Questionnaire results – C5 mobility in Zagreb, Croatia (December 2021)

- **Total: 10 teachers questionnaires**
- **The questionnaire google doc and google sheet**

Name

10 responses

Vida

Jevgenijs

HAMDİ

AHMET RESUL

Domenica

Sonia

Ilias

Korina

Vittoria Angela

Maria Grazia

Surname

10 responses

Bilogrević Gatolin

Litvinovs

ÇAKIN

ŞAHİN

Marchese

Anesti

Oikonomakos

Pappa

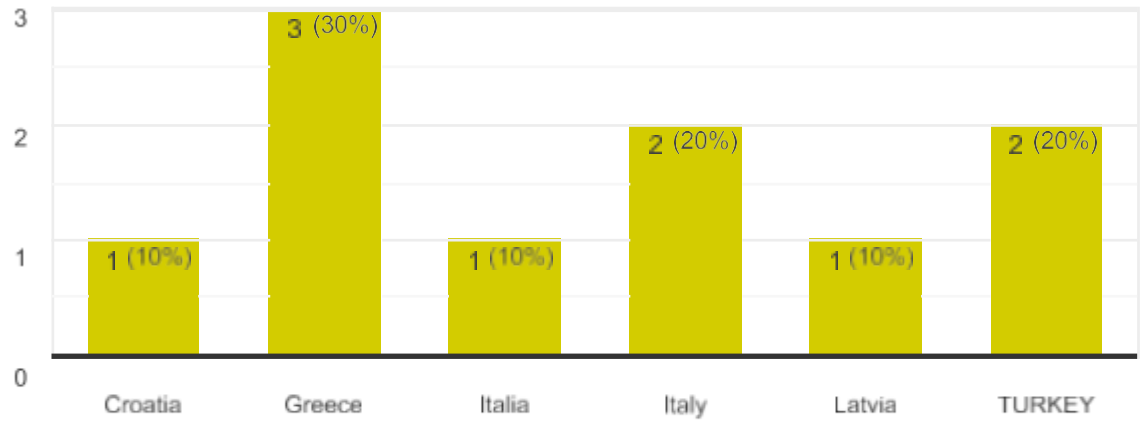
Alaimo

Valenti

Country

Copy

10 responses



DAY1: Monday 13/12

10 responses

Good

Very good welcome from the hosts!

Visiting the Croatian school gave us good ideas to give a better education, we were very happy to see another school and culture.

On the first day, we listened to the presentations prepared by the participating countries, and in addition, we successfully made our own school, city and country presentation. And then we observed the school, its course, its physical structure and classroom environments and exchanged ideas with the teachers.In the afternoon, we had the opportunity to examine the whole city in detail, historically, ecologically and culturally, accompanied by a guide introducing the capital Zagreb.

The first day was interesting to discover the Croatian organization of school environments to be able to compare with our school, especially the way in which the health emergency is also addressed, how the class environment is organized and the equipment they are equipped with. I was struck by the way the kids live the school a bit as if it were their home with great respect for the common areas. The presence of the central court in my opinion is a strong point of the school because it is a bit like the square of a neighborhood where the boys can meet, Another element that has been particularly striking has been to discover and learn about the activities carried out in schools in the partner countries. I was pleased to learn about the school activities in Turkey and Greece. Both give space to laboratory activities for the teaching of STEAM having available materials and spaces that are sometimes missing or are organized differently in Italy. In the activities presented by the two countries we see how it is put into practice what is the idea of tinkering, disassembling cut etc.

Welcoming activities at the school. Acquaintance of the partners, discussions.
Guided tour of the school, presentation of students, teachers, workshops and other countries.
Presentations of the partners. How schools are in each country, ages of students, their work

and interests.
Walking around the old town, an interesting tour, magnificent views and at the end of the day dinner all together.

Meeting the programme's partners, taking a tour around the school premises, attending presentations concerning partner schools and educational systems and then a tour around the city of Zagreb.
During the presentations, various methodologies / strategies for STEAM were presented such as lecturing, learning by doing, learning by example, successfully combining theory and practice as well as promoting critical thinking and thinking out of the box.

Activities:
A. Osnovna škola Ive Andrića Zagreb
- First meeting of all participants aiming at getting to know each other.
- Welcome by the hosting school's staff and visiting the facilities of the hosting school, coming into contact with diversified school systems.
- Partner schools presentations focusing on school systems of each country and on each school's particular assets and contributions to the programme.
B. Sightseeing - The city of Zagreb
Participants had the chance, through a well-documented guided tour, to gain hands-on experience of the hosting country's civilisation, plunging into the past of Zagreb and thus realising at first hand the grandeur of the Croatian civilisation as well as its contribution to the European common cultural identity.

