REPUBLIC OF CROATIA
Ministry of Science and Education

CROATIA - HOW WE INTRODUCED DISTANCE LEARNING?

Ministry of Science and Education of the Republic of Croatia

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WHAT ENABLES DISTANCE EDUCATION IN CROATIA?

Croatia started the curricular reform in school education in 2016, and since 2017 the reform has been particularly focused on improving students' and teachers' digital competences as well as equipping schools.

Already in 2017 we started a project of introducing digital literacy to various subjects and after-school programs by using microcomputers. In cooperation with the Institute for the Development and Youth Innovation, CARNET acquired 45.000 microcomputers for 6th grade primary school students with the aim to develop students' digital competences, foster creativity and innovation and an interdisciplinary approach to the use of information technologies.

Furthermore, Information Technology was introduced in 2018 as a compulsory subject in the 5th and 6th grades of primary school. To prepare for the introduction of the new subject, additional teachers were employed, specialised classrooms were equipped, and teachers were trained to implement new curricula focused on learning programming.

In addition to that, in 2018 the regulations on textbooks were changed to provide for budgetary funding of digitalised textbooks and learning materials.

CARNET, the Croatian Academic Network, launched in 2015 the pilot phase of the e-Schools project which equipped 150 schools and developed various support tools for them. All schools in Croatia will be included in the major project, which is implemented in the 2018-2022 period.

In implementing digitalisation, the priority of the Ministry of Science and Education (MoE) was to ensure teachers' digital independence, which meant ensuring that teachers have their own laptops and classrooms are equipped with overhead projectors or interactive/smart whiteboards, so that various types of content and multimedia can be used in all classes. Thus 26.000 laptops were bought for teachers in 2019, and as many will be bought this year for the remaining teachers; projectors and smartboards were provided for classrooms without them.

After that, we focused on equipping students through the Comprehensive Curricular Reform project funded by the EU. The plan was to digitalise schools in line with the age of students, based on evidence collected in experimental schools and international comparisons. This meant that students in lower grades (6 to 10 years of age), who need to develop graphomotor skills, should only use tablets for activities such as group work, and thus get four to five tablets per class. In higher grades, when students (11 to 15 years of age) have subject classes, the principle was to provide each student with a tablet, thus encouraging the use of digital content and materials, and providing students with an opportunity to learn to use the learning technology responsibly. So far, tablets have been bought for all students in 5th and 7th grade of primary school (around 90.000 tablets), and 10.000 tablets were given to schools to use with their lower primary students under teacher supervision.

In secondary schools, equipment was provided only to students from lower socio-economic backgrounds, as the research in the experimental phase of the curricular reform showed that the majority of secondary school students already own equipment with Internet access.

In Croatia, primary education is compulsory and the emphasis is put on equal access. Thus the challenge was to provide all students with Internet access at home, so that they would be able to access digital content. Mobile network operators joined the initiative by providing all students who received tablets with SIM cards enabling free access to digital educational content and additional 2,5 GB of Internet traffic per month (some even 5 GB weekly).

Together with tablets, a Mobile Device Management (MDM) system was bought that connects the tablets and enables centralised control. The system monitors tablet usage and enables centralised software installation.

Strong emphasis was put on developing teachers' digital competences and enabling them to work in a virtual environment. Teacher training for curricular reform was launched online in 2018, via virtual classrooms on the Moodle platform (Loomen) which enabled continuous professional development and online cooperation for teachers. In almost two years more than 50.000 teachers participated in these trainings. This was the key experience that later enabled teachers to establish virtual classrooms and communicate with students and other teachers without difficulty. All those virtual classrooms are now used as support network for teachers, sharing learning resources, ideas and information and for the direct communication with the Ministry. The trainings and support are provided by Mentoring teams who were established in 2017 and continuously prepared and organized trainings and support as part of educational reform.

All of this contributed to the swift and effective establishment of distance learning in the context of the COVID 19 crisis.

HOW WE PREPARED FOR THE TRANSFORMATION TO DISTANCE LEARNING IN TWO WEEKS?

When school closure was announced as a potential measure, at the beginning of March, the Ministry started preparations for distance learning. It took two weeks to move all classes online, and distance learning was successfully launched on March 16th.

