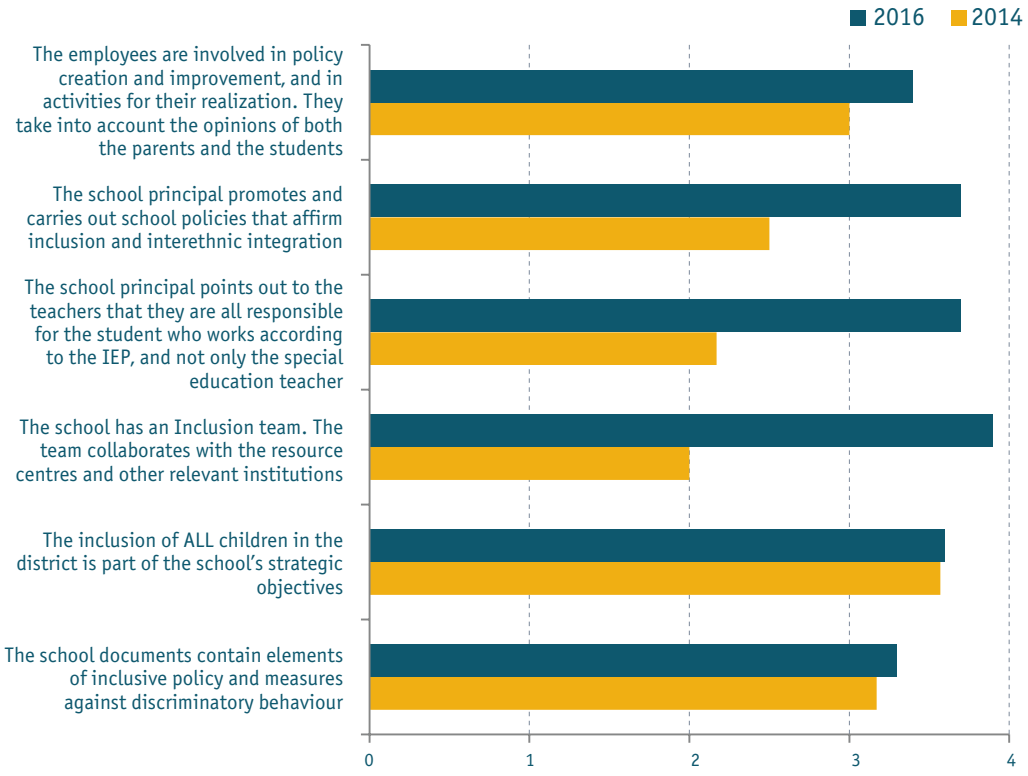
The self-assessment of the schools is positive regarding the indicator: The educational staff is analysing and sharing the successful practice of supporting the students with SEN, including the Roma students. The low assessments in this subdomain are a result of the indicators whether the school has employed a special educational teacher, as well as Roma teachers.

DOMAIN 7. Administration, management and policy creation

The last domain includes six indicators which offer an overview to the extent to which the school takes inclusion into account (whether the school has an Inclusion team) and whether it is committed to a policy against discrimination on any grounds. The indicators verify whether the school documents (statute, developmental programmes) contain elements of inclusiveness and measures against discriminatory behaviour. The results for each indicator are shown separately in the graph below.

The average assessment for this domain is 3.6 and compared to the 2014 study, there is an improvement of 0,8 (the average assessment in 2014 was 2,8). In the 2014 study, the results illustrated the lowest assessments of those indicators that referred to the work of the Inclusion teams and the realization of the IEP, while the indicators that referred to the declared inclusive policies were higher. The 2016 study shows an improvement precisely of those indicators for which the self-assessments of the schools were lower

GRAPH 35: *Self-assessment of the level of inclusion in the domain of: Administration, management and policy creation in 2014 and 2016*



CONCLUSION

- The schools assess their inclusive policy in most domains quite highly (the average self-assessments are above the arithmetic average value of 3.1 on the four-degree scale).
- Compared to the 2014 study, there is an improvement of the average self-assessments in all seven domains (the improvement is between 0,4 and 0,8).
- Every school has the lowest assessment in relation to the resources (material and human) to accomplish successful inclusion.
- The greatest improvement can be observed in the domain of: Teaching plans and curricula. The schools assessed that they are trained to draft IEP for the children with disabilities, which is probably a result of the Programme trainings.
- In the four subdomains of the students' achievements, it is important to emphasize that the programme activities were instrumental in teachers becoming aware that they are the ones who are crucial for the acceptance and learning of the students in the school, i.e. to acquire the belief that they can influence the improvement of the students' abilities.
- In the domain of: Learning and Teaching, the school self-assessments are high, in 2016 as well, in relation to the mechanisms for helping the teachers, parents and children in identifying and assisting the students with SEN. However, it is important to emphasize that they also believe that they are successful in adjusting the curriculum and school activities to the students' needs and in assessing the students with SEN.
- The schools are more successful in providing learning support to the students than in including all students in different types of extra-curricular activities. There is still the challenge to invest in the provision of adequate physical conditions for the needs of the students with a specific disability.
- The schools' self-assessments have improved in all subdomains of the domain of: School climate and relationships in the school. The greatest improvement can be observed in relation to the collaboration with the local community for supporting marginalized students and the students with developmental disabilities.
- The 2016 study has shown positive changes in relation to the self-assessments of the administration, management and policy creation.
- In general, there is a minor improvement of the self-assessments of the individual indicators related to the inclusion of Roma students compared to most other indicators.

PART III

METHODOLOGY

This part contains a description of the methodology used for measuring the progress of the Programme, i.e.: information on the objectives of the study, the conceptual framework, indicators of the study, used instruments, sample, and collection, processing and data analysis.

With the purpose of monitoring the quality of the realization of the Programme, the application of inclusive approaches in the seven project schools, as well as the effects on the students' achievements, two studies were conducted (in 2014 and in 2016). The baseline study was conducted before the commencement of the project activities in the schools, and the study was repeated after two years of implementation of the Programme.

The used methodological approach was based on the following principles:

1. Focus on providing valid and reliable information necessary for the evaluation of the achieved objectives of the Programme;
2. Providing data that could be used for explaining the situation and the changes that took place;
3. Providing an adequate basis for making further judgements and decisions and planning future activities;
4. Rationality in terms of time period, included human resources and means.

A quantitative and a qualitative approach were used in the study, in addition to adequate instruments.

1. OBJECTIVES OF THE STUDY

The repeated study (measuring the progress) of this Programme was carried out following two years of implementation in the schools. Bearing in mind the objective of the Programme: *to raise the level of inclusiveness of the entire school and knowledge and skills of the teachers for inclusive teaching practices, in order to improve the achievements of all students, particularly of the Roma students, in reading, writing and mathematics*.

The objective of this study was to provide relevant information on the *progress in the seven schools compared to the initial state* in terms of:

1. General inclusiveness of the schools;
2. The educational staff understanding of who are the students with special educational needs;
3. The training and competences of the teachers for working with students with special educational needs;
4. The teachers' understanding of the nature of abilities and how it is related to the students' achievements;
5. The perception of the teachers concerning the interest of the parents of Roma students in their children's learning;
6. The students' achievements at the end of the first cycle and at the end of the second cycle in primary education on questions and tasks of reading comprehension and writing as well as some socio-cultural factors which are related to these achievements;
7. The students' achievements at the end of the first cycle and at the end of the second cycle in primary education on mathematical tasks and some socio-cultural factors which are related to these achievements.

The acquired knowledge, conclusions and suggestions should be used during the further realization of the Programme, also while creating strategies and introducing practices by the educational institutions for a greater inclusiveness in education. In addition, the knowledge should be used for future longitudinal monitoring of the changes which will occur in these schools and which are related to the activities in the programme *Inclusive education for marginalized groups*.

2. CONCEPTUAL FRAMEWORK

The study of the effects of the programme *Inclusive education for marginalized groups* within these schools was conducted as "ex post facto experiment", i.e. by way of comparing the situations before and after the activities, the changes in the seven schools are measured during the two years implementation of the Programme, or more specifically:

(1) At the beginning of the Programme, by measuring the initial state of the relevant factors which could influence the students' achievements (independent variables) and the students' achievements in reading, writing and mathematics by emphasizing the differences in the achievements of the Roma students and students of the other ethnicities.

(2) The programme activities were realized in a period of two years.

(3) The measurement was conducted after two years and the emphasis was on the differences in the achievements between the two measurements among the Roma students and among the students of other ethnicities. During the repeated measurement, the independent variables were measured with the aim of controlling the potential changes among them.