The institute that welcomed us in the first mobility of the "Sea inspired Active Learning of United STEAM" project is the Primary Scool Ivo Andric of Zagreb, located in the Domovinskom Ratu Park. The school is a 2-storey structure and there are 3 school levels in it. Educated students use the school's laboratory spaces in a quiet and functional way, among the teachers there is a climate of collaboration of high skills in the internal and European training field as well as openness to didactic and intercultural exchanges. The presentation of the various partners and their educational institutions gave way to have a first overview of each school and to share methodologies and activities in order to be able to compare and acquire new knowledge.
In the presentation, our school described: organization of spaces, activities, projects, etc. of ICS Maredolce.

In the afternoon, a visit to Zagreb, a beautiful, elegant, clean and charming city where you can breathe the air of old Europe and the joy of Christmas in all the squares and corners of the city

An important moment was listening to and watching presentations between the partners of the "SALUS" project relating to the country, the city, the school, the sharing of good teaching practices with particular attention to STEAM education that our students have carried out in laboratory activities.
We visited the school, observed some lessons and interacted with some teachers on teaching strategies. In the afternoon, accompanied by a tour guide, we visited the city of zagreb.

DAY2: Tuesday 14/12

10 responses

Good

Great STEM workshops from the students.

We realized that science experiments are a very effective method to increase learning too.
Chocolate museum was delicious

We attended Central wastewater treatment plant of the City of Zagreb - virtual meeting (at school). We examined and experienced the workshops prepared by the STEAM team at the school.we visited the chocolate museum in the city center with a guide and got different information about the history, chemistry and traditions of chocolate.

Two things in particular struck me on this day: the green soul of the city of Zagreb and the passion of the students of the faculty of physics of the University of Zagreb. Zagreb Central Wastewater Treatment Plant is the perfect combination of the use of new technologies and respect for the environment, themes at the basis of our project.The lesson with the students of the faculty of physics of the University of Zagreb of the group FIZIKA EKSPRES and the STEAM club of the school gave me confirmation of the interest of the children towards the scientific disciplines if they are presented as something practical, concrete and real. The approach based on "learning by doing" stimulates creativity and captures the attention of students proving a winning approach.

Meeting at the school. An online presentation of Zagreb's sewage system.
Presentations of physics experiments by students of the University of Zagreb. Students working with the program attended.
Visiting the chocolate museum and taking a guided tour of the discovery and use of cocoa and chocolate back in time.

We attended the Activities:
- Online Presentation: Wastewater Treatment Plant of the city of Zagreb.
- STEM-oriented Physics Workshop from FIZIKA EKSPRES (Zagreb University)
- Visiting the Chocolate Museum of Zagreb

Activities:

A. Online Presentation: Wastewater Treatment Plant of the city of Zagreb.
Participants were presented with an environmentally friendly intervention adopted by the city of Zagreb in an attempt to biologically treat waste to render it unharmful for the environment in the area, the River Sava.
In accordance with the Erasmus+ project in question, it was made evident that proper use of mechanics and infrastructure, facilities and automation techniques optimize principles of STEM, such as Engineering and Technology, to the benefit of the environment.

B. STEM-oriented Physics Workshop
The STEM-oriented Physics Workshop clearly demonstrated how experiential learning successfully puts learners at the core of experience by turning them into interactive learners rather than passive listeners. It also pointed out that when school subjects such as Maths, Physics etc. are taught in coherence, they can, on the one hand, motivate learners and on the other hand prove challenging to their minds.
The instructors adopted a creative methodological approach by asking learners, encouraging independent thinking while at the same time allowing failure to occur, in order to achieve understanding of the posed problem.
The workshop was methodologically based on:
- a shift of focus from memorising content to applying experiential feedback gained on the spot by experiments
- problem-based learning through analysing and evaluating a posed problem encouraging observation and independent thinking
- hands-on experience through practical activities which reproduced real-life scenarios
- integration of STEM principles into the learning process
- development of critical thinking through independent experiential learning

C. Visiting the Chocolate Museum of Zagreb Muzej čokolade Zagreb | The sweetest museum

in Croatia to witness a journey through time in the history and chemistry of the cocoa bean and indulge into chocolate's miraculous experience.

