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AGENCY FOR MOBILITY AND EU PROGRAMMES

„TURN OFF THE LIGHTS, TURN ON THE STARS“

IO 1: Document for establishing of long-term transnational strategic partnership in supporting environmental education in the VET secondary schools in regions of Daruvar – Croatia, Eger – Hungary and Girona - Spain

Call 2020 Round 1 KA2 - Cooperation for innovation and the exchange of good practices

KA202 - Strategic Partnerships for vocational education and training

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CHAPTER 1.: Analysis of the current situation in the educational field

Introduction

Intellectual output 1 (IO1) - Strategic Partnership for vocational education and training is a document for establishing long-term transnational strategic partnership in supporting environmental education in the VET secondary schools in regions of Daruvar- Croatia, Eger – Hungary and Girona – Spain, and one of the three planned intellectual outputs of the Erasmus + Project- Turn off the lights, turn on the stars.

The Joint Project Team in charge of IO1 consists of 6 members, 1 from the town of Daruvar, who is also a Team Leader, 1 from NGO Kaptarko from Hungary, 1 from Camping Bassegoda and 3 Team Leaders of Internal Project teams of all three schools, who should provide the info on the school system. The rest of the IO1 should be developed in the parallel sessions in the frame of the short-term joint staff training events.

Due to the prolonged start of the Project, we propose that we start working on the first part of IO1 which is a baseline study of the educational system both nationally and locally. The aim of this part is to analyse and compare the situation related to environmental education and light pollution in VET schools in Daruvar, Croatia, Eger, Hungary and Girona, Spain, and identify the related weaknesses of educational institutions, as well as to determine the potential for improvement (lack of hardware, software, computer literacy of school teachers, motivation issues, etc.).

Here is the list of the information needed for the first part of the Intellectual output 1 (IO1). Each school should provide a report about the organization of the educational system at the national level, but more importantly, about the organisation and the state of the educational system at the local level, including potential weaknesses in order to have an overview of the present situation in the educational sector of the 3 participating countries / towns / municipalities.

school system at the national level

organization of formal education at the local level (town/municipality):

pre-school education; primary schools; secondary schools; types of secondary schools; higher education, if available

potential weaknesses of the school system (our schools, secondary schools)

The system of education in the Republic of Croatia

The education system from pre-school level to the end of secondary education in the Republic of Croatia, which is free of charge, comprises of:

Pre-school education

Elementary education

Secondary education

Grading System

A grading scale 1-5 is used, wherein grade 1 indicates “insufficient” and grade 5 indicates “excellent”.

Academic Year

The academic year in elementary/primary and secondary schools in Croatia starts beginning of September and ends in June. The academic year is divided into two semesters.

Pre-school Education

Pre-school education in Croatia is optional and is provided by pre-school institutions, nursery schools and kindergartens. In Croatia, there are public as well as private kindergartens available. Children aged 3-6 may attend kindergartens in Croatia. Pre-schools in Croatia aim to create a developmental environment for the children. It provides basic moral values, environment and nature knowledge, and work towards the overall emotional, physical, intellectual, spiritual and moral development of the child.

Elementary/Primary Education

In Croatia, eight-year elementary education is mandatory and free for all children from the age of six to fifteen. Elementary education provides literacy and mathematical knowledge and skills, develops critical thinking and problem-solving abilities, and also provides basic artistic knowledge. There are three segments of elementary education. Compulsory elementary education conducted in regular elementary schools and special institutions for students with developmental difficulties, art education in elementary music and dance schools, and elementary education of adults conducted in regular schools and specialized institutions. Elementary music education is also conducted in certain regular elementary schools, as a separate educational program.

Elementary education is split up into two cycles:

Lower primary/elementary - Grade 1 to grade 4: At the lower primary level, a single teacher per class teaches all the subjects, but English and religious education. Subjects: Mathematics, Religion, Nature and society, Croatian language, Music, Visual art/fine arts, at least one foreign language- English, and Physical education.

Upper primary - Grade 5 to grade 8: At the upper primary level, different teachers teach different subjects.

Additional subjects: Physics, second language- English, German or Italian; Chemistry, History, Informatics, Biology, Geography and other subjects.

Secondary Education

Secondary education provides everyone, after completing primary education and under equal conditions based on individual capability, the opportunity to acquire knowledge and the competences needed to enter the labor market and to undertake further education at higher educational institutions.

Secondary education is provided by secondary schools and other legal entities and includes various types and forms of instruction, education, qualification and training that are carried out according to the provisions of the Primary and Secondary School Education Act (Official Gazette of the Republic of Croatia, 87/2008, 86/2009, 92/2010, 105/2010-cor., 90/2011, 16/2012, 86/2012, 94/2013 and 152/2014, 07/17, 68/18, 98/19, 64/20).

In Croatia, secondary education is not compulsory.

Grades: 9 to 12

Ages: 15 to 18

Duration: 4 years

Secondary school institutions are: secondary schools students' dormitories.

Secondary school programs are as follows:

secondary school diploma programs;

secondary profession degree programs;

basic professional degree programs;

qualification and training programs.

Secondary education in Croatia is offered by the following types of secondary schools:

Grammar schools: These are general education or specialized gymnasia.

Vocational and trade schools

Art schools

Gymnasiums prepare you for further education at higher education institutions, vocational schools prepare you to enter the labor market or provide you with the possibility of continuing education at higher education institutions, and art schools acquire knowledge, develop skills, abilities and creativity in different artistic fields. At the end of general secondary education students must take the national Matura exam. At the end of vocational secondary education students get a vocational qualification, but they can also take the national Matura exam. Students who pass this exam are eligible to apply for higher education institutions in Croatia.

Grammar Schools (Gimnasiums)

These schools are general or specialised.

Duration: 4 years

Common Core Subjects: Croatian language, Mathematics, Foreign languages, Fine arts, History, Music, Chemistry, Latin, Sociology, Informatics, Geography, Biology, Psychology, Physical education, Philosophy, Physics, Politics and economy, Logic, and Ethics / Religion.

There are four types of grammar schools:

General high schools (opća gimnazija) provide general education.

Schools that focus on informatics, science and mathematics (STEM) (prirodoslovno-matematička gimnazija),

Language high schools (jezična gimnazija) focus on foreign languages- at least three languages.

Classics high schools (klasična gimnazija) put emphasis on classics education-Latin and Ancient Greek studies.

Certificate awarded: Upon successful completion of grammar secondary education, International Baccalaureate (Diploma organizacije medjunarodne mature), or General Certificate on Secondary Educaton is awarded.

Vocational Schools (Strukovna skola)

These schools provide education in a specific field-technical and industrial, or in a specific trade. Vocational schools in Croatia offer courses for various career fields.

Career fields: education, administration, management, socio-legal profession, technology, arts, care, and economics.

Duration: 1 to 4 years

The vocational programmes that last for 1-2 years offer basic vocational qualification.

Vocational programmes that last for 3 years prepare students for a specific trade. Students are trained to work in a particular industry or trade.

Vocational programmes that last for 4 years train students in the field of economics, clerical sector and technology. These programmes are theoretical as well as practical, and internship is compulsory for the completion of these programmes.