In the progress study, same as in the baseline study, the following group of factors, which are considered to have significant influence on the students' achievements, were taken into account:

FACTORS RELATED TO THE TEACHER

- Understanding the specific educational needs of the students, particularly of Roma students, by the teachers.
- Self-assessment of the teachers on the competence for inclusive education.
- The mindset, i.e. the teachers' understanding of the nature of intelligence as fixed or flexible category.
- Training of the teachers in inclusive education.

FACTORS RELATED TO THE SOCIO-ECONOMIC ENVIRONMENT

- Education of the parents.
- Employment of the parents.
- Interest of the parents of the Roma students in their children's learning.
- Habits at home related to reading and writing and to learning mathematics.
- Prior knowledge of the students related to reading, writing and learning mathematics before starting first grade.
- Knowledge of the language of instruction of the Roma students before commencing school.
- Language which is predominantly used at home.

FACTORS RELATED TO THE SCHOOL ENVIRONMENT

- Understanding the special educational needs of the students, particularly of Roma students, by the school employees.
- Support that the teachers expect from the other educational staff in the school.
- Self-assessment of the school's inclusiveness.

3. INDICATORS

Based on the Programme objectives and activities, the following indicators were defined in this study:

INDICATOR 1 – Understanding of inclusive education and the inclusive practices by teachers

- Understanding the meaning of the term - students with special educational needs and identification of different types of special educational needs.
- Identification of special educational needs of the Roma students.
- Catering to the special educational needs.
- Training and competence of the teachers for inclusive education.
- Understanding the different factors of successful learning and the abilities as fixed or flexible category.

INDICATOR 2 – Inclusive policies and practices in the school

- Coverage of the Roma students and identification of the students with special educational needs.
- Undertaken inclusion activities at the level of the school.
- Self-assessment of the inclusive policies and practices at the level of the school.

INDICATOR 3 – Students' achievements at the end of the first cycle of primary education

- The students' achievements on the test in reading comprehension and on the test in writing, which include questions for measuring the understanding of the text, vocabulary, decoding and word analysis, as well as phonological awareness, use of orthography and needed lexis.
- The students' achievements on the test in mathematics, which contains tasks that measure the conceptual and procedural knowledge, understanding and using of natural numbers, the four basic operations and their properties, as well as solving of textual tasks and tasks.

INDICATOR 4 – Students' achievements at the end of the second cycle of primary education

- The students' achievements on the test in reading comprehension and on the test in writing, which include questions for measuring the understanding of the text, drawing explicit and implicit information, understanding of characters and actions in the test, detecting the context, recognizing the different genres, as well as the application of the standard linguistic norms in the different types of written expression.
- The students' achievements on the test in mathematics, which contains tasks that measure the conceptual and procedural knowledge, understanding and application of numbers (positive integers, fractions and decimal numbers), the four arithmetic operations and their properties, as well as solving textual tasks and problems.

4. METHODS AND INSTRUMENTS FOR DATA COLLECTION

In accordance with the defined indicators, different methods and adequate instruments for data collection were used in this study. Parts of the data were collected from many different sources of information (respondents) and by using many different instruments.

4.1. METHODS FOR DATA COLLECTION

TEACHER SURVEY

All data that referred to Indicator 1 – understanding of inclusive education and the inclusive practices of the teachers, were collected using a teacher survey with questionnaires, which were prepared in advance, for the teachers in the third grade and the teachers in the sixth grade that taught the subjects of Macedonian language, Albanian language, Macedonian language to the classes where Albanian is the language of instruction and mathematics. The survey lasted for about 30 minutes.

TESTING OF STUDENTS

The data related to Indicator 3 and to Indicator 4 were collected using tests in reading comprehension, tests in writing and tests in mathematics. The tests referred to knowledge and skills acquired by the end of the third, i.e. the sixth grade. The tests in mathematics lasted 45 minutes. The tasks in reading and writing were in two test-booklets and two periods of 45 minutes were needed for answering the tests that were administered in two consecutive days.

SURVEY OF THE STUDENTS

A students' questionnaire was used to collect data on the factors of the socio-cultural environment of the students, which could influence their achievements. The survey of the students was conducted at the end of the second day of the test in writing, for about 5–10 minutes.

COLLECTING DATA FOR THE SCHOOL

The school principals, in cooperation with the support staff and representatives from the school inclusion teams, gave replies that referred to the schools' circumstances, policies and practices.

The data on the size of the school, the number of students according to ethnicity and educational structure of the parents were collected using a special form.

Part of the data for Indicator 2, which refer to school data, coverage of students from underprivileged environments and students with special educational needs, as well as the inclusive policies and practices of the school, were collected using a questionnaire for the school.

The self-assessment questionnaire was used to collect data on the school's inclusiveness, i.e. the inclusive policies and practices of the school (part of Indicator 2). The self-assessment was made on a 4-degree scale.

4.2. DATA COLLECTION INSTRUMENTS

The table below shows, in detail, the contents of each instrument used to collect the data on the initial state of the programme *Inclusive education for marginalized groups*.

TABLE 53. *Description of the instruments used in the study*

INSTRUMENT	SHORT DESCRIPTION
QUESTIONNAIRE FOR THE TEACHERS	The questionnaire for the teachers in the third grade consisted of 18 questions with offered or open-ended answers and a scale of attitudes. ▶ Five questions which referred to the understanding of special educational needs, their identification and catering to those needs. ▶ Seven questions which referred to the Roma students and their educational needs. ▶ Three questions which referred to the trainings that are relevant to working with students with special educational needs. ▶ Two cluster questions referred to the competence of the teachers to work with students with special educational needs. The questions were required to assess the level of aptitude for working with different groups of students or whether they possess the given competences. ▶ One question referred to the factors for successful learning. ▶ The scale for examining the understanding of the nature of abilities and the connection to learning contained 20 statements. For each of them it was required to indicate the degree of agreement on a 4-degree scale. The questionnaire for the teachers in the sixth grade, in addition to the abovementioned questions, contained 4 additional questions on identification.

INSTRUMENT	SHORT DESCRIPTION
QUESTIONNAIRE FOR THE SCHOOLS	The questionnaire consisted of 25 questions requiring data on the school and on the work with marginalized students. ▶ Six questions were identification data on the school. ▶ Four questions referred to the statistical data (the number of classes and students). ▶ Four questions referred to the number of teachers in mother tongue and in Macedonian language as the language of the environment. ▶ Seven questions referred to the students with SEN, including the Roma students (number, coverage, learning the mother tongue (Roma) and the language of instruction). ▶ Three questions referred to the collaboration with the parents, local community and other organizations on issues related to the education of marginalized students.
QUESTIONNAIRE FOR SELF-ASSESSMENT ON INCLUSION	The questionnaire consisted of a list of 127 indicators of inclusive practice in the school, grouped in the following 7 domains1: Teaching plans and curricula; Students' achievements; Learning and teaching; Supporting the students; School climate and relationships in the school; Resources and Administration, management and policy creation. The degree of presence of each indicator in the school was indicated on a 4-degree scale.
TEST IN READING AND WRITING FOR THE THIRD GRADE	The test consists of 6 tasks (24 questions) which measure knowledge and abilities in: Reading – 4 tasks (13 questions) and Writing - 2 tasks (11 questions). The test was structured in two parts: 1. TEST IN READING. 2. TEST IN WRITING. 13 questions were multiple-choice, 2 were with short answers and 2 open-ended tasks which required explanation of the opinion or the attitudes of the students and one essay-type task (writing a brief composition upon given words).

INSTRUMENT	SHORT DESCRIPTION
TEST IN READING AND WRITING FOR THE SIXTH GRADE	The test consists of 7 tasks (47 questions) which measure knowledge and abilities in: Reading – 4 tasks (30 questions) and Writing - 3 tasks (17 questions). The test was structured in two parts: 1. TEST IN READING. 2. TEST IN WRITING. 16 questions were multiple choice, 8 were with short answers, 5 open-ended tasks which required explanation of the opinion or the attitudes of the students and 3 essay-type tasks (writing a text with given directions: number of words; offered text for description; started text; offered words adequate to the topic).
TEST IN MATHEMATICS FOR THE THIRD GRADE	The test for students consists of 19 tasks in total, which measure the knowledge and abilities in the domain of: Number concept – 5 tasks; Operations (addition, subtraction, multiplication and division) and properties of the operations – 10 tasks; and Problem situations which include operations, models and data processing – 4 tasks. 9 tasks were multiple choice, 6 tasks were with short answer and 4 open-ended tasks which required the complete procedure and solution.
TEST IN MATHEMATICS FOR THE SIXTH GRADE	The test for students consists of 26 requirements in total, distributed into 13 tasks which measure the knowledge and abilities in the domain of: Number concept – 4 tasks/ requirements; Operations (addition, subtraction, multiplication and division) and properties of the operations – 5 tasks (13 requirements); and Problem situations which include operations, models and data processing – 4 tasks (7 requirements). 6 requirements were multiple choice, 8 requirements were with short answer and 12 open-ended tasks which required the complete procedure or explanation of the solution.