Morning dedicated to the workshops.
The experiments shown by Universitari with various instruments, in the presence of students of various school levels, made this monento very interesting.
According to the experimental method, the students were involved in discovering the why of things and participating in the experiments.
Working with others also means developing the values of social inclusion and stimulating the potential of the learner as an individual and an active member of their experiences.
Afternoon visit to the Chocolate Museum, an interesting moment of conviviality.

We participated in online meeting on the wastewater treatment plant of the City of Zagreb. The STEAM CLUB workshop was very interesting. Teachers and pupils examined and experimented together the scientific experiments prepared by University students. We visited the chocolate museum with a guide and got different information about the history, chemistry and traditions of chocolate.

DAY3: Wednesday 15/12

10 responses

Great

Nice cultural trip.

Tesla museum was inspiring.Tesla made amazing inventions 100 years ago.we were shocked especially when we saw the wireless charging technology. Because it has only just begun to be used today.sea air is very good

We traveled to Zadar. We visited Nikola Tesla´s Memorial Centre and got various information about his inventions, project drafts and life. We watched a short film about his life.We had a traditional lunch of the local culture in Gospić.We attended a workshop on activities used for the lesson about teacher education at the university of Zadar. We watched the sunset by the Adriatic sea.

The Tesla Museum holds the story of a genius who changed our lives. Reading and seeing his prototypes allow us to understand how he was actually for that time a visionary, a dreamer. The ability to dream, curiosity, passion and stubbornness that showed in his life Nikola Tesla we must succeed in transmitting it to our students, must be our mission as teachers. Teachers have the role of educating young people to understand how new technologies can actually improve the quality of human life and preserve the environment, especially the marine environment that is the subject of our project. At the bottom of the base of STEAM there is research, curiosity, the desire to discover and create new things, but also passion and the use of the rule as a path to be able to trace roads still unexplored.

Travelling to the Dalmatian coast.
Guided tour of the museum of Nikola Tesla.
Visiting the University of Zadar and following up a lecture on Biology education directly by working at sea, monitoring marine and underwater life, plants, fish, and other organisms.
Walking around the old town and watching/listening to music from a coastal construction that

converts the ripple into a musical sound.
The circular solar system that changes designs and colors according to the course of the sun.

- Memorial Center "Nikola Tesla" Smiljan
- University of Zadar Sveučilište u Zadru / Department of Teacher and Preschool Teacher Education Studies to attend a presentation about a programme including workshops, laboratories and microscopic research combining hands-on activities with creative ones in an effort to increase marine content in formal education and also to enhance young learners' low marine knowledge.
- Walking along the city's coastal area

Activities:
A. Memorial Center "Nikola Tesla" Smiljan
Visiting the birthplace and native home of Nikola Tesla, a prolific scientist namely an inventor, an electrical engineer and a physicist, during whose lifetime many patents for inventions that changed our world saw light. A well-founded guided tour pinpointing the importance of science and technology for the advancement of humanity and for the future sustainability of the planet.
B. University of Zadar Sveučilište u Zadru

Department of Teacher and Preschool Teacher Education Studies
Presentation of the programme Marine Education in Education - Connecting Marine Researchers and School.
The programme as a whole focuses on SDG 14 and aims at improving Ocean Literacy, which is described as the process of understanding the connection as well as the immediate impact that human everyday lives have with the vital element of the sea. It is based on Croatia's geographical location on the Adriatic Sea and it promotes developing Ocean Literacy for future ocean sustainability.
The research carried out by the University of Zadar has proposed a number of actions towards increasing marine content in education:
- changing national curriculums and textbooks
- adopting workshops and lectures as a non-formal type of education
- taking advantage of related international Days to promote the topic in question
During the lecture attendees had the chance to get acquainted with organisations, associations and platforms that are engaged in the Ocean Literacy issue. Such organisations include:

European Marine Science Educators Association
Ocean Literacy Portal
EU4Ocean Coalition for Ocean Literacy - Connecting diverse Organisations, Projects and People | Maritime Forum
EU4Ocean Coalition for Ocean Literacy | European Marine Board
B. Walking along the city's coastal area
Participants had the chance to gain hands-on experience of the importance of the sea element for all human activity by walking along the city's promenade sensing the ambience of the waterfront, while at the same time relaxing to the aura and vibes of the magnificent music produced by the renowned Sea Organ of Zadar.

