**“MATH AROUND US” EVALUATION REPORT**

**School year 2015/2016**

**PART 1**

The information in the hereby evaluation report were provided by the national coordinators who systematically monitored the process of project implementation and evaluation (data collection and analysis, writing a report) at schools with a view of project objectives and requirements.

* **PROJECT OBJECTIVE 1**

**To improve students’ skills and competences in the field of Maths by 20%**

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| --- | --- | --- | --- |
| **COUNTRY** | **% of students who improved their grades in Math** | **% of students who improved their grades in Math by 20% or more** | **Evaluation techniques** |
| POLAND | 75 | 65 | diagnostic tests applied in September 2015 and May 2016,  grades achieved at the end of I semester and at the end of II semester |
| GREECE | 50 | 15 | grades achieved by the students at the end of I semester (in January) and at the end of II semester (in June),  Math tests at the relevant worksheets, applied before and after teaching the MAU materials |
| ITALY | 80 | 40 | grades achieved by the students at the end of the previous school year(2014/2015) and at the end of the present one (2015/2016) |
| PORTUGAL | 80 |  | grades achieved by the students at the end of the school year 2015/2016 |
| LITHUANIA | 32 | 15 | analysis of I semester and II semester documents for 1a, 1b, 2a, 2b, 2d grades |
| HUNGARY | 30 | 14 | grades achieved by the students at the end of the 1st semester to those achieved at the end of the 2nd semester,  grades achieved by the students at the tests (designed by the Math teachers) applied before and after teaching the MAU materials |
| DENMARK | 5 |  | grades in the middle of the school year and grades at a mock exam in Math in June,  the students filled a questionnaire designed by the Math teachers before and after each topic being taught in order to assess themselves and their understanding of the topic |
| ROMANIA | 55 | 30 | We compared the grades achieved by the students at the end of the first semester and at the National BAC Simulation |

**COORDINATORS’ COMMENTS:**

**POLAND**

In our school the evaluation was carried out among students involved in the MAU activities: (classes 2a, 2b, 2d, 3a, 3b, 3d). We evaluated separately classes: 2b, 2d, 3b, 3d and classes 2a, 3a (these students are more active in the project and they participate in mobilities).

The Math teachers are satisfied with the results of the evaluation. The statistics prove students’ progress in Math. Three different areas were checked and in all of them the students made a significant progress. Although all the above mentioned classes improved the grades, the progress was greater in classes 3b and 3d than 2b and 2d. According to the teachers, some Math topics covered by MAU activities were not included in our curriculum and for that reason they were more difficult for younger students. Another reason might be insufficient time for project activities in classes 2b, 2d. The students who go on mobilities and take an active part in the project activities (classes 2a, 3a) achieved much better final grades than the others because they have greater motivation.

We also checked the final grades achieved by a student at the end of the previous school year - 2014/2015 and at the end of this school year - 2015/2016. 20 % of students less active in the project and 33% of students more active in the project improved their grades in Math.

**GREECE**

We are quite satisfied because most of the students, before the MAU project, had no idea about some of the topics involved, e.g. the Fibonacci sequence and its presence in so many fields. They realised the significance of Math theories to various fields.

We noticed an evident change of their attitude towards math lessons.

Among the total number of students of A grade and B grade, there is still a small number of them who remain indifferent during a typical math lesson in the class. Despite the challenge provoked during the project time, few students were not attracted. We could assume that the reason for that is that the time dedicated was not enough for them to reverse their previous negative attitude to Math.

The students who go on mobilities were definitely more strongly motivated.

**ITALY**

Only two classes (3D and 4A) did not improve their results. It is important to underline that the general increment of the other classes is particularly meaningful as the 3th classes leave the Maths teachers who followed them in the first biennium to take a new one and, usually, the changing signs a moment of difficulty in the learning activities. Relevant is also the fact that no class remained under the level of pass grade (6).

Considering that our Lyceum is a school specializing in Maths and Science subjects, sometimes the materials prepared for the project activities have not completely corresponded to the Italian curricula, but the improvement has been clearly achieved as well. We think, and our students support our same impression, that the improvement has been generated by a different “emotional” approach to the study of Maths: the lab teaching/learning approach has made more concrete and directly linked to everyday life a subject that is usually perceived as a mere theoretic mental exercise.