Subjects: Common core subjects, computer-science, technical and mathematics-based subjects.

Certificate: Vocational qualification and Certificate on final examination.

Arts School (Umjetnička škola)

These schools provide education in the field of visual arts, dance, design, and music.

Duration: 4 years

Certificate awarded: Secondary professional degree and a Certificate on final examination.

Local level – the Town of Daruvar

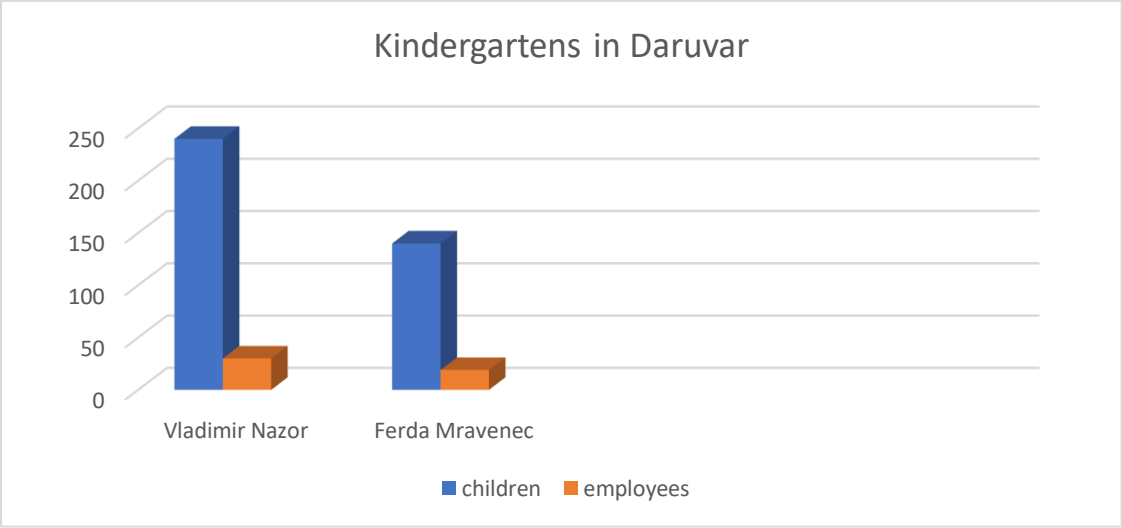
Pre-school education in Daruvar

In Daruvar there are two kindergartens which have the capacity for 380 children from Daruvar area.

Kindergarten "Vladimir Nazor" is owned by the Town of Daruvar and employs 30 people. Besides the basic programme, they also organize different visits, excursions (Petrov vrh, Končanica ponds, Otrovanec mill, Našički Markovci Zoo, etc.) They organize an art colony, hold thematic workshops for children and parents, take part in various public events such as The days of bread, Europe day, Vinodar, Intergenerational solidarity festival, etc.

Czech kindergarten "Ferda Mravenec" is attended by 140 children in six groups and the programme is primarily conducted in the Czech language. There are 19 employees in the Kindergarten, which is funded by the Town of Daruvar and cofounded by the programme for minorities of the Ministry of Science, Education and Sport, and it also receives donations from the Czech-Slovak Institute for emigration in equipment, furniture, technical an didactic material. The kindergarten has a very beautiful backyard "dvoreček" that children especially love. Kindergarten performs a primary comprehensive curriculum of pre-school education, but they also organize different activities and workshops for children and parents and participate in a number of public festivities and events.

Graph 1



Primary schools in Daruvar

Primary education in the Republic of Croatia is regulated by Law on education in primary and secondary schools, so primary schools implement mandatory and regular primary education.

Primary school "Vladimir Nazor" is a public institution of general education of children and youth which performs educational and training activities. The main school building is in the center of town (Gajeva street 24), and there are 6 branch schools, the biggest one being in another part of the town in Frankopanska street 80. Children from wider Daruvar municipality area attend the school.

Vladimir Nazor Primary School Daruvar operates in two school buildings in the town, each with its kitchen and gym, and five village schools (Batinjani, Doljani, Ivanovo Polje, Gornji Daruvar and Gornji Sredjani). Upon completing lower primary schools (classes 1 to 4) in their villages all pupils are bussed to the Gajeva town school building for their upper primary education (classes 5 to 8).

Today there are total 683 pupils organized in 41 classes. Out of that number, 102 pupils of higher classes and 15 of lower classes travel to school every day by organized public transport. The school staff consists of 67 teachers, 3 special educators and 22 other employees.

The school operates on the basis of the school curriculum and the annual plan and program of work.

Czech primary school "Jan Amos Komensky" is mostly attended by the children of the numerous Czech minority living in the wider Daruvar area, but there are also children of other nationalities attending the school. The language used at school is Czech and the programme is according to the national curriculum including the Czech language. The main school building is located in Daruvar and there are also four village schools in Ljudevit Selo, Donji Sređani, Doljani and Gornji Daruvar (temporarily closed because of no pupils) and Golubinjak (temporarily closed). The Main building has a gym, a kitchen, a playground, and the building has recently been renovated by the funding from the Croatian Ministry of education, but it regularly receives donations from the ČÚZ-Czech institute for emigration.

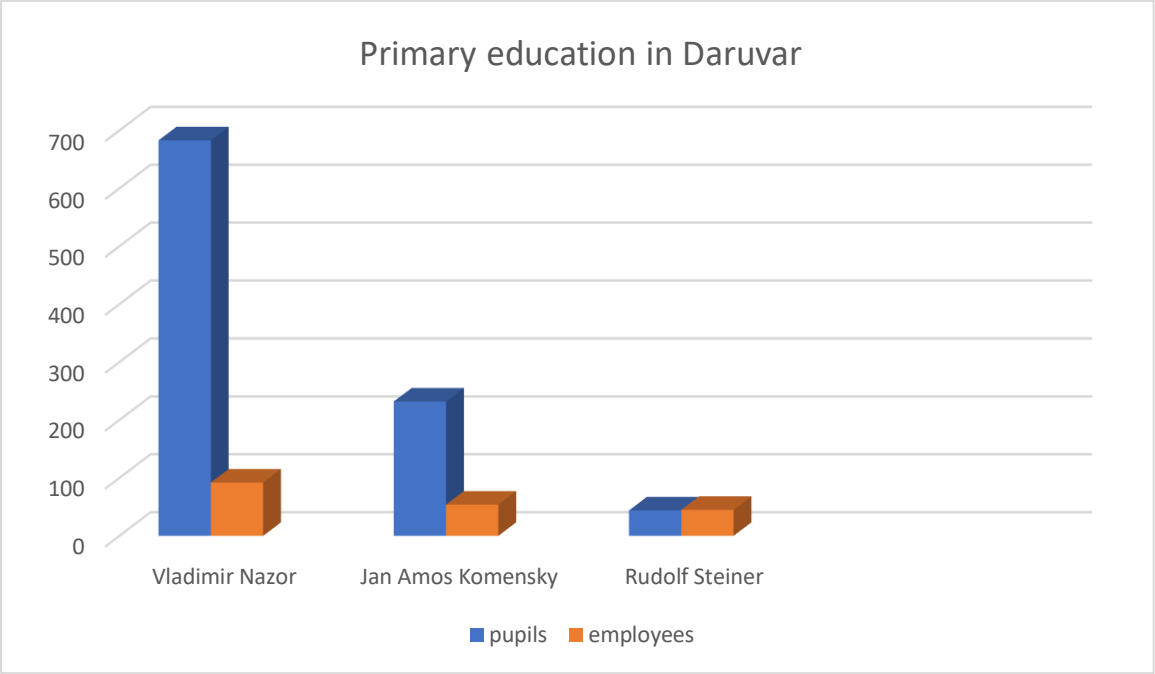
Currently there are 232 pupils attending the school, 133 from 1-4 grade and 99 from 5-8 grade. They are organized in 15 classes. In total there are 54 empoyees, out of whom 42 are teachers and 12 are other employees in the school. The school publishes its magazine Naše jaro and they norish the Czech culture and tradition in singing, dancing, literature etc.