The concept was based on two key principles:

1. Access has to be provided for every student, taking into account student age

2. Backup for every solution needs to be prepared

The priority was to create the content needed to launch distance learning, so that teachers would have time to establish the communication infrastructure and adapt to online teaching.

For lower primary students the Ministry decided to cooperate with the national television, because this age group is too young to use digital technology independently. The teachers needed to establish communication channels with the parents rather than the students, and for this they were encouraged to use social networks and chat groups for parents to access with their smartphones.

For upper primary and secondary level students, 15-minute videos were created on the basis of a national subject schedule which should enable all students to reach all learning outcomes planned in the curriculum by the end of the school year. Mentoring teams immediately started developing video lessons so by March 15th learning content for a whole week of learning for all 8 years of primary and 4 years of secondary education was prepared.

Another priority for upper primary and secondary level students was to equip and provide Internet access for all of them.

Higher education institutions also received guidelines to transfer to distance learning, and SRCE University Computing Centre centrally provided software and support through its distance learning centre. The higher education institutions are able to autonomously determine how these will be implemented in practice.

Technical support to primary and secondary schools has been successfully provided by CARNET.

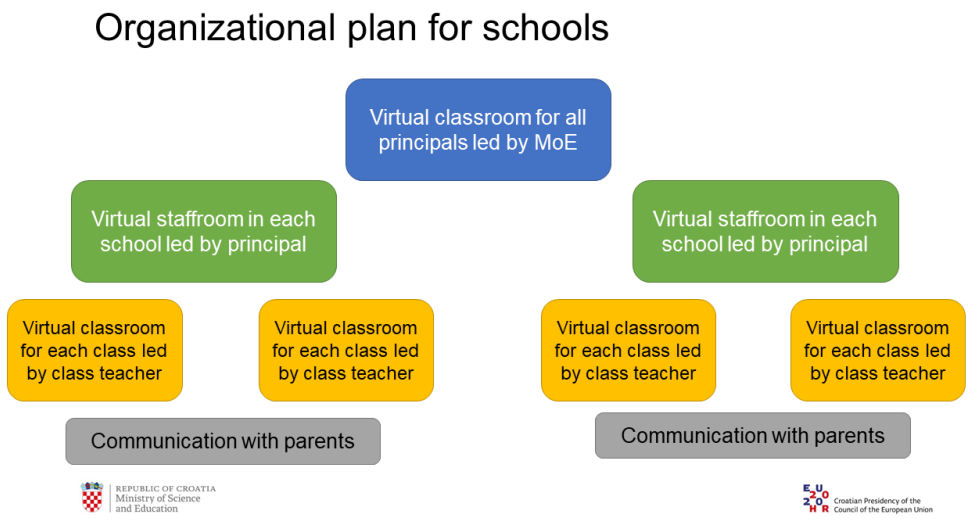
While preparing for distance learning, the Ministry published instructions for schools (Instructions to all primary and secondary schools for the organization of distance learning and Guidelines for distance learning for primary and secondary schools) focusing on:

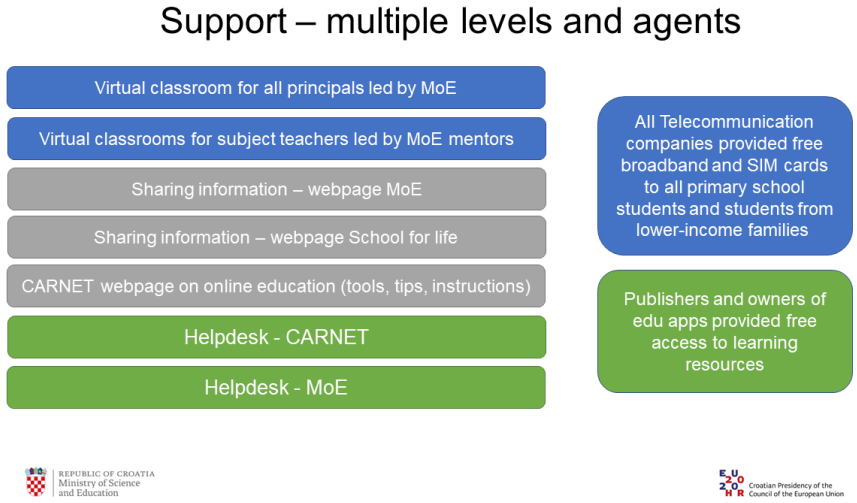
- establishing communication channels

- equipping students from lower socio-economic backgrounds

- instructions for the age-appropriate use of the pre-prepared content

- monitoring and support.