INSTRUMENT	SHORT DESCRIPTION
QUESTIONNAIRE FOR THE STUDENTS IN THE THIRD GRADE	The questionnaire consisted of 10 multiple-choice questions. ▶ Four questions referred to the education and employment of the parents and the number of children in the family. ▶ One question referred to the number of books in the family. ▶ One cluster question referred to the support of the family in language learning and mathematics. ▶ Two questions referred to the language spoken within the family and knowledge of the language of instruction (if it's not their mother tongue). ▶ Two questions referred to the prior knowledge of reading and mathematics. Technically, the questionnaire was moved at the end of the test in writing.
QUESTIONNAIRE FOR THE STUDENTS IN THE SIXTH GRADE	The questionnaire consisted of 10 multiple-choice questions. ▶ Four questions referred to the education and employment of the parents and the number of children in the family. ▶ Two questions referred to the conditions for learning at home, the number of books in the family. ▶ One cluster question referred to the support of the family in language learning and mathematics. ▶ One question referred to the language which is spoken within the family. ▶ Two questions referred to the grades in Macedonian/ Albanian language and mathematics in the sixth grade. Technically, the questionnaire was moved at the end of the test in writing.
FORM	The form was used to collect the basic statistical data from each school on the number of classes and students, the socio-economic status of the parents, number of teachers and other educational staff and training of the teachers in inclusive education.

The tests for the third grade were psychometrically proved and used in the studyes of the programmes on language and mathematical literacy (in 2009, 2010, 2012 and 2013).

The tasks for the sixth graders were initially piloted in 6 schools, on 60 students, and afterwards their final version was used for the preparation of the tests. The tests were psychometrically checked and only the tasks that had good measuring characteristics were included in the processing of the results.

The majority of the collected data are quantitative and enable objective comparisons, and the qualitative data have the primary objective to serve for the planning of interventions at the further realization of the Programme.

5. SAMPLE

According to the design of the baseline study prior to the realization of the Programme, described in the conceptual framework, all seven schools included in the Programme are also included in the study. Every school filled-out the questionnaire on the self-assessment of the inclusive practice and the questionnaire for the school; the school management, support staff and members of the school inclusion team were included in this activity.

5.1. STUDENTS

The measurement of the Programme effects refers to the target group consisting of students from the seven schools in the **third grade**, as well as the students in the **sixth grade**, grades where the first, i.e. the second cycle of primary education come to an end. The sixth grade is also the grade when the students begin subject teaching (the previous stage ends with the fifth grade).

The sample selection was specific for each school bearing in mind the number of Roma students in the school, where it was crucial:

- that each school sample should contain almost an equal number of Roma students and students from other ethnicities;
- for all tasks in the test to provide at least 200 answers in order to be able to obtain relevant data on the planned processing and analyses.

Therefore, in the schools with a small number of Roma students (Gostivar, Kumanovo, Tetovo and Shtip) every Roma student was tested and the same number of non-Roma students were selected and tested by a random selection of a sample. Within the schools that have a dominant number of Roma students (Bitola and Prilep), all non-Roma students were tested and the same number of Roma students were selected and tested by random selection. In Skopje, there was a random selection of as many students (all Roma) as necessary to obtain the minimum number of answers from the students. In Gostivar, even though the Roma students are only included in classes with Macedonian language of instruction, taking the total number of Roma students in the third and in the sixth grade into consideration, the same number of students of Macedonian ethnicity and the same number of students of Albanian ethnicity were selected[25].

25 For the students of Macedonian ethnicity and of Albanian ethnicity, in the text hereafter, particularly in the part on students' achievements where comparisons are made with the Roma students, the most commonly used term is - others.

The table below shows the data on the number of students who took the tests.

TABLE 54. *Number of students in the sample*

NUMBER OF TESTED STUDENTS		TOTAL	ROMA	OTHERS
READING AND WRITING	3rd grade	244	112	132
	6th grade	254	121	133
MATHEMATICS	3rd grade	259	112	133
	6th grade	256	120	136

There is an insignificant difference between the number of Roma students and the other students who took the tests, due to the absence of some Roma students on the days when the testing was conducted.

5.2. TEACHERS

The study included all teachers that during the 2015/16 school year taught the third graders (45 teachers) and who taught mother tongue and mathematics to the sixth graders (34 teachers) in the central school building, of the seven schools included in the Programme. The surveyed teachers are a representative sample because 95% of the students in these schools go to the central school building. The data were collected from 79 teachers in total.

6. DATA COLLECTION, PROCESSING AND ANALYSIS

6.1. TIMEFRAME OF DATA COLLECTION

The data collection was conducted electronically and by selected advisers from the BED. Training was organized for the advisers and the deadlines for the organization and administering of the self-assessment questionnaire on the school's inclusiveness, the tests and the questionnaires for the students and the questionnaires for the teachers were also agreed. The test with the school data was administered by the MCEC and was filled out by the school principal and the support staff in the schools.

The data collection was conducted in the period April – May 2016. Due to the need to test the third and sixth graders as much as possible at the end of the school year, the students' testing was conducted in the second half of May. June was not a suitable month due to the possibility for the students to be overwhelmed by the upcoming external testing, which was conducted in the beginning of the month.

The answers to the open-ended questions in the tests for the students were examined by trained examiners, with experience in grading tests in language and mathematics. The consistency of the examination was assured by the fact that the examiners were also included in the assessment of the tests in the initial measurement.

6.2. DATA INPUT AND PROCESSING

Computer modes of input were drafted for each of the instruments: Questionnaire for the third grade teachers, Questionnaire for the sixth grade teachers, Test in mathematics for the third graders, Test in reading and writing for the third graders, Test in mathematics for the sixth graders, Test in reading and writing for the sixth graders, Questionnaire for the self-assessment of inclusiveness and Questionnaire for the school. Codes were entered into the models/frames for each question/task. The open-ended questions in the Questionnaires for the teachers were coded, and the description of each code was given in a separate table.

The table below shows the information on the total number of entries.

TABLE 55: *Total entries of the teachers and students*

INSTRUMENT	NUMBER OF ENTRIES	NUMBER OF ENTRIES 3RD GRADE	NUMBER OF ENTRIES 6TH GRADE
QUESTIONNAIRE FOR SELF-ASSESSMENT OF INCLUSIVENESS	7	/	/
QUESTIONNAIRE FOR THE SCHOOL	7	/	/
QUESTIONNAIRE FOR THE TEACHER		45	34
TEST IN MATHEMATICS		245	254
TEST IN READING AND WRITING		244	254
QUESTIONNAIRE FOR THE STUDENT		244	254

The following computer programmes were used for data processing: TiaPlus, SPSS and Microsoft Excel.

The TiaPlus programme was used to process the data from the students' tests and from the scales for examining the understanding of the nature of abilities. The programme provides data on the psychometric characteristics of the tests and the scales of attitudes, the score percentile and the average result on the overall tests and for particular subtests. The programme was used to calculate the scale results and to make a comparison between the results of subgroups

of respondents (according to the relevant variables which were examined and it was expected for them to be related to the students' achievements).

The SPSS programme was used to process the answers to the questionnaires for the teachers and to calculate the correlations between separate variables.

The data collected with the self-assessment questionnaire and the Questionnaire for the schools were entered and processed with Excel.

The data processing was conducted after the performed logical control of the bases of entered data for each instrument.

Special data bases were created for processing the instruments for the students, in an adequate format for TiaPlus (25 data bases for the third grade and 25 bases for the sixth grade).

Bases were also created for the *Test in mathematics* and the *Test in reading and writing*. The *Questionnaire for the student* was also related to the adequate data of the student from the *Test in mathematics* and the *Test in reading and writing*. As a result, one base contained the data on the students' achievements in mathematics and on the Questionnaire for the student. In addition to the bases for all respondents, special bases were created only for the Roma respondents and for the other ethnicities, in a format which is adequate for TiaPlus. In order to compare the students' achievements on the tests in 2014 and in 2016, two separate mutual bases were created (with the 2014 data and the 2016 data): one for the tests in mathematics and the other for the tests in reading and writing.

Some questions from the *Questionnaire for the teachers* were recoded, adequate to the coding manual. Moreover, two data bases for the lower grades and two bases for the subject teaching were created (one containing all questions from the Questionnaire in an adequate SPSS format, and the other for a block of questions and in a TiaPlus format).

The overview of the analyses is given in Appendix H.