Rudolf Steiner Centre is an institution that provides services for children and adults with physical or/and mental disabilities and their parents, guardians and foster parents. The children can be fully or partly accommodated at the Centre, receive individual or group psychosocial help, assistance with inclusion into regular pre-school or school programmes (integration).

The Centre also provides individualised primary education for children with mild and moderate intellectual disabilities and children with combined or multiple disabilities according to valid regulations. The building of the Centre is divided into two parts, the first being the dormitory with two living rooms, a logotherapy office, laundry and storage, and the second consisting of classrooms, workshop, dining area, kitchen, first aid station and a gym.

In total 44 pupil attend special primary education at Rudolf Steiner Centre. They are organized in 9 classes, 4 from 1-4 grade and 3 from 5-8 grade. There are 45 employees, out of which 24 are teachers.

Graph 2



Secondary education in Daruvar

Daruvar Grammar School (Gymnasium)

Officially Daruvar Grammar school was established in 1992, but it had existed in various forms since 1918 in Daruvar. Today's Grammar school was founded when the much bigger Center for vocational education, that encompassed all secondary education, disintegrated and three separate schools were formed.

The school is attended by 223 students organized into 12 classes. There are 37 employees of the school, out of which 32 are teachers. Daruvar Grammar school shares the same building with Technical school Daruvar and The School of Economics and Tourism Daruvar, but they all have their separate spaces. Its teachers and students are well known for their regular and outstanding results in different competitions in different areas.

The School of Economics and Tourism Daruvar is one of the oldest high school institutions in the city of Daruvar working since 1928. Today, the Daruvar School of Economics and Tourism has over 400 students, who are studying for the following professions:

-economist (four years of schooling)

-hotel and tourism technician (four years of schooling)

-agrotourism technician (four years of schooling)

-salesman (three years of schooling)

-chef (three years of schooling)

-waiter (three years of schooling)

The school is equipped with all the necessary classrooms (3 classrooms with IT equipment, cooking room, catering room), and in most classrooms there is a computer and a projector, to enable modern teaching. It is planned to upgrade the building in which the school is located, so that a new space for the cooking cabinet would be obtained, the catering service cabinet would be expanded and the school would have 5 new classrooms at its disposal.

The school has been very active in international projects such as Comenius - a program for general education, Leonardo da Vinci - vocational education program, E.S.C.O.T. - related to the promotion of thermal spas in Europe,

Since 2003 they have been members of the International Organization of Hospitality and Tourism Schools AEHT. They regularly participate in national competitions and achieve very good results.

In total there are 310 students attend the school, out of which 25 are special education students. They are all organized into 24 classes. There are 55 people employed in the schools, out of that number 48 are teachers.

Technical School Daruvar is a vocational secondary school that continues the tradition of vocational education in Daruvar which started in 1887. It educates students through three-year and four-year vocational programmes. The school consists of two departments:

a) school for electrical and mechanical technicians

b) industrial-crafts School

Electrical engineering department provides education for electrical technicians, computer technicians, mechatronic technicians and traffic technicians. Industrial-crafts school department provides education for tool mechanics, turners, car mechanics, gas installation mechanics, plumbing, heating and air conditioning installation mechanics, electro-mechanics, electricians, CNC operators as well as drivers of motor vehicles. Four three-year programmes for acquiring a lower level of professional qualification for students with physical and mental disabilities is also included in the Industrial-Crafts School, those of assistant chef and baker, assistant carpenter and painter (9 classes).

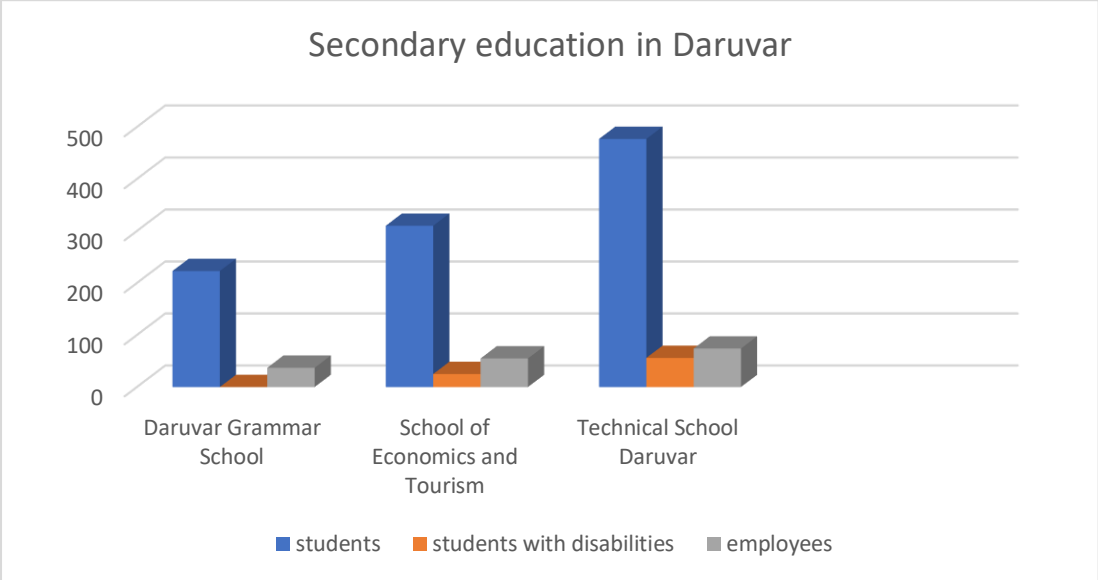
Today, the school has a total of 495 students organized in 30 classes (23 regular and 7 classes for students with physical and mental disabilities). Currently, there are 56 students with disabilities attending the school, 30 on specialized classes and 26 integrated in regular classes. In addition to regular education, the school also provides vocational education and retraining for adults in all the regular programmes. Technical School Daruvar also has its Driving School.