Taking part in lessons that saw “in action” Maths and Science or Drawing, Maths and Biology or Music has opened their minds on a truth that teachers have always been repeating: all subjects are deeply interconnected and Knowledge is a whole.

So we could synthetize affirming that the “engine” of their enthusiastic participation to all the activities and their improvement in profit was their renewed motivation.

We teachers and school authorities are all greatly satisfied about the result we have obtained and we consider this first experience in Erasmus project a superb chance of bettering both teachers’ and students’ competences. We only wished we had been able to involve more concretely all the teachers of our school, because, as a matter of fact, only the classes which had teachers directly involved in the project, have taken part in the different activities.

The challenge is for us to include more teachers/students next year.

Particularly important has been taking part to mobilities both for students and teachers who were positively impressed by the lab didactic approach, by a well-established cross curricula method and daily use of ITC. The comparison has worked as stimulus to improve in the mentioned competences for both students and teachers.

**PORTUGAL**

Although our school has the study area of Sciences and Technologies from the 10th to the 12th grade, some of the proposed activities (e.g. the Fibonacci sequence) are not part of the Portuguese curricula, the topics were fully carried out and the students had the necessary feedback to understand them. Taking part in lessons with new approaches (Math related to different subjects) enabled them to have a different understanding and vision how wide is the Math universe. Many of them got aware that Math is everywhere, it’s part of their everyday life.

By working Biology, Geography, Music, they could perceive the fact that Math is connected with many subjects and there was a multidisciplinary work to achieve the goals. They were motivated and enthusiastic about participating in the activities and in the project on the whole.

It is early to say the progress is bigger than in the previous year but it has been a challenging experience working for the first time in an Erasmus+ programme which gives both students and teachers the chance to improve competences and new teaching methods. As for the teachers’ participation it can be said that more Math teachers should be engaged in the project. One of the goals for the next year is to have more Math teachers, as well as students involved. The teachers taking part in the mobilities had the chance to get to know other teaching methods, didactic approaches as well as other school realities.

**HUNGARY**

The Math teachers involved in the project are satisfied with the results because they significantly improved compared to previous years. The students have made a lot of progress because they are more motivated and perform better at Maths test. The progress is bigger than the previous years. The students, who take part in mobilities take an active part in the project activities. They are more motivated and interested in the subject and the project.

**DENMARK**

A 5 % improvement in students’ grades in Math seems very low. However, an explanation can be found in the grades compared as stated above. The grade obtained at the end of the year at the mock exam might not show an improvement due the fact that it is an examination grade and not a grade obtained during the school year. When that is said, one could wish for a better result/a bigger improvement. We will take it into consideration next school year and discuss what might be done to reach a bigger improvement.

The students have made some progress in Maths, especially because of their motivation for seeing Maths in other perspective than the usual ones. In the self-assessment questionnaire that students have filled before and after teaching the relevant topic, students have answered that they have gained a much deeper insight into the different phenomena of Maths and thus we see an improvement in Math abilities of the students.

The Maths involved in the studied topics are not directly part of the Danish curriculum which might explain why we see little improvement in students’ grades. Because we chose to use the grade obtained in the mock exam, we might not see the full picture of students’ improvement as stated above.

The students who attend the mobilities have shown a greater interest in Maths lessons and have proved to be great helpers to their peers in Math lessons.

ROMANIA:

In our school the evaluation was carried out among the grades involved in the MAU activities in this schoolyear: (classes 10A, 10B, 11A, 11B, 12A).

The Math teachers are satisfied with the results of the evaluation. The statistics prove students’ progress in Math. Although all the above mentioned classes improved the grades, the progress was greater in class 12A, probably because they are also preparing for the National Baccalaureate exam.

General remarks and feedback from the Math teachers:

* According to the teachers, some Math topics covered by MAU activities are not included in the curriculum and for that reason they would require more time to be taught.
* The students who hosted students and who go on mobilities and take an active part in the project activities have greater motivation to learn and improve their grades.

We also checked the final grades achieved by a student at the end of the previous school year - 2014/2015 and at the end of this school year - 2015/2016. Most students achieved the same grade or higher than in the previous year.