The quantitative and qualitative data were analysed in relation to the defined indicators, by using topic analysis.

APPENDIXES

APPENDIX A: WRITING CRITERIA FOR THE 3RD GRADE

	0	1	2
1. COMPOSITION	• It doesn't have composition • There is no linkage between the parts • 1-2 sentences are used only	• The composition is poor • There are 2 out of 3 parts of the composition • The linkage between the parts is small • Bad distribution of words in the parts (e.g. the introductory part is longer than the main one)	• Well-developed composition (introductory, main, concluding part) • Linkage between the parts • Good distribution of words
2. CLARITY OF THE COMPOSITION*	• less than 50 % of the sentences are clear	• 50-90% of the sentences are clear	• 90 – 100 % of the sentences are clear
3. USE OF THE GIVEN WORDS IN THE COMPOSITION	• There is no use or used are only 1-2 words of the given ones.	• At least one word in each category is used (characters, events, place)	• All the words are used, and out of the following words: football, elastic, dodge ball and places, playground/park, only one word is used in the categories events and place
4. PUNCTUATION **	• Less than 50% percent of the punctuation marks are used correctly	• 50-90% of the used marks are correct	• 90 – 100 % of the used marks are correct
5. ORTHOGRAPHY	• Less than 50% of the words are spelled correctly	• The orthography is correct in 50-90% of the words	• The orthography is correct in 90 -100% of the words
6. THE CONSTRUCTION OF THE SENTENCE***	• Less than 50% of the sentences are grammatically correct	• 50- 90 % of the sentences are grammatically correct	• 90 – 100 % of the sentences are grammatically correct
7. ORIGINALITY ****	• Less than 2 indicators for originality are present in the composition	• 2 – 4 indicators for originality are present in the composition	• 4 – 5 indicators for originality are present in the composition

*Clarity – the thought is fully completed.

** When needed the following are used: full stop, colon, comma in numbering, exclamation mark and question mark.

*** The grammatical structure of the sentence is good (correct use of verb forms, agreement of subject with predicate, agreement of the subject with its complements according to grammatical categories).

**** The use of adjectives, comparisons, direct addressing to the characters, linking with the events with a particular place and time, as well as personal impression of the events.

APPENDIX B: COMPARATIVE ACHIEVEMENTS ON THE TEST FOR THE 3RD GRADE - LANGUAGE

NO.	DESCRIPTION OF THE QUESTIONS	TYPE OF QUESTION***	AVERAGE RESULT OF THE QUESTION IN %			
			Roma		Others	
			2014	2016	2014	2016
1*.1**.	Understanding the sequence of events	sa	32	32	48	48
1.2.	Drawing a direct information from the text		66	68	71	77
1.3.	Foreseeing what would happen in a given story	mc	37	51	65	70
2.1.	Identifying the literary type	mc	43	46	74	58
2.2.	Comparison of texts	mc	54	54	52	69
2.3.	Comparison of characters	mc	83	77	83	92
2.4.	Drawing the main idea - giving a title to the text	sa	23	27	47	51
3.1.	Drawing explicit information	mc	36	48	57	71
3.2.	Drawing implicit information	mc	43	54	50	69
3.3.1.	Drawing implicit information	mc	76	70	78	88
3.3.2.	Explanation of their own answer	sa	27	31	42	55
3.4.	Explanation of their own answer as regards the implicit information	sa	37	18	47	64
3.5.	Dividing complex words	mc	46	57	62	59
READING TEST						
1.1.	Improving the structure of a sentence	mc	52	36	50	60
1.2.	Improving the lexis	mc	25	38	40	60
1.3.	Sentence construction	mc	27	35	26	49
1.4.	Composition of a text	mc	23	39	32	45
2.1.	Composition of a text		1	28	7	52
2.2.	Clarity of the composition		20	25	33	51
2.3.	Use of given words in the composition		22	21	39	44
2.4.	Punctuation		8	13	24	44
2.5.	Orthography		14	17	25	50
2.6.	Construction of the sentence		5	19	23	43
2.7.	Originality of the text		2	19	8	39

* The first number in the task numbering marks a text and the questions are related to that text:
Reading
1) Short Indian folk story.
2) Two texts: text 1 – resume of a fairy tale, text 2 – resume of an event.
3) Text about an event from everyday life.
Writing
1) Improving the writing of the readers.
2) Writing a text upon given words..
** The second number marks the number of the question.
*** Type of question:
mc – multiple choice (the requested answer is among the ones which are offered),
sa – short answer (a short answer should be formulated).

APPENDIX C: COMPARATIVE ACHIEVEMENTS ON THE TEST FOR THE 3RD GRADE - MATHEMATICS

1. *Results on the tasks given only with numbers, numerical expressions or presented graphically*

TASKS	Average result of the question in %– All		Average result of the question in %– Roma		Average result of the question in %– Others	
	2014	2016	2014	2016	2014	2016
Presentation with numerals of a two-digit number presented with cubes	53	74	40	65	63	81
Presentation of a fraction with a shaded part of a form	51	57	44	47	57	65
Number of tens and ones in a given two-digit number	28	34	26	28	30	39
Discovering the rule and identifying the next item in series	41	42	33	34	47	50
Table presentation of data given in an illustrated word problem	63	71	46	65	78	75
Assessment of the result of the addition of two-digit numbers	14	19	11	15	16	22
Respecting the rule to discover numbers	20	33	21	19	19	44
Equality of sums	38	57	31	51	44	62
Checking the subtraction	31	59	12	44	48	71
Presenting multiplication with dots	15	38	9	22	21	51
Multiplication by 4	57	74	45	63	67	83
Division by 4	35	52	26	39	43	63
Subtraction and addition with a story and illustration	41	39	31	19	50	56
Order of operations, division, subtraction and addition	24	32	14	17	33	44
Order of operations, addition and multiplication	20	20	13	10	26	27
Order of operations, division and subtraction	29	29	19	13	37	42

2. *Results on the textual tasks*

TASKS	Average result of the question in %– All		Average result of the question in %– Roma		Average result of the question in % – Others	
	2014	2016	2014	2016	2014	2016
Simple word problem with subtraction	39	46	32	27	45	63
Numerical expression of a multiplication situation	51	66	46	53	56	76
Problem situation which is solved with multiplication by 2	22	37	10	20	33	51
Problem situation which is solved in two steps	19	24	10	12	26	35
Open PS which can be solved in numerous ways	6	14	4	6	7	21

APPENDIX D: WRITING CRITERIA FOR THE 6TH GRADE

TASK 1 AND TASK 3 – ASSESSMENT WITH THE CRITERIA 1 TO 6 TASK 2 – ASSESSMENT WITH THE CRITERIA 1 TO 5			
	0	1	2
1. COMPOSITION	• It doesn't have composition • There is no linkage between the parts • 1-2 sentences are used only	• The composition is poor • There are 2 out of 3 parts of the composition • The linkage between the parts is small • Bad distribution of words in the parts (e.g. the introductory part is longer than the main one) • Respecting the number of words/ sentences	• Well-developed composition (introductory, main, concluding part) • Linkage between the parts • Good distribution of words in the parts of the composition • Respecting the number of words/ sentences
2. CLARITY OF THE COMPOSITION	• The topic was not understood and there are no clear sentences which correspond to the topic	• The topic was understood with partially clear sentences which correspond to the topic	• The topic was understood with clear sentences which correspond to the topic
3. PUNCTUATION	• more than 3 punctuation marks are used incorrectly	• 2 – 3 punctuation marks are used incorrectly	• 1 – 2 punctuation marks are used incorrectly
4. ORTHOGRAPHY	• more than 3 spelling mistakes	• there are 2-3 spelling mistakes	• there are 1 - 2 spelling mistakes
5. THE CONSTRUCTION OF THE SENTENCE (THE INDICATORS ARE GIVEN BELOW)*	• More than 3 of the sentences are not grammatically correct	• 2 – 3 of the sentences are not grammatically correct	• 1 – 2 of the sentences are not grammatically correct
6. **ORIGINALITY (THE INDICATORS ARE GIVEN BELOW)****	• Less than 2 indicators for originality are present in the composition	• 2 – 4 indicators for originality are present in the composition	• 4 – 5 indicators for originality are present in the composition

* The grammatical structure of the sentence is good (correct use of verb forms, agreement of subject with predicate, agreement of the subject with its complements according to grammatical categories; agreement of the verb tense).

** The use of adjectives, comparisons, direct addressing to the characters, linking with the events with a particular place and time, as well as personal impression of the events.