The school has 74 employees: a headmistress, a pedagogue, an education and rehabilitation profile specialist and a school librarian, a secretary, an accounting manager, an administrator, 6 members of technical staff, 56 teachers, expert teachers and teacher associates and one external associate and 4 employees of the Driving School. The classes are organized in two shifts. The school building at the

address Gundulićeva 14 in Daruvar has 10 classrooms, 3 computer classrooms, 3 classrooms for students with disabilities, 6 teachers' offices, a school kitchen, 5 laboratories for exercises and workshops in electrical engineering and physics. In the school premises at the second address, at Petra Zrinskoga 19, there are classrooms for electrical engineering, new technologies, renewable energy sources, classrooms for assistant carpenters, assistant painters, car mechanics, practical classes for heating and air conditioning installations, car mechanics and metalworkers, two CNC machining centres and 4 other additional classrooms.

The school organizes various extracurricular activities for students, student health care through various prevention programs, expert visits and excursions. Students participate in competitions and shows and achieve remarkable results. The school has skilled staff, premises, good will, and knowledge to be part of this project. Our students have participated in school, county and state competitions in different subjects such as gas installation, plumbing, heating and air conditioning installation, electro-mechanics, technology innovators and computer technicians, but also languages and other subjects. Our teachers are educated and skilled enough to teach them how to develop in their future professions. The task of our school is to help our students develop their vocational skills through regular education.

Graph 3



Potential weaknesses

Overload of teaching content - a lot of content that has to be done in a short period of time.

The content sometimes has no direct connection with current social events in the field of renewable energy, climate changes, energy efficiency, etc.

No interdisciplinary approach to the theme of climate change.

Teachers must adhere to the curriculum and have very few options for additional interactive content.

Sometimes inadequate practical work at school.

Education is mainly related to frontal lectures, while experiential knowledge is often missing. This refers to almost all school subjects, while for example children on topic about climate changes have much to learn through practical work, but also to give their own contribution to this topic

Insufficient ICT support and equipment for a more serious training.

COVID 19 situation is making all education more difficult to carry out, especially practical work.

It is not easy to do projects outside the school timetable since many students travel to school and depend on the public transport driving schedule.

There are not many interdisciplinary projects done at school so that requires extra time and effort to be invested into communication and cooperation of teachers.

Financial limitations are often a cause for dropping certain projects that might be of great practical and educational benefit to students.

There is no formal environmental education that aims at making students aware of environmental problems and that translates into specific actions to improve the environment.

There is a general lack of awareness of the need to protect against light pollution and how to do it, e.g. what are the best lighting systems.

Education system in Catalonia and Figueres

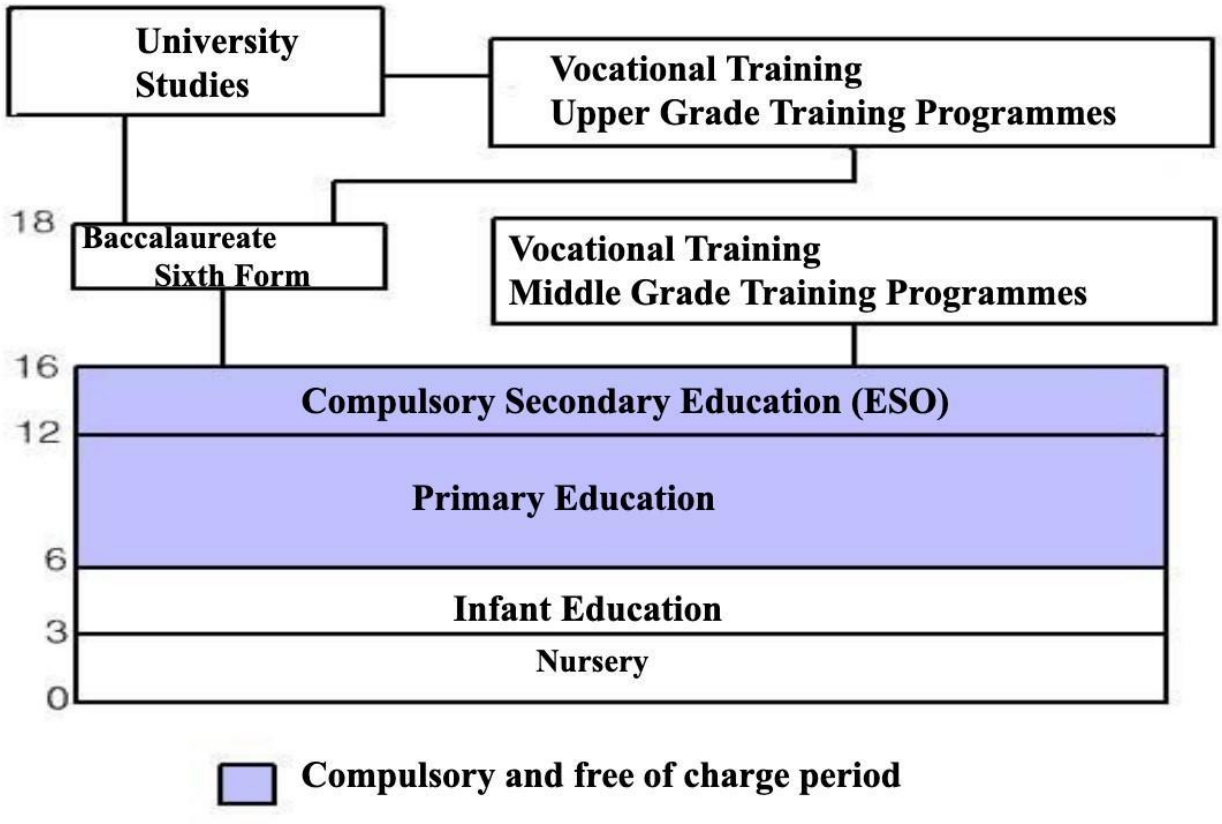
School system at the national level: education in Catalonia

Organisation

The educational system is compulsory up to the age of 16, and it is organised by cycles: Infant Education,Primary Education, Secondary Education (which includes Compulsory Secondary Education, Baccalaureate and Middle Grade Vocational Training), Upper Grade, Vocational Training and University Education.

Infant Education has two cycles and it goes up to the age of 6. Primary Education has three cycles between the ages of 6 and 12. Compulsory Secondary Education (ESO) has two cycles between the ages of 12 and 16.

In Catalonia, the language normally used in the educational system is Catalan. Children also learn Spanish and, when they are a bit older, they learn a modern foreign language, which is usually English. However, in some schools, they learn French instead.



Teaching facilities

Teaching facilities can be public, semi-private, that is private but subsidised with public funds (“grant maintained” facilities), and private. All the information below basically refers to public and grant maintained facilities.

School organisation

Every school has a directive board constituted by:

Director: he/she is the person with the most authority and responsibilities in the school.

Tutor: he/she is responsible for every group of students. He/she must collaborate with families during the students' education and training processes.

Hosting Tutor: he/she is the initial reference person for newcomer students. He/she shares the tutoring with the tutor of the reference group until newcomer students are totally integrated to the group.

Pedagogical Team: it is constituted by all teachers, who are in charge of deciding the school's pedagogical matters.

Teacher: he/she is responsible for the students' academic subjects, as well as the school regulations.