* **PROJECT OBJECTIVE 2**

**To improve the score at national exams by at least 10%.**

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| --- | --- | --- | --- |
| **COUNTRY** | **% of students who improved their score at national exams** | **% of students who improved their score at national exams by 10% or more** | **Evaluation techniques** |
| POLAND | 63 | 63 | we compared the results achieved by the students at the mock exam in December with the results of the final exam in May |
| GREECE | NA | NA | The only students who take part at the national exams are those of the C Grade and they were not involved at the MAU project |
| ITALY | N/A |  | In the first year of MAU project only 3 students (Romanian mobility) were involved in final examination ( at the end of their 5th year) and they actually maintained their very positive results as they had been selected among the best students in Maths and English. |
| PORTUGAL |  |  | The students who did national exams were not involved in the MAU project. We will have results this year. The results I have are the ones concerning all students of grade 12. I also have the results of final terms. |
| LITHUANIA | 60,4 | 14,2 | The percentages for the whole school (10th&12th  grades students’ total 197 students took part at the National Math egzams) at their final exam in 2016 at Utena Dauniskis gymnasium. |
| HUNGARY | N/A | N/A | N/A |
| DENMARK | N/A | N/A | N/A |
| ROMANIA | 31.61% | 31.61% | The promovability percentage at the BAC Simulation/Mock exam was 57,89 % and at the BACCALAURATE National exam was ***87,5%*** |

* **PROJECT OBJECTIVE 3**

**To increase all high school students’ motivation for learning Math**

|  |  |  |
| --- | --- | --- |
| **COUNTRY** | **Number of students who took part in Math contests** | **Number of students taking part in extra-curricular activities in Math** |
| POLAND | **13 students took part in a Math contest (regional).** Two of them won the first prize, one of them won the second prize and one of them won the third prize.  **24 students took part in Math Olympiad (regional).** Two of them got to the final and became laureates.  **1 student took part in Math Olympiad (national)** and became a laureate. | 34 students took part in regular extra-curricular activities in Maths, 25 of them worked specifically on MAU project. |
| GREECE | **10 students took part in regional math school contest** (Thales and Euclid contest of the Hellenic Mathematical Society) | Few students took part in regular extra-curricular activities in Maths, 22 of them worked specifically on MAU project. |
| ITALY | **8o students** took part in **MateMarcheMatica a regional contest** in collaboration with the Engineering Faculty of Università Politecnica delle Marche. There were 9 teams of 7 students each (+ reserves) and 5 teachers**. 3 teams passed the regional selection** and **one ( 4H,4E,3D implied in MAU) took part to the national selection**.  **80 students took part in Math Olympiad (national) selection**. In Italy the regulations say that only 3 students per class can be selected and that our Province (Ascoli Piceno) can select 25 contestants. **Our student won the 2nd place in the Province selection.**  **20 students took** part in Campionati Internazionali di Giochi Matematici organized by PRISTEM Centre of **BOCCONI UNIVERSITY, 5 of whom entered the final national selection.** | All 260 students participating in the project took part in regular extra-curricular activities in Maths and prepared the activities linked to the Italian mobility , when they were responsible of hosting partners.  In the implementation of didactic activities in relation with different mobilities :  5E worked specifically on Romanian Science material in collaboration with Hungarian team,  3E/4A/4D worked on Italian Art material in collaboration with the Portuguese team;  4E/4A/4D worked on Danish Environment material in collaboration with the Romanian team;  4E /3C/3D have been working about the Polish Music material in collaboration with the Lithuanian team. |
| PORTUGAL | 75 students participated in the Portuguese Math Olympics, 16 of which belonged to secondary education. 2 of them were in the playoffs. | All the students taking part in the mobilities engaged in extra-curricular activities as a means to prepare the work to be presented.  One of the Math teacher working for the project had around 43 students who attended the Math’s Room and she also gave seven extra classes that students attended on their own will.  Concerning the implementation/exchanging of didactic activities that are part of the mobilities, they were carried out by the following classes:   * 11A worked for the Romanian mobility and took part on it * 11B worked in collaboration with the Danish team (Math in the Science Lab) * 11D worked in collaboration with the Italian team (Math in Arts); * 10D worked in collaboration with the Polish team (Math in the Environment). |
| LITHUANIA | 30 students from Utena Dauniskis gmnasium participated in the international "Kangaroo" contest. **13** of them got into the top of ten in the district. 10 students participated in the regional mathematics Olympiad. 4th grade student Vytenis Trinkūnas took **2nd** place. 5 students participated in the national competition "Gimnazistuk @ s 2015 and one of them won **II place.** InProgramming contest "Beaver" participated 120 students. Also,students participated in KTU contest Informiko House - 4 (contest still going). At regional Physics Olympiad 4th grader Karolis Treinys won **Ist** place, | 21 students |
| HUNGARY | 20 students took part in various Maths contests (regional) | 30 students took part in regular extra-curricular activities in Maths, 25 of them worked specifically on MAU project |
| DENMARK | 60 students took part in the Georg Mohr contest on school level. None of the students went any further.  (Note: our school doesn’t have a very high degree of participation in contests in general as well as there are not many national competitions either. It’s not very common in Denmark) | N/A (in Denmark as the extra-curricular activities in Math only involve 12th grade students) |
| ROMANIA | 15 of our students participated in 3 Science Contests. Two of them received First Prize, and 11 of them received Third Prizes | Students conducted experiments and wrote scientific papers as an extra-curricular activity. They were willing to prepare extra for the contests. |