Interesting is the visit to Smiljan of the museum house of Nikola Tesla, inventor, physicist and engineer who lived between 800 and 900 and live the time in which he lived and his scientific path.
On the way to Zadar we crossed and admired the landscapes of Croatia. In a school in Zadar we saw the presentation of an activity on the marine environment through the study of samples of water, flora and fauna of the sea. It was enchanting to watch the sunset by the sea with the music of a sea organ played by the waves of the sea.

We visited Memorial Center of Nikola Tesla. He was Inventor, electrical engineer and phisicist. He contributed to the development of various fields of applied sciences, particularly in the field of electricity. He attended a marine bilogy lesson at the Zadar university. We visited Zadar and admired its beautiful sunsets over the Adriatic Sea and listened to the sea concert. all wonderful!

DAY4: Thursday 16/12

10 responses

Well done

Good ideas about robotics class.

I am a computer teacher.Getting coding training from a colleague gave me experience.

We attended Gradionica -Ivan Decker - Innovative approach to STEM teaching at school. Information was exchanged on teaching methods and techniques used in the field of robotic coding. The projects were explained. Gained information on how to do it with small projects. We learned about the international competitions that can be participated in.we had a good time at the school event for the new year and got to know about the culture of croatia and finally we had a farewell dinner and we sang and danced together.

The meeting with Ivan Decker allowed me to touch objects made with the products of the Lego Education line. I was interested in how you can approach STEAM with a different spirit. Learning by playing is an innovative approach to traditional disciplinary content and allows you to grow creativity, ingenuity, problem solving skills and team working. Ivan showed some prototypes made by his students but one thing I was sorry about was the fact that his laboratory is not part of the school or in any case of possible extracurricular activities that the school offers to students.

Watching a briefing by Ivan Decker of the GRADIONICA Club on the construction of lego robots.
In the afternoon a Christmas party at the school and closing with dinner, music, dancing.

Lego kits potential was presented placing special emphasis on:
- pneumatics (compressed air)
- STEM approach
- competitions Gradionica Club students participate in

The Club's way of operation was also analyzed along with the educational methods used depending on the age ofctivities: the Club members.
Furthermore participants were acquainted with the use of LEGO in STEAM and with the possibilities this offers towards understanding the individual terms of STEAM by combining them in a playful way both in education and in local, regional or international contests.

Activities:
A. Gradionica Club - Ivan Decker - An innovative approach to STEM teaching at school outlining the endless potential this originally favourite children's toy has in grasping scientific knowledge. What was clearly pointed out was the fact that students obtain knowledge in all STEM-related subjects by actually enjoying to the full taking part in relevant workshops and contests.
B. Christmas Event - Farewell Dinner
The Christmas spirit was wholeheartedly communicated by the school band, flavoured with Croatian traditional food and beverages. The whole event led to the appreciation of customs, cultures and civilisations, which lies in the heart of all Erasmus exchange programmes.

Morning dedicated to technology, it is interesting to see how Lego constructions with small motors can be transformed into moving objects, an activity that fascinates young and old.
The farewell dinner with songs and dances was a moment of cultural exchange and great joy.

Related to Innovative approach to STEM teaching at school with LEGO. I think that in general STEAM learning in the classroom with the LEGO learning system is practical, intuitive, inclusive and highly adaptable. Help pupils acquire skills useful for the future and increase their self-confidence by offering the class endless practical and fun learning possibilities of STEAM subjects. I am a primary school teacher and I know that lego learning in primary school pupils stimulates interest in learning STEAM subjects through play, problem solving and storytelling, preparing them to develop a resilient and independent mindset .

DAY5: Friday 17/12

10 responses

Ok

Farewell and certificate ceremony.

I am proud to have received an erasmus certificate

we received our participation certificates for this mobility and we exchanged ideas about the upcoming mobilities and made arrangements. We left very happy and satisfied.

This experience has allowed me to meet teachers who like me want to team up, create networks and connections to grow their students, open them to the world and know something unexpected and different

Last meeting at the school, awarding of certificates and sweets by the organizers and farewells.

- Certificates of Attendance and farewell gifts were awarded to participants
- Partner teachers concluding meeting concerning the Zagreb mobility

Activities:
A. Certificates of Attendance and farewell gifts were awarded to participants
B. Partner teachers concluding meeting concerning the Zagreb mobility
Due to early departure flights of partners a conclusion eTwinning virtual meeting was scheduled in order to finalize the methodological outcomes, the pedagogical value and the final products of the mobility in Zagreb

Before departure, greetings and a small reflection on the experience lived in Croatia, which is certainly positive and enriching both from a human and professional point of view.