Secretary: he/she is responsible for the administration and finances (aids, grants, registrations, etc.).

Non-teaching Staff: other people who work in various services within the school, but they do not teach.

School Council: it is constituted by a certain number of teachers, students' parents, services staff and people representing the local administration. The school council participates in the control of the school management.

Parents' Association: their mission is to promote the collaboration between families and schools for their good functioning. The association is also responsible for the organisation of the various extra-curricular activities. The participation of parents is always necessary because their collaboration is important in the education process of their children.

Students right and duties

Every child has the right to education, no matter their place of origin or their place of residence. This right is independent from their and their families' administrative situation, even if they have no residence permit.

Students must attend school regularly during the compulsory education period, which concerns children up to 16.

School calendar

The school year runs from September to June. It is divided by three calendar quarters.

The first quarter runs from September to Christmas holidays, which last 15 days.

The second quarter runs from January to Easter holidays, which last 10 days. The third quarter runs from Easter holidays to the end of June.

Summer holidays include the months of July, August and the first week of September.

Formal education at the local level: education in Figueres

Number and types of schools

Our town, Figueres, has a population of about 50.000 inhabitants. There is a mixture of public, semi-public and private schools. Firstly, there are ten kindergartens, four of which are public, and the rest are private. Secondly, there are ten public primary schools, three semi-private primary schools and one private primary school. Lastly, there are five public high schools (12-18). The two semi-private and the private schools also offer compulsory secondary education (12-16).

Curriculum

The curriculum of compulsory education is the same for all public and semi-public primary schools, but the methodologies may differ slightly. In these schools students are given the choice between religion and ethics although the semi-private schools are religious and tend to have a higher percentage of students who choose religion. Finally, the private Montessori school has its own methodology.

School years and itineraries

The public high schools in Figueres offer two years of non-compulsory education (16-18) to prepare the students for university entrance exams. Students choose an itinerary for these two years: Scientific, Technological, Social and Humanities. Some schools, like ours, also offer the Scenic Arts and the Plastic Arts baccalaureate.

When students finish compulsory education they can choose an Intermediate Vocational Course and when they finish the two years of non-compulsory education they can go to university or choose an Advanced Vocational Course.

Students

Most of the primary school students are from Figueres, although there may be some students from the surrounding villages, especially in the semi-private schools. The surrounding villages mostly have their own primary schools.

In terms of high schools, both children from Figueres and the surrounding villages attend them.

Vocational courses

There is a range of intermediate and advanced vocational courses offered by Figueres high schools and other high schools in the area. In Figueres, there are vocational courses on

Aesthetics, Communication, Mechanics, Secretariat, Informatics, etc.

University

Those who wish to go to university mostly go to Girona or Barcelona.

Adults' school

Finally, there is an Adults School that offers compulsory education and preparation to access university or to a vocational course and a public Language School that offers French, English and German.

Our school: Institut Alexandre Deulofeu

Institut Alexandre Deulofeu is one of the five state high schools in Figueres.

It offers the secondary level of general compulsory education (ESO, 12 to 16-year olds) and baccalaureate (17- and 18-year olds), as well as two intermediate vocational training courses on pharmacy and nursing (from age 16).

This school year (2020-21) the course has started with over 850 students enrolled, coming from the city of Figueres and from the Alt Empordà area.

There are a total of 28 groups and 73 full-time teachers.

Apart from compulsory education, up to 16 years of age, the school offers all the different modalities of baccalaureate: Plastic and Scenic Arts, Science and Technology, Humanities, and Social Sciences.

The vocational training courses are carried out in agreement with the Empordà Health Centre and the Hospital of Figueres, where students do internships.

Weaknesses of our school system

General weaknesses

ICTs

The ICT support of the school is in the hands of only one teacher, who has five hours a week to devote to solving technological problems but it is not enough. A full-time technician should work at school in order to solve the technological problems when they appear.

Since COVID-19 all students from third grade have a laptop but it is for home use.

There is no WIFI for students at our school.

We have computer labs at school and are able to use them as long as it has been planned before the beginning of the school year, in September.

We do not have our own software, which means that we sell data to private entities such as Google and, at the same time, we do not give the opportunity to local talent to create a different system.

Facilities

The facilities are from 1978 and accessibility is not good in all classrooms.

Inspection

The inspection system is not effective and passing the board exams is not a requirement to become a teacher. Consequently, there are teachers who do not do their job properly or are unable to control students and since there is no inspection on teachers they remain in the system until they retire.

Projects outside the school timetable

Since 2008 some grades have an end-of-year project that students do individually or in groups. Each project needs a tutor but teachers and students need to meet during the break to discuss the project throughout the year as there is no time within the timetable to work on the project.

Methodological problems

There is very small cooperative work between teachers and therefore very few transdisciplinar projects. It is difficult to find the time to invest into thinking about new methodologies or projects.

Bureaucracy

The load of bureaucracy, especially for the directing boards, is insurmountable and leaves no time for thinking or planning educational proposals, projects or improvements.

More and more, the Education Department asks teachers to carry out specific exams to all students to get statistical data, which supposes a lot of work and time, which could be devoted to quality education.

Psychological team

Each school has a team of psychologists to support students, but they are also required to teach and they do not have enough time to devote to psychological support. The team should not be required to teach.

Budget

Since the budget for education is very limited, there is always a dependency on the local entities such as the town hall in order to carry out certain activities.

Food

The cafeteria's food is rather unhealthy. There is no bio or organic food and a large part of the choices are processed food.

Environmental weaknesses

Environmental education

There is no formal environmental education that aims at making students aware of environmental problems and that translates into specific actions to improve the environment.

Light pollution is not being taught and there are no teachers specialised in the subject, although there are physicists, chemists and technologists.

We do not have knowledge or equipment for artificial intelligence.

Waste and recycling

Waste is not properly separated at our school.

There are no paper bins in the classrooms and there are only three paper bins for the whole school.

Waste is properly disposed of in the city but not recycled. All the recycling is in the hands of private companies. There is a feeling among the inhabitants that recycling is not properly done and the population tends to feel discouraged to properly dispose of their waste.

There is only one landfill in the area which is completely insufficient.

Facilities

Since the facilities date back to 1978 windows and doors do not lock properly and we waste a lot of energy.

The heating system works with diesel.

There is no low consumption lightning

Light pollution

There is a general lack of awareness of both the local administration and the population as to what are the best lighting systems. As a consequence, municipalities do not always make the best choices.

Advantages for the project

Many of the students at our school come from the surrounding area and we believe they can be ambassadors for their villages.

There is a strong team of Plastic Arts in our school and it can be very useful for dissemination in creating posters, leaflets, etc.

The Education System of Hungary

Period of time	Stages of education	Age
3-4 years	kindergarten	from age 3
4, 6, 8 years	primary education	from age 6
8, 6, 4 years	grammar school or vocational secondary school	from ages 10, 12, 14
3-4 years	higher education, Bachelor degree programme	generally from age 18
1-2 years	Higher education, Master degree programme	generally from age 21
4 years	Doctoral studies	generally from age 23

The System of the School Year

In Hungary, the school year normally starts on 1st September and finishes in mid-June. It depends on the position of these days in the calendar. A school year consists of 180 school days.