**COORDINATORS’ COMMENTS:**

**POLAND**

Based on teachers’ observation, Polish students had a lot of motivation to learn Math. They didn’t skip the classes, they participated actively, they tried to improve grades. Comparing to last year, more students participated in extra-curricular activities in Math.

**GREECE**

Based on teachers’ observation, Greek students had a lot of motivation to learn Math. They didn’t skip the classes, they participated actively, they tried to improve grades.

**ITALY**

Students took part in numerous contests related to the MAU topics:

53 students from 3rd classes (3A,B,C,D,E included in MAU activities) attended the Bio-Ethic Course of Camerino University and 12 of them were selected for a stage in ATENA Chemistry Enterprise.

13 students from 4th classes took part in Chemistry Games National Competition supported by Ministry of Education and one student from 4A had the 11th place at regional selection.

1 student won the first prize on 450 contestants in the national competition ONE DAY AS A RESERCHER, promoted by the SCUOLA NORMALE DI PISA (University of Excellence at international level), 4 students reached the regional phase of Problem Solving Olympiad (Informatics, Algorithms and Programming).

**PORTUGAL**

According to the Math teacher, students felt motivated to learn this subject and tried to improve their grades. The point is that they can share this with their mates and make them see Maths as something interesting and useful which deserves their attention.

**LITHUANIA**

The results of the questionnaire applied to Utena Dauniskis gymnasium students involved in project activities prove that 80 % of the respondents became more motivated to learn math. The students said that they improved their knowledge of mathematics, the English language skills, found out more about other cultures and started to collaborate with new friends from Europe.

**HUNGARY**

Based on teachers’ observation, Hungarian students had a lot of motivation to learn Math. They didn’t skip the classes, they participated actively, they tried to improve grades.

**DENMARK**

Based on teachers’ observation, our students had a lot of motivation to learn Math. They didn’t skip the classes, they participated actively, they tried to improve grades.

**ROMANIA**

Based on teachers observations, our students increased their motivation to learn Math and they now perceive Math in a more humane way. They did not skip classes, they participated actively and they tried to improve grades.

* **PROJECT OBJECVTIVE 4**

**To broaden teachers’ professional skills by attending development workshops and using peer learning, CLIL and Blended-learning methods to create new innovative teaching materials using peer learning**

During the mobilities the participating teachers attended the following development workshops, study visits and conferences:

1. “How to grow the impact of MAU” (Romania)
2. “How to disseminate our project’s activities“ (Romania)
3. “Colaborative teaching and learning” (Romania)
4. “Multiple Intelligence Theory” (Romania)
5. „The best of eTwinning for our project” (Romania)
6. “Implementing the Blended mobility” (Romania)
7. Study Visit at The Physics Research Institute in Cluj-Napoca (Romania)
8. Study Visit to FARMEC Company (Romania)
9. Study Visit at Salina Turda (Romania)
10. „Conference about Emperor Hadrian’s building patterns based on golden ratio” (Italy)
11. ”Visit and lecture at Maths Gallery of Polo Museale Universitario – Casalina, University of Perugia” (Italy)
12. „Study Visit at Basilica of Sait Francesi in Assisi: the intuitive perspective in Giotto’s frescos” (Italy)
13. “Study Visit to Ascoli Piceno: Medieval and Renaissance artistic enviroment” (Italy)
14. ”Study Visit at Palazzo Ducale in Ubino: the scientific perspective in Piero della Francesca, Paolo Uccello and in „La Città ideale” (Italy)
15. „Study Visit at School of Fine Art in Urbino: the new artistic frontiers, workshop about bronze fusion and the use of maths in building theatre scenography” (Italy)
16. “Biological and psychological roots of Learning Diseases” (Italy)
17. “New teaching approaches to maths for dyscalculia affected students” (Italy)
18. Study visit at DHI, a global company working in the field of research and consultant business (Denmark)
19. „Flooding and its consequences – on a human scale and a political scale” (Denmark)
20. “Water dynamics, erosion and global warming” (Denmark)
21. „How to plan and build a harbour – the process of modelling, testing and carrying out a real-life project” (Denmark)
22. Study visit at the Technical University of Denmark – sustainable production in private companies (Denmark)
23. Workshop about cross-curricular teaching – developing and strengthening own methodology (Denmark)
24. Implementing Blended Mobility – sharing practises (Denmark)
25. “Instruments in Polish folk music - the hurdy-gurdy” (Poland)
26. “The concept of time and space in a musical composition in relation to Newton’s and Leibniz’s theory of time” (Poland)
27. “A creative approach to mathematical problem solving” (Poland)
28. Study visit at Kampus Wielicki Educational Centre. (Poland)
29. “Math and Music” (Poland)
30. “Evaluation in EU projects” (Poland)
31. “The importance of music education” (Poland)
32. Study visit at Kraków – European Capital of Culture (Poland)

**POLAND**

**Frequency with which teachers use the teaching materials**

3 math teachers worked on the materials in a systematic way, either on regular lessons or during after-school classes. 1 teacher had extra classes with the students participating in mobilities. The classes were held once a week. Some lessons were done by teachers of other subjects (Physics, Chemistry, Art, Biology and Music). A teacher of Physics used the Romanian materials during the Spring Day and also during the Open Day with primary school students.

The frequency was 3-6 lessons per topic (e.g. Math and Science).

The person who was responsible for distribution of the materials on a given topic was the Math teacher who took part in a mobility. The teacher usually held a meeting with other teachers to guide them, explain methodology and share the materials.

The Math teachers also organised three events in the form of open lessons based on MAU teaching materials. We invited teachers and students from neighbouring schools.

**Incidence of teacher participation in professional development courses**

4 teachers (Math, biology, geography, ICT) attended a 90-hour language course (English B1)

A teacher of Math attended a 120-hour course on CLIL “English for Mathematics Teachers”

2 teachers of Math attended an online course „Math in different areas of life“.

**GREECE**

**Frequency with which teachers use the teaching materials**

2 math teachers worked on the materials in a systematic way, either on regular lessons or during after-school classes. 1 teacher had extra classes with the students participating in mobilities. The classes were held once a week. Some lessons were done by teachers of other subjects (Physics, Chemistry, Art and Biology).

The frequency was 3-6 lessons per topic (e.g. Math and Science).

The persons who were responsible for distribution of the materials on a given topic were the Math or Chemistry teachers who took part in a mobility. The teachers usually held a meeting with other teachers to guide them, explain methodology and share the materials.

**Incidence of teacher participation in professional development courses**

All the teachers attended a 9-hour course on CLIL and peer learning methods.

There were seminars held at school concerning the psychology of teenagers (attended by 27 students, 5 teachers) and creative writing workshop (attended by 30 student , 3 teachers).

There was a conference about the “Antikythera Mechanism” and a relevant exhibition organised by our school, held at the “Porfyrogenis Institution” during February. 700 students of 22 schools of Magnesia visited it.