APPENDIX E: COMPARATIVE ACHIEVEMENTS ON THE TEST FOR THE 6TH GRADE - LANGUAGE

NO.	DESCRIPTION OF THE QUESTIONS	TYPE OF QUESTION ***	AVERAGE RESULT OF THE QUESTION IN %			
			Roma		Others	
READING TEST			2014	2016	2014	2016
1*.1**.	Identifying the literary type	mc	79	86	91	79
1.2.	Identifying the main character in the literary text	mc	72	80	82	79
1.3.	Identifying the scene	mc	83	89	99	98
1.4.	Drawing implicit information in a text	sa	49	55	58	65
1.5.	Analysis of the activities of a character	mc	38	48	60	55
1.6.	Drawing a message in a literary text	mc	53	55	86	74
2.1.	Drawing implicit information in an informative text	sa	28	26	71	62
2.2.	Drawing implicit information in a text	mc	77	81	85	91
2.3.	Differentiating various information in an informative text	sa	44	48	61	60
2.4.	Linking information in a text	mc	65	61	80	77
2.5.	Linking information in a text	mc	66	58	80	73
2.6.	Analysis of an informative text	sa	49	42	64	62
3.1.	Drawing explicit information from a text - table	mc	65	78	91	88
3.2.	Drawing implicit information from a text - table	sa	59	57	92	83
3.3.	Reading data from a text - table	mc	38	59	58	56
3.4.	Linking different information in a text - table	sa	24	24	52	54
3.5.	Reading data from a text - table	mc	62	58	78	69
3.6.	Linking information in a text - table	sa	45	50	86	86
3.7.	Linking information in a text - table	sa	43	36	67	59
4.1.	Identifying the main character in a literary text	mc	41	45	55	62
4.2.	Identifying the stages of action in a literary text	mc	70	68	86	74
4.3.	Analysis of a character's actions	sa	34	37	60	65
4.4.	Analysis of a text by reading a context	sa	2	40	8	28
4.5.	Drawing implicit information from a text	mc	66	52	73	62
4.6.	Linking events to the characters' actions	sa	36	48	69	69
4.7.	Drawing explicit information from a text	mc	68	78	93	78

4.8.	Identifying the activities of group of characters	mc	58	60	80	63
4.9.	Explicit information on the acting of characters in a development of an action	mc	73	71	88	80
4.10.	Analysis of the action in a literary text	sa	16	22	34	36
4.11.	Creating a title and linking it to a topic of a literary text	sa	26	29	55	49
WRITING TEST						
1.1.	Structure of the composition		6	34	17	45
1.2.	Clarity of the composition		22	39	40	49
1.3.	Punctuation		13	17	29	42
1.4.	Orthography		21	18	30	41
1.5.	Sentence construction		11	14	28	38
1.6.	Originality of the composition		4	7	7	25
2.1.	Structure of the composition		4	30	10	34
2.2.	Clarity of the composition		23	35	38	44
2.3.	Punctuation		13	16	28	40
2.4.	Orthography		19	17	31	39
2.5.	Sentence construction		7	9	19	33
3.1.	Structure of the composition		4	29	14	47
3.2.	Clarity of the composition		26	35	41	52
3.3.	Punctuation		14	23	31	42
3.4.	Orthography		22	18	30	39
3.5.	Sentence construction		11	11	28	36
3.6.	Originality of the composition		4	6	9	26

* The first number in the task numbering marks a text and the questions are related to that text:
Reading
1) Two texts: 1 – story from everyday life, text 2 – story from everyday life.
2) Informative text.
3) Table with data (timetable for the teachers).
4) Literary text for an event in the children's life.
Writing
1) Continuation of a started letter to a friend.
2) Writing an informative text upon a given topic.
3) Writing a literary text upon a given topic.
** The second number marks the number of the question.
*** Type of question:
mc – multiple choice (the requested answer is among the ones which are offered),
sa – short answer (a short answer should be formulated).

APPENDIX F: COMPARATIVE ACHIEVEMENTS ON THE TEST FOR THE 6TH GRADE - MATHEMATICS

1. *Results on the tasks given only with numbers, numerical expressions or presented graphically*

TASKS	Average result of the question in % – All		Average result of the question in % – Roma		Average result of the question in % – Others	
	2014	2016	2014	2016	2014	2016
Reading a 5-digit number	92	95	85	91	98	98
Writing in fraction the number presented on a number line	30	17	8	14	50	19
Writing a decimal number / understanding the decimal places in a decimal number	76	77	59	72	92	82
Addition of two numbers up to 2-digits	86	85	75	76	97	93
Subtract a 3-digit number of a 4-digit number	76	64	60	49	91	76
Divide a 5-digit number with a 2-digit number	25	25	10	12	37	36
Numerical expression with two operations and parentheses	67	67	46	53	86	79
Numerical expression with two operations and no parentheses	30	28	13	17	45	38
Numerical expression of addition and subtraction of a fraction with equivalent denominators	57	34	50	27	64	41
Numerical expression of addition and subtraction of mixed numbers where the proper fractions are with equivalent denominators	42	25	25	16	58	33
Add two fractions with equivalent denominators and multiply by a whole number	45	26	29	24	60	28
Addition of decimal numbers	16	23	4	12	26	33
Division of a decimal number by a whole number	12	21	4	7	20	33
Multiplication of two decimal numbers	8	11	2	5	13	17
Identify a number divisible by 3 and by 9	23	50	10	47	34	53
Simple equation by subtraction which includes 4-digit numbers	57	58	46	62	67	55
Tasks where it is required that the students first read and understand the data which are presented graphically (1)	83	84	73	74	93	92
Tasks where it is required that the students first read and understand the data which are presented graphically (2)	82	76	67	64	94	87
Tasks where it is required that the students first read and understand the data which are presented graphically (3)	26	32	13	22	37	41
Tasks where it is required that the students first read and understand the data which are presented graphically (4)	15	21	9	18	21	24

2. *Results on the textual tasks*

TASKS	Average result of the question in % – All		Average result of the question in % – Roma		Average result of the question in % – Others	
	2014	2016	2014	2016	2014	2016
Identifying a diagram that accurately presents a described situation with fractions	**56**	**73**	**45**	**78**	**66**	**68**
Situation with addition and/or multiplication of natural numbers	**18**	**24**	**10**	**14**	**25**	**32**
Situation with division and multiplication of natural numbers, which could be solved with or without an equation.	**6**	**18**	**2**	**6**	**9**	**28**
Task where it is required to identify the greatest common divisor	**4**	**2**	**2**	**0**	**5**	**4**

APPENDIX G: AVERAGE SELF-ASSESSMENTS OF THE PILOT-SCHOOLS ON THE INDICATORS FOR INCLUSIVE EDUCATION COMPARATIVELY FOR 2014 AND 2016

DOMAIN 1. TEACHING PLANS AND CURRICULA		
INDICATORS	AVERAGE VALUE 2014	AVERAGE VALUE 2016
1. 1. THE MODELS OF PLANNING WHICH ARE USED IN THE SCHOOL FOCUS ON THE STUDENTS' NEEDS AND ENABLE THE PLANNING OF DIFFERENTIATED INSTRUCTIO.		
1.1.1. The planning (annual, process-development) is based on an analysis of the previous achievements;	**2,43**	**2,86**
1.1.2. The differentiated working in the classroom was planned in almost all process-development planning or in the daily preparations;	**2,43**	**2,86**
1.1.3. It is also planned to provide and use differentiated teaching aids;	**2,14**	**2,57**
1.1.4. It is planned to use various sources of learning (texts, manipulatives, internet, etc.) in almost all teaching subjects and extra-curricular activities;	**3,00**	**3,29**
1.1.5. It is planned to have different types of joint interaction and mutual support of the students with different abilities, social and cultural background, within the curricular and extra-curricular activities;	**2,71**	**3,14**
1.1.6. The teachers have the freedom to change the plans depending on the progress of different groups of students;	**2,00**	**3,29**
1.1.7. The teachers help each other in planning and in realization of the approaches to working with students from the vulnerable groups.	**3,00**	**3,43**
1.2. THE PLANNING ENABLES AN INCLUSION OF THE STUDENTS FROM VULNERABLE GROUPS.		
1.2.1. The children with developmental disabilities and the children of the other vulnerable groups are equally allocated in the classes;	**3,14**	**3,00**
1.2.2. The planned materials and realized activities take the linguistic and cultural differences between the students into account;	**3,29**	**2,86**
1.2.3. The subject 'Roma language and culture' is offered as an optional subject in the school.	**2,83**	**3,29**
1.3. INDIVIDUAL EDUCATIONAL PLANS (IEP) ARE DRAFTED FOR THE CHILDREN WITH DEVELOPMENTAL DISABILITIES.		
1.3.1. The IEP are drafted as a team (all teachers who teach the student, the support staff, parent, student);	**2,29**	**3,43**
1.3.2. The IEP are drafted for all children with developmental disabilities;	**2,14**	**3,00**