Besides the national festivals, there are three lengthy vacation periods; one in autumn, one around Christmas time and one around Easter time.

School types

Preschool education

In Hungary, preschool education and care is a bi-sectoral, split system. Its first stage is for children aged 0-3 years, non-mandatory, and it provides professional day care and development, which is available upon payment of compensation or subsidized by the state. The second stage is from age three to primary school age, which is mandatory for all children and provides free care.

Primary education

In Hungary, primary education is organized as a single-structure system in 8-grade basic schools, where primary-level basic education occurs according to the requirements standardized nationally. Its aim is to prepare students for secondary-level education according to their interests, abilities and talents.

In Hungary, all children are required to take part in institutionalized education and to be in mandatory school attendance. Compulsory school attendance begins the year or not later than the following year in which the student reaches the age of six until 31 August, and lasts until the end of the school year in which the student turns sixteen.

Secondary education

General secondary education traditionally begins from grade 9 and lasts until grade 12. On condition that there is dual-language education, the programme begins with a preparatory class. General secondary education can also occur in six- or eight-grade general secondary schools instead of four-grade education. The six-or eight-grade general secondary schools initiate their programmes at grades 5 or 7, and terminate it at grade 12. Secondary vocational training occurs in vocational secondary schools and vocational schools for special education, where students also gain Matura examination certificate (school-leaving certificate) complemented with vocational subjects.

Higher education

The Hungarian institutions of higher education are the university, or university for applied sciences or college. In Hungarian higher education there are three educational structures in a phasing-out system, based on three cycles: Bachelor degree programme, Master degree programme and doctoral studies. Besides the education being split into cycles, it remains unsplit in a few fields leading to Master degree.

Adult education and training

The aim of adult education and training is that the people living in Hungary meet the challenges of economical, cultural and technological development, and effectively join in the world of work, and be successful during their lifetime, and with the help of adult education and training may their quality of life improve. It is necessary to enhance the organization of vocational, foreign language and state-subsidized education and training, and to develop the quality of their content and the supervision of their realization.

Our school

Andrássy György Catholic Business Academy

Andrássy György Catholic Business Academy celebrates its 100th anniversary this year. The school was established by the catholic church in 1921 and in 2012 we returned to our roots, so we became a catholic institution again funded and maintained by the Archbishopric of Eger. It is located in the centre of Eger, in close proximity of the Archbishop's Garden. The school grew significantly in 2017 with the fusion of our institution and Ward Mária Primary School and Grammar School. Since then we have been responsible for the maintenance of an all-girl dormitory as well.

The basis of our success is that our school is able to maintain traditional values but also ensures that our staff and students are well-prepared for the changing world in the 21 st century.

Andrássy has been providing first-class vocational education in Economics, Business Administration, Logistics and Tourism, and in 2013 we also introduced grammar school classes, one of which is an intensive language learning class. We urge the majority of our students to continue their studies at colleges or universities. A lot of excellent students are admitted to our intensive language learning class specialising in Economics and the bilingual Tourism class. In our classes we aim at adapting our

education to the changing economic environment in a flexible way and making it practice-oriented. The tight relationship with our economic partners promotes us to provide our students with up-to-date knowledge, which makes them successful in the global labour market We also believe that it is essential to have a profound knowledge of foreign languages and computer science. Our past students have been influential in shaping many aspects of the local society and we are really proud of them.

As a catholic institution we find it vital for an individual to feel cared for, have a sense of belonging and enjoy what they are doing. Catholic spirit and pastoral care pervade all aspects of our work; we promote Christian values and attitudes in all members of our community, not only at religious celebrations and events but also in everyday life.

International relations

Andrássy György Catholic Business Academy puts a great emphasis on strengthening its presence internationally, we have created our Internationalization Strategy and we are involved in numerous international partnerships.

Erasmus +mobility projects

Besides innovating our foreign language teaching, we do our best to provide opportunities for our students to improve their foreign language skills in an international environment and to get to know other cultures. We find it vital to enhance our experience –based vocational education by sending students to gain practical experience at foreign companies and firms. So far under KA1 Erasmus+ projects more than 600 Andrássy students from all three vocational fields of our school have had the chance to take part in foreign vocational internships applying for workplaces in Finland, Germany, Norway, Italy and Portugal. The participants of these projects receive a Europass Mobility Certificate as an acknowledgement of their achievement.

Our school encourages the project activities of our colleagues as well. Under KA1 Erasmus+ projects teachers can participate in international teacher training courses related to vocational competences, ICT, methodology of teaching a foreign language and management skills, job shadowing and international conferences.

Andrássy has participated in numerous strategic partnerships (KA2) also as a coordinating school. In the projects teachers and students have been working on cultural heritage, digital applications, marketing and sustainability.

Following and implementing international trends and improvements are an important condition of modern education – these goals are supported by the mobility projects through which we have become a socially responsible institution which is based on European values.

EBBD

The European Business Baccalaureate Diploma (EBBD) equips students and adult learners with the necessary competence to master extensive soft skills and business competence in international

environment. It is a proof of excellence and readiness for mobility. EBBD graduates will receive a harmonized and accredited European qualification for professions in the field of business administration. The certificate increases the opportunities in the job market.

Our school is an accredited member of the EBBD community, providing the required education and mobility programs for the students.

Without frontiers

We keep close contact with schools in Transylvania and Transcarpathia, a lot of students and teachers have taken part in study tours there -funded by the government- and we have hosted many students and colleagues from beyond the border.

The weaknesses of the school system

The greatest weakness of the Hungarian system of education lies in the supply of teachers. The teacher shortage is gradually growing, especially among science and language teachers.

The realization of environmental education

In Hungary, environmental education has deep-rooted traditions. At the beginning of the 20th century, there existed an open-air programme, and we have been celebrating the Day of Birds and Trees since 1906.

In the second half of the 20th century, the teaching of environmentalism gained more and more importance in the process of following international trends. The principles which were established at the 1972 United Nations Conference on the Environment in Stockholm and the 1977 Tbilis Conference almost immediately appeared in Hungarian education.

Light pollution is only mentioned, and this is the field in which Hungarian education is bound to show considerable progress.

CHAPTER 2.: Analysis of the potential for cooperation, development goals and priorities for future development

"Education can, and must, contribute to a new vision of sustainable global development."

(UNESCO, 2015)

In this chapter, we will refer to the vocational schools that participated in this project. This type of school offers education for occupations in certain branches.

In Croatia vocational programmes that last for 4 years train students (14-18) in the field of economics, clerical sector and technology. These programmes are theoretical as well as practical, and internship is compulsory for the completion of these programmes.

In Catalonia is different from Croatia. The public high schools in Figueres offer two years of non-compulsory education (16-18) to prepare the students for university entrance exams. Students choose an itinerary for these two years: Scientific, Technological, Social and Humanities, also the Scenic Arts and the Plastic Arts baccalaureate. When students finish compulsory education they can choose an Intermediate Vocational Course and when they finish the two years of non-compulsory education they can go to university or choose an Advanced Vocational Course. In Figueres, there are vocational courses on Aesthetics, Communication, Mechanics, Secretariat, Informatics, etc.