It was great to work and be part of a team comparing, sharing ideas and materials, learning to manage classes with mixed cultures and skills in teaching learning situations.

All participants received our Certificates of Attendance and farewell gifts. Partner teachers concluding meeting regarding the Zagreb mobility

Personal ideas and suggestions about effective ways of teaching STEAM:

10 responses

Take your time, prepare good and let the students become little explorers.

Full 5-day working meeting.

In my opinion, the most effective way of learning is learning by practice.

I realized once again that one of the most effective ways in learning and teaching is experimentation by living and doing. I think that learning by doing and experiencing is more beneficial for personal development rather than curriculum.

STEAM, in fact, are the basis of an educational system that looks ahead, oriented to grow, train and prepare individuals capable of managing an unknown and uncertain future. In the STEAM approach, students are encouraged to adopt an experimental attitude, using imagination and creativity to make new connections between ideas. The best way to teach STEAM, starting from a practical goal, to set a purpose and from there to create objects/ prototypes to improve our lives, to protect our environment. You have to get your hands dirty to make something new, disassemble, tinker, recycle pieces of other mechanical objects. It is necessary to develop in the boys the desire to get involved, to do, to tinker, to disassemble, to make mistakes and to learn from mistakes. There is no single methodology to approach STEAM but thinkering, learning by doing, peer learning, teamwork, as we have learned from this experience, are fundamental for this type of discipline

All activities were directly related to the goals of STEAM.
Physics is directly related to the reactions of organisms, it affects chain reactions, the human body and all natural organisms.
These reactions were monitored and recorded by Tesla and he came to his own conclusions both useful for the understanding of natural phenomena but also for uses necessary for the evolution of science, physics, medicine.

Beautiful constructions that help humans to relax, enjoying colors and music designs.
And we combined all this with our own closing of the meeting with a great celebration.

Methods that can be integrated into the learning process are:
Project-Based Learning: it encourages students to learn skills and apply their knowledge by taking part in a project working for an extended period to research and create a solution to a problem. or query. The teacher's role is to be a facilitator and encourage students to take full control of their projects from start to finish.
Problem-Based Learning: students must analyse and evaluate a problem that is posed to them. This requires a high level of thinking, as there is not usually one clear answer to the problem. This approach encourages creativity, teamwork and leadership.
Inquiry-Based Learning
The main purpose of inquiry-based learning is to emphasise the student's role in the learning process, so they are encouraged to ask as many questions as they like surrounding the subject matter. Skills that are developed from this type of learning include critical thinking, questioning and problem-solving. As it is student-led, the students will need to decide what inquiries they want to make. The teacher's role is to spark curiosity and prompt reflection.

Tips that can prove effective into STEM teaching:
Encourage your students to learn by doing and by example and to develop their critical thinking.
Be hands-on by involving practical activities which students find challenging and which eventually prove rewarding by evaluating final products.
Mimic real-life scenarios. STEM helps students learn skills that will be immediately useful in the outside world.
Integrate maths and science into projects seamlessly. Maths and science tasks that students are engaged in should be relevant to the project in question, relate to real-world scenarios and serve a given purpose.
Arousing students' curiosity to think out of the box, which is fundamental to creating change and breaking the barriers.

As teachers we could:
- start by asking students critical questions about their project to arouse their curiosity
- believe in students' potential
- transfer control of the learning process to the students

- foster curiosity
- increase collaboration among them
- teach them to accept failure, since it is a necessary part of learning and growing
- act as inspiring leaders and role models for our students by being positive, passionate and enthusiastic

We can also encourage them to:
- research around the topic, whether by consulting a STEM expert, by doing online research or by watching relevant videos
- use their imagination and brainstorm as many ideas as possible in a collaborative process
- to foster the use of mind maps which can prove invaluable in remembering ideas
- plan how to bring the project in question to life after considering the topic, the carried out research and everybody's ideas from the brainstorming process
- be creative, use their hands and be practical depending on their own potential
- come up with a way to test how effective the finished products are
- Peer tutor and review each other's work since adolescents learn better when instructed by peers.

Starting from the individual and social experience of the child in order to move from a descriptive phase of the phenomenon to progressive conceptualizations and generalizations.

STEAM education is carried out by offering children and young people laboratory activities in which all the scientific disciplines included in the acronyms (Science, Technology, Engineering, Art and Mathematics) and many others are integrated into the creation of an artifact of any kind. , from a work of art to a game.
the fundamental objective is to bring young people closer to scientific careers in the STEAM field with particular attention to the gender gap.