On the School for life website guidelines and tutorials how to organize virtual staffrooms and virtual classrooms were published.

The day before school closure, the minister, prof. dr. sc. Blaženka Divjak, provided all school principals with instructions and answered frequently asked questions in a public announcement (Address to Principals by Minister Blaženka Divjak).

The backup principle was implemented as follows.

Using multiple channels for publishing and sharing information:

- Three TV channels: HRT3, SPTV, RTL2
- Several websites: MoE, School for life, agencies
- YouTube channels
- E-Mail
- Messaging apps

- Social networks

Technical solutions

- AAI@Edu.Hr nation-wide authentication protocol is used by all primary and secondary schools for all students and teachers.
- Different platforms accessible with AAI@Edu.Hr:
    - Moodle
    - Teams
    - Yammer
    - Google classroom
    - Edmodo
- Distributed set of systems, not a single platform – distributing the load
- We used to have 100 registered access/minute, now we have 1100 registered access/minute

National school schedule and video lessons for all 12 years of primary and secondary education are continuously published on School for life website.

How to be ready for changes in education

- Lean and agile management
- Continuous improvements - transferring knowledge from each day/activity to the next one
- Fast learning and even faster knowledge sharing
- "Never-ending story" - changes and innovations in schools must be continuous

WHICH GUIDELINES WE PROVIDED IN THE FIRST TWO WEEKS

From the first day of distance learning, direct communication with a helpdesk was established, and various media were used to answer frequently asked questions and provide guidelines to schools and higher education institutions.

In addition to that, the questions frequently asked by schools, teachers, parents and students were answered in the following documents:

Internet access and devices

For distance learning to be able to function, every student must have **Internet access and an appropriate device at home**. Since a number of students do not have Internet access at home due to socio-economic reasons, teleoperators have been involved, providing a SIM card with free-of-charge access to educational content and an additional 2 GB of Internet per month for all students who needed it. More than 90,000 tablets were distributed to students.

26,000 computers were procured for teachers in 2019. The computers were distributed to schools in October and November 2019. Additionally, the principals can distribute computers that are located in IT classrooms in schools to teachers. In case some teachers still do not have a computer, or one of their own, the principal can contact the Ministry for funds to purchase a computer.

Work of employees during distance teaching

Since distance teaching began on 16 March 2020, the Ministry recommended teachers to spend at least part of their working hours in school to be able to cooperate and provide assistance, in order to establish a functional distance teaching system. This was possible because at that time there were no epidemiological restrictions.

However, the situation has changed significantly in the following days, **and as of 19 March 2020 a majority of teachers have been working from their homes**.

Requirements for work from home include: defining what should be done, how to contact employees, expected outcomes, equipment needed by the employees in order to work from their homes etc. For teachers without a personal equipment for working from their homes or teachers lacking technical knowledge for virtual teaching, advantages for working in the schools are obvious, at least during the initial period.

Vocational schools, secondary school graduates, practical subjects and student participation

There is a problem of vocational schools and numerous VET programmes for which online teaching cannot be centrally organised. The teaching of practical subjects is particularly challenging. **The Ministry of Science and Education has created online content for all general subjects taught in secondary schools.** This will ensure that when students in vocational education come back to their schools, they have time for practical subjects. Moreover, vocational teachers are encouraged to develop creative solutions to also teach practical subjects online if possible. Additional resources for teachers are available at the Agency for VET webpage.

Virtual content and organising classes

The basic principle of online teaching is that the content and the learning is made accessible to all students, regardless of the conditions at home and the support provided by teachers in the first week of online teaching, when the students were getting used to a new form of classwork.