In Hungary situation is different from schools in Croatia and Catalonia. General secondary education traditionally begins from grade 9 and lasts until grade 12. On condition that there is dual-language education, the programme begins with a preparatory class. General secondary education can also occur in six- or eight-grade general secondary schools instead of four-grade education. The six-or eight-grade general secondary schools initiate their programmes at grades 5 or 7, and terminate it at grade 12. Secondary vocational training occurs in vocational secondary schools and vocational schools for special education, where students also gain Matura examination certificate (school-leaving certificate) complemented with vocational subjects.

COUNTRY	AGE	DURATION
Croatia	14 - 18	3 - 4
Catalonia/Spain	16 - 18	2
Hungary	15 - 18	2

In order to better understand and develop goals that we can achieve, it is necessary to see what are the weaknesses of the educational systems of individual countries and possible points of overlap.
The greatest weakness of the Hungarian system of education lies in the supply of teachers. The teacher shortage is gradually growing, especially among science and language teachers.

In Hungary, environmental education has deep-rooted traditions. At the beginning of the 20th century, there existed an open-air programme, and they have been celebrating the Day of Birds and Trees since 1906.

In the second half of the 20th century, the teaching of environmentalism gained more and more importance in the process of following international trends. The principles which were established at the 1972 United Nations Conference on the Environment in Stockholm and the 1977 Tbilis Conference almost immediately appeared in Hungarian education.

Light pollution is only mentioned, and this is the field in which Hungarian education is bound to show considerable progress.

There is no formal environmental education in Spain that aims at making students aware of environmental problems and that translates into specific actions to improve the environment.

Light pollution is not being taught and there are no teachers specialized in the subject, although there are physicists, chemists and technologists.

There is a general lack of awareness of both the local administration and the population as to what are the best lighting systems. As a consequence, municipalities do not always make the best choices.

In Croatia there are following weaknesses in education: overload of teaching content - a lot of content that has to be done in a short period of time. The content sometimes has no direct connection with current social events in the field of renewable energy, climate changes, energy efficiency, etc. No interdisciplinary approach to the theme of climate change.

Teachers must adhere to the curriculum and have very few options for additional interactive content. Sometimes inadequate practical work at school. Insufficient ICT support and equipment for a more serious training.

Education is mainly related to frontal lectures, while experiential knowledge is often missing. This refers to almost all school subjects, while for example children on topic about climate changes have much to learn through practical work, but also to give their own contribution to this topic

There are not many interdisciplinary projects done at school so that requires extra time and effort to be invested into communication and cooperation of teachers. Financial limitations are often a cause for dropping certain projects that might be of great practical and educational benefit to students.

There is no formal environmental education that aims at making students aware of environmental problems and that translates into specific actions to improve the environment. There is a general lack of awareness of the need to protect against light pollution and how to do it, e.g. what are the best lighting systems.

From all of the above, we can see that in every country there are weaknesses in the school system, which overlap in some parts. Regarding the project, the downside is that not a single school does enough to raise awareness about the problem of light pollution.

The goal of all of us should be to continuously educate teachers and students about the importance of protecting the environment not only from light pollution, but also from other forms of pollution that come from us humans.

We had the opportunity to see how harmful we humans are to our only home, planet Earth, during the global quarantine caused by COVID-19. The limited movement and activity of people led to a reduction in pollution, which resulted in a significant recovery of plant, animal and marine life.

The quality of the air we all breathe has also improved significantly. The coasts, which normally have the problem of shallow and very busy seas, have almost completely recovered from pollution, to the extent that marine life has almost back to normal.

And what about light pollution? Many key biodiversity areas in Europe are threatened by the use of artificial light at night. While Directive-2009/125/EC lays down targets for the energy efficiency of light installations, it does not contain binding obligations to limit the adverse effects of light pollution. It furthermore supports the shift to light-emitting diodes (LEDs) in street and other outdoor lighting. Recent studies have shown, however, that LEDs are in fact more attractive to insects than high-pressure sodium lamps and that they have a detrimental effect on periphytons in aquatic ecosystems due to their typically high blue-light content. This means that they may actually have a higher impact on nocturnal invertebrates and aquatic organisms.

Source: https://darksky.org

In order to better understand the issue and to be prepared the best as possible for future cooperation, it is necessary to emphasize several facts.

EU institutions should intend to address the issue of light pollution in the zero pollution action plan and/or the EU nature restoration targets that are part of its biodiversity strategy, they also should consider including binding obligations in other relevant legislative initiatives or future revisions of existing relevant EU legislation (e.g. the ecodesign directive) to limit the adverse effects of artificial light at night.

Croatia have a Law that regulates the protection against light pollution, which includes the persons liable for protection against light pollution, measures for protection against light pollution, the way of determining the maximum permitted values of illumination, restrictions and prohibition of illumination, conditions for planning, construction, maintenance and reconstruction of external

lighting, measurement and monitoring methods, also aimed for environmental illumination and other issues in order to reduce the environmental pollution and harmful effects of light pollution.

The purpose of this Law is to protect against light pollution caused by light emissions into the environment from artificial light sources exposed to humans, wildlife in the air and water, other natural resources, night skies and observatories, also by using energy-efficient lighting. Protection against light pollution shall ensure the protection of human health, the complete preservation of the quality of the environment, the conservation of biodiversity and landscape diversity, the preservation of ecological stability, the protection of flora and fauna, the rational use of natural resources and energy in the most favorable way for the environment, as a basic condition of public health and of foundation of the concept of sustainable development.

On global scale The International Dark-Sky Association (IDA) is a United States-based non-profit organization incorporated in 1988 by founders David Crawford, a professional astronomer, and Tim Hunter, a physician and amateur astronomer. The mission of the IDA is "to preserve and protect the night time environment and our heritage of dark skies through quality outdoor lighting."

IDA's principal approach is to raise awareness about the value of dark, star-filled night skies and encourage their protection and restoration through education about the problems and solutions, including outdoor lighting practices that create less light pollution.

To promote awareness about the issues, the IDA has an International Dark Sky Places program that aims "to encourage communities, parks and protected areas around the world to preserve and protect dark sites through responsible lighting policies and public education". There are currently five types of designation for International Dark Sky Places:

- International Dark Sky Sanctuaries
- International Dark Sky Parks
- International Dark Sky Reserves
- International Dark Sky Communities
- Urban Night Sky Place

IDA empower the dark sky movement and provide leadership, tools, and resources for individuals, policymakers, and industry to reduce light pollution and promote responsible outdoor lighting that is beautiful, healthy, and functional. They bring the issue of light pollution to diverse communities worldwide, with the goal of creating access to information about the destructive impact of over-lighting and the benefits of responsible lighting.

Source: https://darksky.org

Goals and priorities for future development in our schools are to strongly address the problem of light pollution, together with fellow teachers to educate students about this global problem so that they can continue to transmit educational values in their environment. It would be desirable, if it is not already part of regular classes, for teachers to include in the curricula for extracurricular activities topics related to environmental protection with an emphasis on light pollution.