**ITALY**

**Frequency with which teachers use the teaching materials**

6 math teachers together with 2 English teachers worked on the materials in a systematic way, either on regular lessons, using the material proposed by partners in each mobility, or during after-school classes, with the frequency of two lessons a week, preparing lessons and exercises, PPT presentations to propose to partners in the following mobility, so using and improving CLIL method .

As well the implementation of didactic linked to different topics implied the collaboration of teachers of other subjects: Physics, Chemistry, Art, Biology and Music ( external teacher implied in regular extra- curricular music activities)

The person who was responsible for distribution of the materials on a given topic was always the Coordinator, while the Math teacher who took part in a mobility usually held a meeting with other teachers to guide them, explain methodology and share the materials.

**Incidence of teacher participation in professional development courses**

4 teachers (Math, Biology, Physics, ICT) attended English language courses promoted by Ministry of Education.

1 teacher of Math and 1 teacher of Physics joined the FABLAB WITH ARDUINO lecturing about Physics in English to a selection 0f 50 students, getting a CLIL specialization

**PORTUGAL**

**Frequency with which teachers use the teaching materials**

One Physics teacher along with a Chemistry and a Math teacher worked on the materials, either on regular lessons, using the material proposed by partners in each mobility, or during extra classes. Along with these three teachers the Geography and the Biology teachers also worked extra classes. All these teachers prepared the PPT presentations (with the help of the English teacher) for each of the mobilities as well as for the dissemination activities. The CLIL method was used and somehow improved.

After the Polish mobility there was also a meeting with the Physics, Math teachers (2), Biology and the Music teacher. Apart from being studied in the 5th and 6th grades there was important to settle guidelines to work the topic Math in Music.

The Coordinator always held a meeting after each mobility with the teachers involved in the project to share ideas, discuss methodology, share materials and plan the work to be done till the next mobility. In three of the meetings the school headmistress was also present. We have a written document where it is summed up the main points of this meeting.

**Incidence of teacher participation in professional development courses**

Two teachers (English and ICT) attended eTwinning courses promoted by the Ministry of Education.

**LITHUANIA**

**Frequency with which teachers use the teaching materials**

After each project meeting 3-6 lessons per 2 months.

**Incidence of teacher participation in professional development courses**

15 teachers took part in various development courses.

**HUNGARY**

**Frequency with which teachers use the teaching materials**

5 math teachers worked on the materials in a systematic way, either on regular lessons or during after-school classes. Some lessons were done by teachers of other subjects (Chemistry, Biology).

The frequency was 3-6 lessons per topic (e.g. Math and Science).

The person who was responsible for distribution of the materials on a given topic was the Math teacher who took part in a mobility. The teacher usually held a meeting with other teachers to guide them, explain methodology and share the materials.

The Math teachers organized an event called “Math Horror Labyrinth” during the School day in March. The participants had to go through the labyrinth and complete exercises connected to the materials covered in the project (e.g Math in Arts).

**DENMARK**

**Frequency with which teachers use the teaching materials**

3 Math teachers worked with the materials. They have taught it during regular lessons and have spent 3-4 lessons per topic

The person responsible for adjusting the materials on a given topic was the Math teacher who took part in a mobility. The teacher usually held a meeting with other teachers to guide them, explain methodology and share the materials.

**ROMANIA**

**Frequency with which teachers use the teaching materials**

3 math teachers worked on the materials in a systematic way, on regular lessons. Two teachers had extra-curricular activities with the students participating in mobilities. Some lessons were done by teachers of other subjects (Physics, Chemistry, Engineering, Geography, Biology and Music).

The frequency was 4-6 lessons per topic.

The person who was responsible for distribution of the materials on a given topic were the teachers who took part in a mobility. The teachers usually held a meeting with other teachers to guide them, explain methodology and share the materials.

The Math teachers also organised their own materials and lessons during the Blended-Mobility period.

**Incidence of teacher participation in professional development courses**

Ten teachers participated in an English Course, organized by Teachers Training Centre in Cluj. (20 hours)

Three Math teachers, 2 engineers, 2 physics teachers and one English teacher participated to Conferences, national symposiums and contests with articles/papers based on the teaching materials from the project.