The School on Channel 3 and two other channels programme of online classes together with teaching and learning in virtual classrooms will ensure that all learning outcomes are achieved by the end of the school year. We are aware that some students have already achieved some of the learning outcomes while some are lagging behind, and it is the teachers' support to make up for the differences .

By the end of the first week, more than 50.000 virtual staffrooms and classrooms were established, with the participation of 450.000 teachers and students. In addition to that, more than 70.000 higher education students used the systems provided by SRCE, and the number does not include other distance learning systems which are used by higher education institutions.

In the second week the emphasis was on psychological support to students (via phone and email) and topical guidelines for other stakeholders in the system.

During the first two weeks of distance learning, to prevent imbalances in student workload, the Ministry published the document Recommendations for organizing a students work day in distance teaching and learning which defined the age-appropriate workload to help teachers plan.

HOW WE ARE PROCEEDING IN THE FOLLOWING WEEKS?

The Ministry published the Guidelines for assessment and grading in a virtual environment and evaluating various scenarios for the implementation of the State Matura national exam for secondary school graduates.

Along with the achievement of the educational outcomes through core content, the focus should be on students' wellbeing and willingness to learn, rather than grading what they have learned.

The Guidelines focus on determining and evaluating importance of a specific content, so that the assessment supports the development of 21st century competences rather than rote facts learning. The Guidelines include concrete examples and tools to be used in the virtual environment.

In the first 4 weeks national TV broadcasted around 100 hours of educational content specifically created and performed by teachers for pupils aged 7 – 10.

More than 1200 video lessons for all subjects and grades were published in the first 4 weeks.

All educational resources are free and publicly available online (OER)

WHAT STAKEHOLDERS ARE SAYING?

Participation of stakeholders in planning, monitoring and evaluation of the distance education is crucial.

The Ministry also conducted **online survey among teaches in primary and secondary education** to find out the state of play as well as to learn what the needs of teachers for the next month were.

At the Ministry of Science and Education, a short questionnaire was prepared on distance teaching and learning, to get teachers' feedback. The questionnaire was available in virtual classrooms for a week, including 2nd April 2020 (closed one day before the Instructions for evaluation and grading were published).

The sample is related to the current situation but it can be useful as a marker for further work and the planning for distance teaching support. Teachers had access to the questionnaire with their AAI identity, and so access was denied to others, everyone could fill out the questionnaire only once, the data were not linked to a person (they were anonymized). The questionnaire was accessed by total of 4139 teachers.

Nearly all teachers (95%) are entirely or mostly satisfied with the way they perform distance teaching. As many as 93% of the teachers think that they have managed better than they had expected before the beginning of distance teaching. A vast majority (90%) think that their students manage well or mostly well with distance teaching and learning.

The teachers are mostly satisfied with the equipment they have. The results are similar in the evaluation related to provision of support. Namely, 87% think that the support they get from CARNET and the Ministry is good. The teachers are very pleased with the fact that video lessons and television programmes are available.

Concerning student activity, opinions are divided about whether students in distance learning are more active than in school classrooms. Thereby 58% think that students are more active at school and 42% think that they are more active in distance learning. This is an important area that needs more engagement and the provision of as many tasks as possible in order to increase student motivation. Therefore, the Ministry advised that all subjects are given marks for activities and solving of more complex tasks.

More about the future needs and details can be found here.

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Concerning **higher education**, the results of the questionnaire that the Ministry conducted with the HEIs in Croatia, demonstrate that the majority of higher education institutions (80%) implement their study programmes by using different digital tools. However, some modules are more challenging for distance education, in particular, clinical practice, work-based learning or work in laboratories. The Ministry requested there is open access for all digital resources in HE.

The most challenging again is the student assessment. But the majority of HEIs in Croatia have already set up assessment procedures or are in the process of doing so.

After the first month of the implementation of distant (online) teaching and learning, the questionnaire and reports from all school principals are being analysed and the results will be available as soon as possible. 1339 school principals filled in the questionnaire.

Updates can be found at:

https://mzo.gov.hr/news/coronavirus-organisation-of-distance-teaching-and-learning-in-croatia/3634

Or https://skolazazivot.hr/english/