It is also very important that our schools continue to cooperate in this area in order to continuously convey new knowledge to as large audience as possible and raise the level of awareness about the problem of light pollution.

Extremely important is that our schools achieve a good and solid cooperation with the International Dark Sky Parks located near the schools. For Andrássy György Katolikus Közgazdasági Szakgimnázium, Gimnázium és Kollégium, Eger, Hungary the closest International Dark Sky Park is Bükk Starry Sky Park. For Institut Alexandre Deulofeu, Figueres, Spain the closest International Dark Sky Park is Albanyà Dark Sky Park. For Technical school Daruvar the closest International Dark Sky Park is Vrani kamen.

The cooperation between schools and International Dark Sky Parks was realized through this project. Teachers and representatives of International Dark Sky Parks have recognized the importance of cooperation and in the future their activities will be intertwined with the aim of spreading awareness about the importance of the problem of light pollution with an emphasis on children and young people, but also the general public.

CHAPTER 3.: Action plan

The main objective of this project is raising awareness in teachers and students about the need to protect and preserve the environment, to protect the dark sky areas from light pollution and encourage sustainable environment protection.

This Erasmus+ project revolves around achieving the following objectives: encouraging initiative and entrepreneurship in students aiming at environmental protection, specifically concerning light pollution. Secondly, empowering students with disabilities to actively participate in project activities. Thirdly, encouraging sustainability of the project activities aiming at protection against light pollution. Fourthly, protecting and preserving natural heritage, specifically the natural dark sky.

More generally, we will promote science, astronomy, ecology and entrepreneurship and we will deepen and broaden students' knowledge and competencies in science. Also, promoting inclusion and empowering students with disabilities; establishing strong ties with other European schools and sharing best practices with students from other countries; improving language and communication skills; greater intercultural awareness and improving soft social skills such as the ability to listen to each other, express opinions, practice tolerance.

An important output from this project is the creation of project documentation for the mountain lodge and observatory in the dark sky park "Vrani Kamen". The experiences of project participants from the City of Daruvra during visits to observatories in Hungary and Spain resulted in the creation of project documentation and the application of the project to the Croatian National Recovery and Resilience Plan 2021-2026 (Croatian National Recovery and Resilience Plan NPOO). The observatory that was designed contains an exhibition space and a planetarium like in Hungary, while the presentation model is like in Spain. If the project is approved, this will become the first observatory of its kind in Croatia.

Source: City of Daruvar

We have laid out the activities related to each of the objectives together with a time frame, costs and indicators.

Objectives	**Activities**	**Time frame**	**Costs**	**Indicators**
1.Raise awareness protect environment	- General knowledge and definition on light pollution - UN ODS by 2023 - Debate on regulations of our country and region - Following IDA, find out what are the best light posts and fixtures	10 sessions (two hours per session)	0€	- About 30 students per school actively engaged.
2. Initiative and entrepreneurship aimed at environment protection	- Brochures and sharing them with the educational community and their friends and families - Interview inhabitants to assess their knowledge about light pollution and they give them a brochure. - Google interactive map with students' measurements. - Dissemination posters for schools.	10 sessions (two hours per session)	- Printout of the brochures and posters. - T-shirt with the project logo that students wear outside school activities to raise awareness among the population.	- About 30 students per school actively engaged. -Educational community is between 400 and 600 students and families per school. - Dissemination material aims at the whole school (between 400 and 600 students).

3. Empowering students with disabilities to actively participate in project activities.	- Students with disabilities were involved in more artistic areas of the projects, such as the design and drawing of the lamp shields and the posters.	10 sessions (two hours per session)	0€	- Between 5 and 10 students per school.
4. Protecting and preserving natural heritage, specifically the natural dark sky.	- Students became aware of the actions they need to take to protect the natural dark sky with the following activities: - Stargazing - Comparing different areas and taking pictures and measurements to see the difference between urban and natural skies. - Students go on a field trip to a dark sky park and make observations and take night pictures of the stars, stargaze and share the pictures with other countries.	10 sessions (two hours per session) 3 days for the field trip	- Field trip costs to dark sky parks. - School cameras for night pictures.	- Field trips, depending on the school, can engage one class (30 students) or a whole level year, depending on organisational criteria. A whole level is around 100 students.
5. We will promote science, astronomy, ecology and entrepreneurship and we will deepen and broaden students' knowledge and competencies in science.	- We did a competition on constellations with VR technology - We included dissemination activities on light pollution in the science week that we celebrate in our countries (April in	- One week (science week) - 15 sessions (two hours per session)	- VR technology and softwares - Printout of posters for dissemination during the science week.	- Around 30 students per school. - Science week disseminatio n involves the whole school and some guests

	Hungary, November in Spain, May in Croatia) - VR applications on astronomy - VR software developed for this project, 'sky puzzle' - Create a spectrometer		- Recycled materials such as kitchen roll, tape and CD to create a spectrometer	from the local media.
6.Establishing strong ties with other European schools and sharing best practices with students from other countries.	- Teachers carried out different workshops and received lessons and conferences with specialists, in which we exchanged different practices. - Future exchange with students who participated in this project to work together on light pollution, hold tolerant debates, visit each others' dark skies and compare the data that they took on each of the countries as well as their interactive maps. - Online teachers meetings to share our good practices to raise intercultural tolerance.	- One week exchange. - 2 online teacher meetings per school year. - 5 hours in each of the transnational meetings of specialised workshops on light pollution.	- School computers and cameras for online meetings - Cost of one week students' exchange that includes flight tickets, transport and entrances to relevant sites such as dark sky parks. No accommodation costs as they do homestay.	- Workshops for teachers represented 30% of the staff in each school. - Future student exchange will involve between 8 to 12 students per school. - Online teacher meetings will involve mainly physics, maths, science and English teachers, which will represent 20% of the staff of each school.

7. Improving language and communication skills.	- Glossary of technical terms in different languages, native languages and English - Poems on sky, night and stars in English classes. - Trigonometry lessons in maths class to be able to take certain measurements on light pollution. - Oral presentations in English about light pollution	10 sessions (two hours per session)	- Printout of the glossary to share among schools and diffuse among the educational community.	- 30 students per school.
8. Greater intercultural awareness and improving soft social skills as the ability to listen to each other, express opinions, practice tolerance.	- Students engaged in debates in international groups and compared the data and measurements on light pollution that they took in each of the regions. - In the students' exchange they will develop their social abilities, teamwork skills, communication abilities and intercultural tolerance. - Sharing and comparing their night sky pictures and maps.	- One week exchange.	- Cost of one week students' exchange that includes flight tickets, transport and entrances to relevant sites such as dark sky parks. No accommodation costs as they do homestay.	- Future student exchange will involve between 8 to 12 students per school. - Debates and other international and cultural activities are commonly carried out in a group class, commonly of 30 students per class or in smaller groups (10 students) for the sake of a

				more effective communication.
9. Building infrastructure related to the topic	- Project documentation already created - Applying the project to funding sources - Constructing - Promotional activities	- 3 years	6.636.140,00€	- Tourists from the whole region