* **PROJECT OBJECTIVE 5**

**To sharpen students’ and teachers’ communication and interpersonal skills and to master their linguistic skills, by improving their English Language (B1 and B2 level).**

**POLAND**

According to the English teachers, a lot of Polish students improved the communication skills and reached B1 and B2 level, especially the ones who participated in the mobilities. Many students got prizes in language contests at regional level. The students themselves say that their English got better as a result of project activities.

Apart from observation, interviews with the students and tests, in Poland we also used European Language Passport to measure the level of proficiency of 28 students in class 2a.

**GREECE**

According to the English teachers, a lot of Greek students improved the communication skills and reached B1 and B2 level, especially the ones who participated in the mobilities.

The students themselves say that their English got better as a result of project activities.

**ITALY**

According to the English teachers, a lot of Italian students improved the communication skills and reached B2 level, especially the ones who participated in the mobilities. The students themselves say that their English got better as a result of project activities.

11 students got the B2 Certification taking part in The Language Olympiad and one from 4E implied in MAU project, having obtained the 1 Certification, won a 15 days’ English Course in Malta.

26 students ( 13 Included in MAU) took part in the KANLOUROU National Competition and 1 reached the national phase( a real level of excellence).

**PORTUGAL**

According to the English teachers, some Portuguese students improved their communication skills mainly the ones who took part in the mobilities. They assume that their English got better, especially for the speaking skills as when participating in the mobilities they had to communicate with all the other partners.

The dissemination activities carried out in classes were very useful to make others understand the importance of communicating in a foreign language, English. Awareness of other cultural environments is also to be referred.

**HUNGARY**

According to the English teachers, a lot of Hungarian students improved the communication skills and reached B1 and B2 level, especially the ones who participated in the mobilities. The students themselves say that their English got better as a result of project activities.

**DENMARK**

According to the English teachers, a lot of our students improved their communication skills. They have taken a more active part in lessons and have made presentations in English for their peers both of the materials presented in mobilities and other topics.

**ROMANIA**

According to the English teachers, most students improved their communication skills and reached a B1 and B2 level proved by the results at their National BAC exam. Especially the ones who participated in mobilities showed great improvement in their public speech skills. The students themselves say that their English got better and their confidence in using English increased as a result of participating in the project activities.

Methods used: observation, interviews with the students, results at BAC exam.

**PART 2**

**RESULTS OF EVALUATION QUESTIONNAIRES**

**APPLIED TO STUDENTS AND TEACHERS DURING THE MOBILITIES (2015/2016)**

**STUDENTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MOBILITY TO ROMANIA  October 2015  % | MOBILITY TO ITALY  January 2016  % | MOBILITY TO DENMARK  March 2016  % | MOBILITY TO POLAND  May 2016  % |
|  | **The lessons were interesting and thought provoking** | | | |
| I totally agree |  | 40,91 | 50,00 | 68,18 |
| I quite agree |  | 59,09 | 47,22 | 31,82 |
| I disagree |  | 0,00 | 2,78 | 0,00 |
|  | **The lessons clearly showed Math in connection with Science/Art/the Environment/Music** | | | |
| I totally agree |  | 77,27 | 63,89 | 81,82 |
| I quite agree |  | 22,73 | 25,00 | 18,18 |
| I disagree |  | 0,00 | 11,11 | 0,00 |
|  | **The lessons promoted active participation** | | | |
| I totally agree |  | 45,45 | 63,89 | 77,27 |
| I quite agree |  | 54,55 | 33,33 | 22,73 |
| I disagree |  | 0,00 | 2,78 | 0,00 |
|  | **The lessons increased my motivation for learning Math** | | | |
| I totally agree |  | 45,45 | 38,89 | 36,36 |
| I quite agree |  | 54,55 | 47,22 | 54,55 |
| I disagree |  | 0,00 | 13,89 | 9,09 |
|  | **By taking part in the mobility I improved my communication and interpersonal skills** | | | |
| I totally agree |  | 90,48 | 88,89 | 86,36 |
| I quite agree |  | 9,52 | 11,11 | 13,64 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **By taking part in the mobility I learned more about the culture of the host country** | | | |
| I totally agree |  | 90,91 | 77,78 | 86,36 |
| I quite agree |  | 4,55 | 19,44 | 13,64 |
| I disagree |  | 4,55 | 2,78 | 0,00 |
|  | **By taking part in the mobility I developed my language skills** | | | |
| I totally agree |  | 95,45 | 88,89 | 72,73 |
| I quite agree |  | 4,55 | 11,11 | 22,73 |
| I disagree |  | 0,00 | 0,00 | 4,55 |
|  | **During the mobility I improved my presentation and social skills** | | | |
| I totally agree |  | 81,82 | 72,22 | 72,73 |
| I quite agree |  | 18,18 | 25,00 | 22,73 |
| I disagree |  | 0,00 | 2,78 | 4,55 |
|  | **In my opinion, the activities presented during the mobility were useful and engaging** | | | |
| I totally agree |  | 31,82 | 61,11 | 81,82 |
| I quite agree |  | 68,18 | 36,11 | 18,18 |
| I disagree |  | 0,00 | 2,78 | 0,00 |