1.3.3. The IEP are drafted on the basis of an analysis of the students' progress in learning, the responsibilities are identified, as well as the dynamic and the method of monitoring the realization;	**2,00**	**3,00**
1.3.4. The IEP contain sections for involving the students in the extra-curricular activities;	**1,57**	**3,14**
1.3.5. The IEP goals are real, measurable and procedures are planned to monitor and assess their achievement;	**2,00**	**3,14**
1.3.6. The parents of the students with developmental disabilities are involved in the drafting, realization and monitoring of the IEP;	**1,57**	**2,86**
1.3.7. The social and cultural background of the student is considered during the drafting of the IEP.	**1,86**	**3,29**
DOMAIN 2. STUDENTS' ACHIEVEMENTS		
INDICATORS	Average value 2014	Average value 2016
2.1. PROVIDED COVERAGE OF ALL STUDENTS FROM SOCIALLY VULNERABLE GROUPS.		
2.1.1. All students of Roma ethnicity, within the school district, are included in the first grade;;	**3,43**	**3,29**
2.1.2. All students of Roma ethnicity, within the school district, attend regular classes;	**2,14**	**2,29**
2.1.3. The percentage of students of Roma ethnicity, who learn according to IEP, is somewhat the same as the percentage of students of the other ethnicities;	**1,86**	**3,00**
2.1.4. The students of Roma ethnicity are involved in the extra-curricular activities adequately to their number in the school;	**3,14**	**3,57**
2.1.5. All students with a developmental disability, within the school district, who should attend regular classes according to the law, are included;	**3,43**	**3,14**
2.1.6. There are visible results in the individual development of the students with disabilities according to their IEP;	**2,29**	**2,86**
2.1.7. here are no students with developmental disabilities who are transferred in special schools in the course of the school year.	**2,57**	**2,71**
2.2. THE SCHOOL SYSTEMATICALLY DETECTS THE STUDENTS FROM SOCIALLY VULNERABLE GROUPS AND PROVIDES THEM WITH SUPPORT ACCORDING TO THEIR SPECIAL EDUCATIONAL NEEDS.		
2.2.1. The school has established procedures for timely detection and monitoring of the progress of students who encounter learning difficulties;	**2,71**	**3,14**
2.2.2. For each student, for whom additional learning support is being provided, there are records about the type of needs and support that are updated at least 4 times a year;	**2,57**	**3,29**
2.2.3. Differentiated instruction, individual activities and additional instruction are carried out for the students with special educational needs;	**2,57**	**3,14**

2.2.4. The students with disabilities, as well as those from the socially vulnerable groups, are involved in the extra-curricular activities.	**2,57**	**3,14**
2.3. THE TEACHERS TREAT ALL CHILDREN (REGARDLESS OF THEIR BACKGROUND AND ABILITIES) IN A WAY WHICH REFLECTS THE BELIEF THEY MAY LEARN AND CAN LEARN.		
2.3.1. he teachers believe they can influence the improvement of the students' abilities;	**2,57**	**3,29**
2.3.2. The teachers make an effort not to create negative opinions about the students who study hard, in order for them not to be considered as "swots";	**3,00**	**3,71**
2.3.3. The teachers make an effort not to create negative opinions about the students with learning difficulties;	**3,14**	**3,57**
2.3.4. The students are encouraged to take responsibility for their learning;	**3,14**	**3,57**
2.3.5. The teachers conduct the instruction using various interactive methods and ALL students are encouraged to actively participate in the instruction;	**3,29**	**3,57**
2.3.6. The teachers are aware that they are crucial for the acceptance and learning of the students in the school;	**3,14**	**3,43**
2.3.7. The students with special educational needs are supported by various extra-curricular activities.	**2,43**	**3,00**
2.4. ALL STUDENTS HAVE MAXIMUM ACHIEVEMENTS IN RELATION TO THEIR POTENTIAL.		
2.4.1. There are records of the achievements of the students of possible vulnerable groups (according to the social status, parents' education, ethnicity, whether the language of instruction is their mother tongue);	**3,00**	**3,57**
2.4.2. There is an analysis of the reasons for failure of the students from the different socially vulnerable groups, including the students of Roma ethnicity, and measures are taken to prevent/overcome those reasons;	**2,86**	**3,57**
2.4.3. The employees and the students are proud of the success of all students in different domains;	**3,43**	**3,86**
2.4.4. The success of the students of socially vulnerable groups, including the students of Roma ethnicity, is improved year by year;	**3,00**	**3,00**
2.4.5. There is a steady increase in the percentage of students of Roma ethnicity who make progress in their generation;	**2,67**	**3,14**
2.4.6. The differences in the average general success of the Roma students and the students of other ethnicity are decreasing, year by year;	**2,43**	**2,86**
2.4.7. The students with disabilities achieve the objectives set in their IEP;	**2,00**	**3,14**
2.4.8. The differences in the achievements of the students with disabilities and the other students, are within the frame of justification by the type and the level of disabilities;	**3,14**	**3,29**

2.4.9. There is a steady decrease of the percentage of Roma students who were subject to disciplinary measures;	**2,71**	**2,57**
2.4.10. The percentage of Roma students, who were subject to disciplinary measures, is not very different compared to the percentage of students of the other ethnicities.	**286**	**3,00**

DOMAIN 3. LEARNING AND TEACHING		
INDICATORS	Average value 2014	Average value 2016
3.1. THE SCHOOL HAS PREPARED, IN ADVANCE, THE MECHANISMS FOR ASSISTING THE TEACHERS, PARENTS AND CHILDREN IN THE JOINT WORK TO IDENTIFY AND HELP THE STUDENTS WITH SPECIAL EDUCATIONAL NEEDS.		
3.1.1. The school has strategies for making an intervention within the school, the family and the community when the attendance and the achievements of the students from vulnerable groups are not satisfactory;	**3,00**	**3,14**
3.1.2. The support staff is involved in monitoring the development of all students in the first grade;	**3,43**	**3,71**
3.1.3. The teaching personnel and the support service systematically detect the educational needs of the students, as well as the learning difficulties of every student and undertake activities for their realization, i.e. their overcoming;	**3,29**	**3,57**
3.1.4. The students who follow the lessons on a language which is different than their mother tongue, are given specific support to learn the language of instruction, outside the regular teaching plan;	**2,50**	**2,43**
3.1.5. The school dedicates particular attention to the professional orientation of the children from socially vulnerable groups and the children with developmental disabilities;	**3,00**	**3,43**
3.1.6. The majority of the teachers keep extensive and methodical records on the achievements, attendance and behaviour of ALL students, as well as their intellectual, social and emotional development.	**3,14**	**3,57**
3.2. THE TEACHERS ADAPT THE CURRICULUM, THE LESSONS AND THE SCHOOL ACTIVITIES TO THE NEEDS OF THE CHILDREN OF DIFFERENT ABILITIES AND BACKGROUND.		
3.2.1. The teachers adapt the content and activities, on the class and after the class, to the needs of the students of different background and abilities;	**2,71**	**3,29**
3.2.2. During the class, the teachers use individualized approach with the students with special educational needs;	**2,57**	**3,14**
3.2.3. There is enough teaching content and activities that are carried out to facilitate the understanding of differences in the background, culture, ethnicity, religion, abilities, gender;	**3,14**	**3,29**
3.2.4. The teachers are planning and carrying out objectives related to the interethnic integrated education;	**3,14**	**3,43**