**To view the full results and individual responses click on the links:**

ITALY: <https://www.surveymonkey.com/results/SM-5W6CBTXT/>

DENMARK: <https://www.surveymonkey.com/results/SM-JFJRBTXT/>

POLAND: <https://www.surveymonkey.com/results/SM-G6HNBTXT/>

**TEACHERS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MOBILITY TO ROMANIA  October 2015  % | MOBILITY TO ITALY  January 2016  % | MOBILITY TO DENMARK  March 2016  % | MOBILITY TO POLAND  May 2016  % |
|  | **The lessons were interesting, thought provoking and promoted active participation** | | | |
| I totally agree |  | 30,77 | 90,00 | 84,62 |
| I quite agree |  | 61,54 | 10,00 | 15,38 |
| I disagree |  | 7,69 | 0,00 | 0,00 |
|  | **The lessons clearly showed Math in connection with Science/Art/the Environment/Music** | | | |
| I totally agree |  | 61,54 | 90,00 | 84,62 |
| I quite agree |  | 38,46 | 10,00 | 15,38 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **In my opinion, the lessons increased students' motivation for learning Math** | | | |
| I totally agree |  | 50,00 | 80,00 | 69,23 |
| I quite agree |  | 50,00 | 20,00 | 30,77 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **The methodology was clearly presented** | | | |
| I totally agree |  | 53,85 | 90,00 | 92,31 |
| I quite agree |  | 46,15 | 10,00 | 7,69 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **The lessons promoted cross curricular approach to teaching** | | | |
| I totally agree |  | 76,92 | 80,00 | 84,62 |
| I quite agree |  | 23,08 | 20,00 | 15,38 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **By taking part in the mobility I improved my communication and interpersonal skills** | | | |
| I totally agree |  | 91,67 | 80,00 | 84,62 |
| I quite agree |  | 8,33 | 20,00 | 15,38 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **By taking part in the mobility I learned more about the culture of the host country** | | | |
| I totally agree |  | 100,00 | 90,00 | 100,00 |
| I quite agree |  | 0,00 | 10,00 | 0,00 |
| I disagree |  | 0,00 | 0,00 | 0,00 |
|  | **By taking part in the mobility I developed professionally and found new creative methods of teaching** | | | |
| I totally agree |  | 46,15 | 70,00 | 46,15 |
| I quite agree |  | 53,85 | 30,00 | 46,15 |
| I disagree |  | 0,00 | 0,00 | 7,69 |
|  | **During the mobility I had a lot of chance to share experience with other teachers** | | | |
| I totally agree |  | 69,23 | 80,00 | 84,62 |
| I quite agree |  | 30,77 | 20,00 | 15,38 |
| I disagree |  | 0,00 | 0,00 | 0,00 |

**To view the full results and individual responses click on the links:**

ITALY: <https://www.surveymonkey.com/results/SM-HXVLGTXT/>

DENMARK: <https://www.surveymonkey.com/results/SM-XLLQGTXT/>

POLAND: <https://www.surveymonkey.com/results/SM-9K5KBTXT/>