3.2.5. Plenty of adequate learning materials are provided/ adapted for the children who work according to an IEP;	**1,43**	**2,57**
3.2.6. The school collaborates with the resource centres (the special schools) and other relevant institutions and provides support for the realization of the IEP;	**1,71**	**3,00**
3.2.7. The class timetable allows for a maximum interethnic collaboration and communication between the students and teachers;	**2,43**	**3,43**
3.2.8. The students are allowed to work in their own pace;	**2,86**	**3,43**
3.2.9. The children, who are included in the educational system later on, are allowed to make progress through adapted programmes and activities.	**1,86**	**2,00**
3.3. THE SCHOOL HAS A DEVELOPED SYSTEM OF DIAGNOSTIC, FORMATIVE AND SUMMATIVE ASSESSMENT OF THE STUDENTS WITH SPECIAL EDUCATIONAL NEEDS		
3.3.1. The school has harmonized assessment criteria and both the students and the parents are thoroughly introduced to the criteria;	**3,00**	**3,57**
3.3.2. The assessment criteria are strictly applied towards all students;	**3,00**	**3,57**
3.3.3. The formative assessment is used by the teachers to direct the learning of the students, particularly of those who have learning difficulties;	**2,86**	**3,43**
3.3.4. The teachers' comments about learning refer to the made effort, and not the students' abilities;	**2,71**	**3,14**
3.3.5. The majority of students do not fear wrong answers or failure;	**3,00**	**3,29**
3.3.6. The students are involved in the assessment of their own learning and achievements;	**2,67**	**3,00**
3.3.7. The teacher assesses the achievements of the students with disabilities according to the drafted IEP;	**2,00**	**3,29**
3.3.8. The parents are informed about their child's progress in each teaching subject, including the information about the personal and social development of the child.	**3,29**	**3,71**
DOMAIN 4. SUPPORTING THE STUDENTS		
INDICATORS	Average value 2014	Average value 2016
4.1. THE SCHOOL MODIFIES AND ADJUSTS ITS POLICY AND PRACTICE IN ORDER TO ENABLE ALL CHILDREN, (REGARDLESS OF THEIR BACKGROUND AND ABILITIES) TO PARTICIPATE IN THE SCHOOL AND OUT-OF-SCHOOL ACTIVITIES.		
4.1.1. The students with a physical disability learn in classrooms which are accessible and adequately equipped;	**1,86**	**2,43**
4.1.2. The school collaborates with the parents, with the resource centres and the other relevant institutions and organizations for providing care for the students with disabilities/physical disabilities and from socially vulnerable groups;	**2,86**	**3,00**

4.1.3. The students help and care about their classmates with disabilities and from socially vulnerable groups, including the Roma;	**2,86**	**3,57**
4.1.4. The access to the school is adapted to the needs of the students with physical disabilities;	**1,71**	**3,29**
4.1.5. The area in the hallways and in the classrooms allows the students with physical disability to be in motion;	**2,29**	**2,29**
4.1.6. The equipment in the classrooms is adequate to the students' needs and there is an adapted lavatory for the students with physical disabilities, which is accessible for their use;	**1,43**	**1,57**
4.1.7. The school has prescribed procedures for providing funds to help the students from socially vulnerable families (for provision of school appliances, participation on school trips, performances, games, and similar) and carry them out in practice.	**2,00**	**2,86**
4.2. THE STUDENTS RECEIVE SUPPORT FOR LEARNING.		
4.2.1. Group work with the students and working in pairs are used to encourage the development of collaboration and communication between the students (with disabilities, the Roma students and the other students in the class);	**3,00**	**3,43**
4.2.2. The students with learning difficulties are accepted by the teachers and by their classmates and they receive support and assistance from them;	**3,14**	**3,71**
4.2.3. The school has programmes and protocols which define the behaviours of the children and adults, which are considered as psychological and physical violence, as well as directions for prevention and management, and they are strictly applied;	**3,00**	**3,29**
4.2.4. The school encourages and motivates collaboration between the students and it also promotes an intercultural communication and respect for diversities.	**3,29**	**3,71**

DOMAIN 5. SCHOOL CLIMATE AND RELATIONSHIPS IN THE SCHOOL		
INDICATORS	Average value 2014	Average value 2016
5.1. THE DIVERSITIES ARE RESPECTED AND THE COLLABORATION BETWEEN THE STUDENTS WITH DIFFERENT ABILITIES, SOCIAL, CULTURAL AND ETHNIC BACKGROUND IS ENCOURAGED		
5.1.1. The school is recognized within the environment by its acceptance of students from vulnerable groups and students with special educational needs and as a school without discrimination;	**3,14**	**3,86**
5.1.2. The school's setup shows that it has students from various communities, whose diversities are respected;	**3,57**	**3,71**
5.1.3. The works of the students are exhibited. The works were created together by students of different ethnicities;	**3,14**	**3,29**
5.1.4. The desks are lined in a way that enables group work and mutual collaboration;	**2,43**	**3,29**

5.1.5. The teachers allow activities where the students are grouped according to their interests;	**2,57**	**3,29**
5.1.6. There are plenty of extra-curricular activities, which include students with different abilities, social, cultural and ethnic background;	**3,00**	**3,43**
5.1.7. The teachers create a climate to overcome gender, ethnic, religious and other stereotypes and prejudices in relation to the cultural differences, abilities, physical disability, intellectual disability, etc.;	**3,14**	**3,43**
5.1.8. All teachers treat the students in the same manner, which promotes acceptance, respect, collaboration, tolerance, understanding and trust.	**3,14**	**3,43**
5.2. THERE IS A MUTUAL COLLABORATION BETWEEN THE EMPLOYEES AND STUDENTS.		
5.2.1. The students know who to turn to if they have a problem;	**3,43**	**3,86**
5.2.2. The students are able to express their ideas and receive support for the realization of the activities for learning and socialization;	**3,00**	**3,57**
5.2.3. The students treat the school's employees and classmates with respect;	**2,71**	**3,29**
5.2.4. Within the curricular and extra-curricular activities, the students develop trust, collaboration and friendship;	**3,14**	**3,57**
5.2.4. The students help each other with learning and in other activities;	**3,00**	**3,29**
5.2.5. The mutual respect of the teachers is a model of behaviour for the students.	**3,00**	**3,57**
5.3. THE STUDENTS AND PARENTS FEEL GOOD AT THE SCHOOL..		
5.3.1. The parents from socially and culturally deprived environments and from all nationalities are involved in the school's activities and feel welcome;	**3,00**	**3,43**
5.3.2. There is a reduction of the number of parents, including the Roma parents, who avoid participating on the parent meetings, counselling and discussions with the educational personnel;	**2,17**	**2,86**
5.3.3. Everyone in the school is responsible for the hygiene, organization and order in the school;	**3,00**	**3,29**
5.3.4. There are different types of working with the parents to overcome the stereotypes and prejudices on any grounds;	**2,71**	**3,29**
5.3.5. The parents receive information and support to accept and support the children with developmental disabilities;	**3,00**	**3,43**
5.3.6. The students and parents see the school as a safe, stimulating, inclusive and motivating environment;	**3,14**	**3,29**

5.3.7. The students learn how to recognize and are able to deal with specific situations related to discrimination in a school context.	**3,00**	**3,29**
5.4. THE STUDENTS AND PARENTS ARE ADEQUATELY INVOLVED IN THE DECISION-MAKING.		
5.4.1. The students form socially vulnerable groups, including the students of Roma ethnicity, as well as the students with special educational needs, are involved in the work of the student community on every level;	**2,43**	**3,00**
5.4.2. The parents of all social and cultural environments, including those of Roma ethnicity, are involved in the Parents' Council and in the School Board;	**3,29**	**3,57**
5.4.3. The opinions of the students and parents are taken into consideration during the decision making.	**3,14**	**3,43**
5.5. THE STUDENTS' AND PARENTS' RIGHTS ARE RESPECTED.		
5.5.1. There is a prevention of a possible discriminating attitude of the teachers and other students towards the students of Roma ethnicity and there is an adequate reaction if it becomes apparent;	**3,43**	**3,43**
5.5.2. Not many parents react or remove their children from the school, because there are students with disabilities or Roma students in their children's class;	**3,00**	**3,14**
5.5.3. The school employees treat all students equitably and with respect, regardless of their gender, ethnicity, social background and abilities;	**3,71**	**3,71**
5.5.4. The school is helping the parents of the students from socially vulnerable groups and the students with disabilities in fulfilling their social rights.	**3,29**	**3,43**
5.6. THE SCHOOL COLLABORATES WITH THE LOCAL COMMUNITY ON IMPROVING THE SITUATION RELATED TO THE VULNERABLE GROUPS OF STUDENTS AND THE STUDENTS WITH DEVELOPMENTAL DISABILITIES.		
5.6.1. The school collaborates with the NGOs for supporting the students from socially vulnerable groups and with developmental disabilities;	**3,14**	**3,14**
5.6.2. Volunteers from the community are involved in the activities for supporting the learning of the students with special educational needs;	**2,43**	**2,86**
5.6.3. The students with developmental disabilities and the students from vulnerable groups are involved in the activities which the school is carrying out together with the local community;	**2,43**	**3,14**
5.6.4. The school collaborates with the local community in providing coverage and progress of the students from vulnerable groups;	**3,00**	**3,14**

5.6.5. The school and the teachers have regular collaboration and exchange experiences and practices with the other schools with majority of students from vulnerable groups;	**2,29**	**3,43**
5.6.6. There is an overall positive opinion about the school among the local community.	**3,14**	**3,29**

DOMAIN 6. RESOURCES		
INDICATORS	Average value 2014	Average value 2016
6.1. THE FUNDS AND MATERIALS FOR INCLUSIVE EDUCATION ARE PROVIDED.		
6.1.1. The school possesses the needed assistive technology for the students with disabilities;	**1,43**	**1,43**
6.1.2. The classrooms and lecture rooms are supplied with the appropriate teaching materials for learning the language and culture of the students of all ethnicities, including the Roma;	**2,00**	**2,43**
6.1.3. The students with special educational needs can borrow the teaching aids (games, books, educational software) for learning at home.	**1,71**	**2,43**
6.2. THE EDUCATIONAL PERSONNEL ARE PROFESSIONALLY PREPARED FOR INCLUSIVE EDUCATION.		
6.2.1. The support staff and teachers are trained to identify and work with students with special educational needs and use assistive technology;	**1,86**	**2,71**
6.2.2. The school has a special education teacher or it has a mobile special education teacher at its disposal to support the work with the students with developmental disabilities;	**1,43**	**1,43**
6.2.3. The school has employed teachers of Roma ethnicity;	**1,50**	**1,86**
6.2.4. The educational personnel is analysing and sharing the successful practice of supporting the students with special educational needs, including the students of Roma ethnicity.	**2,71**	**3,43**

DOMAIN 7. ADMINISTRATION, MANAGEMENT AND POLICY CREATION		
INDICATORS	Average value 2014	Average value 2016
7.1. 7.1. WITHIN THE SCHOOL, THEY TAKE INCLUSION IN CONSIDERATION AND CONDUCT A POLICY AGAINST DISCRIMINATION ON ANY GROUNDS		
7.1.1. The school documents (statute, developmental programmes) contain elements of inclusive policy and measures against discriminatory behaviour;	**3,17**	**3,29**
7.1.2. The inclusion of ALL children in the district, including those from vulnerable groups and with developmental disabilities is a part of the school's strategic objectives;	**3,57**	**3,57**

7.1.3. The school has an Inclusion team which is composed of teachers, support staff, school principal, parents and students. The team collaborates with the resource centres (special schools) and other relevant institutions;	**2,00**	**3,86**
7.1.4. The school principal points out to the teachers that they are all responsible for the student who works according to the IEP, and not only the special education teacher, so all planned activities from the IEP can be fulfilled;	**2,17**	**3,71**
7.1.5. The school principal promotes the school as a model for inclusive education and carries out school policies that affirm the school's inclusiveness and interethnic integration in education;	**2,50**	**3,71**
7.1.6. The employees are actively involved in policy creation and improvement, as well as in the activities for their realization. During the creation of policies, the school takes into account the opinions of both the parents and the students;	**3,00**	**3,43**

APPENDIX H: OVERVIEW OF THE CONDUCTED DATA ANALYSES

THIRD GRADE

QUESTIONNAIRE FOR THE THIRD GRADE TEACHERS

Frequencies were calculated for every question in the questionnaire. In addition, average values, as well as correlations, were calculated for specific questions. A set of questions from the questionnaire was analyzed in TiaPlus.

READING AND WRITING TEST FOR THE STUDENTS

1. Analysis of the data from 2016

The data were analyzed by question, as well as on the overall test. Moreover, an analysis of the influence of the variables was made, from the questionnaire for the students regarding their impact on the students' achievements.

The following analysis by sub-domains was made:

1) By topics – i.e. for Reading and Writing separately

2) By sample of respondents

- For all respondents – analysis of the overall test, separately by domains;
- For Roma respondents – analysis of the overall test, separately by domains;
- For others – analysis of the overall test, separately by domains.

The statistical significance of the difference was calculated for each sub-domain.

The achievements of all students were intersected with the students' answers on the questions from the questionnaire at the end of the test. Moreover, the average score was calculated for every question and for every alternative.

2. Comparative analysis of the data on the students' achievements from 2014 and 2016.

The comparative analysis of the students' achievements from 2014 and 2016 was conducted for all respondents, separately for the Roma and for the other respondents. The T- test was also calculated.

Comparative analysis for all respondents

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	252	34,16	–6,3895
2016	244	45,79	

Comparative analysis for respondents – Roma

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	122	28,00	–3,0046
2016	112	34,15	

Comparative analysis for respondents – Roma Споредбени анализи за останати – Others

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	130	39,95	–6,2483
2016	132	55,66	

MATHEMATICS TEST FOR THE STUDENTS

1. **Analysis of the data from 2016.**

The data were analyzed by question, as well as on the overall test. Moreover, an analysis of the influence of the variables was made, from the questionnaire for the students regarding their impact on the students' achievements.

The following analysis by sub-domains was made:

1) By topics – i.e. for Regular tasks and Textual tasks separately

2) By sample of respondents

- For all respondents – analysis of the overall test, separately by domains;
- For Roma respondents – analysis of the overall test, separately by domains;
- For others – analysis of the overall test, separately by domains.

The statistical significance of the difference was calculated for each sub-domain.

The achievements of all students were intersected with the students' answers on the questions from the questionnaire at the end of the test. Moreover, the average score was calculated for every question and for every alternative.

2. **Comparative analysis of the data on the students' achievements from 2014 and 2016.**

The comparative analysis of the students' achievements from 2014 and 2016 was conducted for all respondents, separately for the Roma and for the other respondents. The T- test was also calculated.

Comparative analysis for all respondents

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	259	29,45	–5,5089
2016	245	39,90	

Comparative analysis for respondents – Roma Споредбени анализи за испитаници – Roma

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	121	22,19	–2,6966
2016	112	27,68	

Споредбени анализи за испитаници – Others

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	138	35,81	–5,4417
2016	133	50,20	

SIXTH GRADE

QUESTIONNAIRE FOR TEACHERS

Frequencies were calculated for every question in the questionnaire. In addition, average values, as well as correlations, were calculated for specific questions. A set of questions from the questionnaire was analyzed in TiaPlus.

READING AND WRITING TEST FOR THE STUDENTS

1. Analysis of the data from 2016.

The data were analyzed by question, as well as on the overall test. Moreover, an analysis of the influence of the variables was made, from the questionnaire for the students regarding their impact on the students' achievements. A set of questions from the questionnaire at the end of the writing and reading test was analyzed as a separate test.

The following analysis by sub-domains was made:

1) By domains – i.e. separately for Reading and Writing

- Separately for the reading questions with a short answer, and separately for the reading multiple-choice questions.

2) On a sample of respondents

- For all respondents – analysis of the overall test, separately by domains, separately for the reading questions with a short answer, and separately for the reading multiple-choice questions;

- For Roma respondents – analysis of the overall test, separately by domains, separately for the reading questions with a short answer, and separately for the reading multiple-choice questions;
- For others – analysis of the overall test, separately by domains, separately for the reading questions with a short answer, and separately for the reading multiple-choice questions.

The statistical significance of the difference was calculated for each sub-domain.

The achievements of all students were intersected with the students' answers on the questions from the questionnaire at the end of the test. Moreover, the average score was calculated for every question and for every alternative.

The individual achievements for each student were also calculated.

2. Comparative analysis of the data on the students' achievements from 2014 and 2016.

The comparative analysis of the students' achievements from 2014 and 2016 was conducted for all respondents, separately for the Roma and for the other respondents. The T- test was also calculated.

Comparative analysis for all respondents

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	249	39,26	–3,3901
2016	256	45,03	

Comparative analysis for respondents – Roma

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	117	30,58	–2,7964
2016	121	36,49	

Сiоредбени аComparative analysis for respondents - others

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	132	46,95	–2,6271
2016	133	52,80	

MATHEMATICS TEST FOR THE STUDENTS

1. Analysis of the data from 2016

The data were analyzed by question, as well as on the overall test. Moreover, an analysis of the influence of the background variables was made, from

the questionnaire for the students regarding their impact on the students' achievements.

The following analysis by sub-domains was made:

1) By topics – i.e. for Regular tasks and Textual tasks separately

2) By sample of respondents

- For all respondents – analysis of the overall test, separately by domains;
- For Roma respondents – analysis of the overall test, separately by domains;
- For others – analysis of the overall test, separately by domains.

The statistical significance of the difference was calculated for each sub-domain.

The achievements of all students were intersected with the students' answers on the questions from the questionnaire at the end of the test. Moreover, the average score was calculated for every question and for every alternative.

The individual achievements for each student were also calculated.

2. Comparative analysis of the data on the students' achievements from 2014 and 2016.

The comparative analysis of the students' achievements from 2014 and 2016 was conducted for all respondents, separately for the Roma and for the other respondents. The T- test was also calculated.

Comparative analysis for all respondents

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	265	37,07	0,3126
2016	256	36,55	

Comparative analysis for respondents – Roma

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	126	25,91	–1,6005
2016	120	28,97	

Comparative analysis for respondents - others

YEAR	NUMBER OF RESPONDENTS	OVERALL ACHIEVEMENTS	T-TECT
2014	139	47,19	1,7899
2016	136	43,23	

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