

FROM FACE-TO-FACE TO REMOTE LEARNING IN TIMES OF COVID 19 CRISIS IN CROATIA

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Abstract

Teachers in Croatia went from face-to-face to remote learning within a week in March 2020 due to COVID-19 pandemic. Teachers found themselves faced with many questions about how to do it, which ICT tools to use, how long it would last. Croatian Ministry of Education called for all teachers to share their examples of good practice, free lessons, but also to record video-lessons for a YouTube channel and to create lessons on TV for primary school pupils. Although teachers were introduced to many different ICT tools and platforms they could use in the remote teaching, the schools mostly chose one platform. During remote teaching many problems were detected: problems with using the Loomen platform, Google Classroom, Yammer for classroom management and teaching, different and too many ICT tools used by teachers and learners, dissatisfaction with the tools they used, pros and cons of remote learning, proposals for making things better, learning outcomes when learning face to face and when learning online. The research sample included the three most frequently used platforms, teachers and students in secondary schools. The most frequently used platforms (Loomen, Google Classroom, Yammer, MS Teams) in remote teaching were analyzed, teachers and students were questioned in the survey about their satisfaction with the platforms chosen by the schools, as well as about the usage of different ICT tools in remote teaching, and which one was the best rated by Croatian teachers and students, but also whether learning outcomes were achieved in remote learning or not. The results of the research are being used as a recommendation for choosing the best platform(s) and ICT tools according to Croatian teachers and students in remote teaching and learning, as well as a recommendation for improvement of remote learning.

Keywords: Remote learning, learning platforms, experience, ICT tools, times of crisis, COVID-19.

1 INTRODUCTION

Due to the COVID 19 crisis, schools all over the world had to switch in a very short period of time from teaching face to face to remote learning and teaching. This includes schools in Croatia. Virtual classrooms were quickly organized, teachers and students enrolled in them and the remote and online learning revolution was ready to start. But what exactly is online learning and remote learning? Is this all the same or are there any differences? According to Michael Kerres [1], e-learning comprises all types of learning in which electronic or digital media are being used to present and distribute learning content and materials and/or for interpersonal communication. Huzjak [2] defines it similarly and adds interactivity as a very important element in e-learning, due to two-way communication, and, therefore, it isn't passive. These are only a couple of definitions out of many more given in the last thirty years.

But not only are there many different definitions, there are also many different terms for online learning, such as e-learning, distance-learning, computer-based-learning and many others. Singh and Thurman [3] analyzed 47 definitions of online learning from 37 sources, with 19 terms for online learning. According to their analysis, one or more new definitions of online learning were presented almost every year from 1988 till 2017.

Most definitions have the following common elements: technology usage, time (whether it happens in the asynchronous or synchronous manner), overlapping concepts of online learning and synonymous terms. Many definitions also mention the element of interactivity (student – teacher, student – student, student – technology), confusion over similar terms, physical distance, and comparison with a traditional classroom. Due to so many definitions, they suggest the following new definitions as a result of their analysis:

“Online learning is defined as learning experienced through the internet/online computers in a synchronous classroom where students interact with instructors and other students and are not dependent on their physical location for participating in this online learning experience.

OR

Online learning is defined as learning experienced through internet in an asynchronous environment where students engage with instructors and fellow students at a time of their convenience and do not need to be co-present online or in a physical space.

OR

Online education is defined as education being delivered in an online environment through the use of the internet for teaching and learning. This includes online learning on the part of the students that is not dependent on their physical or virtual co-location. The teaching content is delivered online and the instructors develop teaching modules that enhance learning and interactivity in the synchronous or asynchronous environment.”

The definitions mentioned above are very similar to the definition of remote learning. When it comes to online learning, a student decides when and what to learn, in remote learning there is a schedule that must be followed, such as a lesson plan [4]. In remote learning, virtual classes and virtual classrooms are organized similarly to traditional ones, because the goal of remote learning is to try to create a classroom atmosphere while the students learn using the computer. This means the students log in in their virtual classroom at the scheduled time to review lectures or participate in the group learning activities. Both methods have been slowly entering various institutions (high schools, universities) in Croatia and were assessed. Mikuan, Legac, Siročić [5] conclude that even though students like working online using Moodle and WebCT platforms, they still prefer learning face to face due to technical difficulties and no real interaction, and consider that online learning should only be seen as an enrichment. Due to the quick switch to remote learning, Hodges et al. [6] use the term ERL - Emergency Remote Learning. While online teaching has well elaborated modules and courses which were developed over a longer period of time for their higher quality, the goal of remote learning was only to continue education, regardless of the quality. Thus, authors think ERL should be used only temporarily. Mohammed [11] et al. also found that teachers need more pedagogical creativity, so they can engage and motivate students to learn. Teachers should also use a different kind of ICT tools to support students. However, students should evolve different learning skills, they should learn independently, know how to communicate and interact online with other people. All high schools in Croatia implemented remote learning due COVID 19 crisis from March 16th till June 24th 2020. Schools had about a week to switch. Most Croatian teachers took part in the curricular reform, from 2018 to 2020, under the name *Škola za život* [7]. Teachers participated in online teacher training on the Moodle-based platform *Loomen*, where they learned about new methods, ICT tools etc. Besides curricular reform, a strategy for ICT implementation in schools and education as well as for developing students' and teachers' digital competencies was being developed [8]. Schools were accordingly equipped with different digital tools and equipment, and students who participated in the experimental program of curricular reform in the school year 2018/2019 received tablets to use them for online learning. Many teachers participated in online teacher training on the *Loomen* platform in the last two years, so this one was also used as a remote learning platform in Croatia. Schools could also choose between one or more of the following platforms: Google Classroom, MS Teams, Yammer and different tools for video conferences, that is synchronous teaching. CARNET (Croatian Academic and Research Network) website introduced features for every system so that every school could implement the system which was the best one to accommodate the needs of students and teachers [9]. Virtual classrooms were organized and classes could begin. For secondary schools, there were also video lessons on YouTube and different TV channels, such as RTL 2 and Sportska televizija (Sport television) according to the timetable [7].

During the remote learning period several studies about remote learning and satisfaction with this kind of teaching were conducted in Croatia. Jokić and Ristić Dedić from the Institute for Social Research in Zagreb [10] found that 7th-grade pupils from 5 different schools in Zagreb were neither satisfied nor dissatisfied with remote learning. They believed they were given far more tasks than with face-to-face learning. They also thought that they were not presented the contents in a comprehensible way.

2 METHODOLOGY

Given the rapid transition from face-to-face to remote learning the aim of this research was to find out which systems were being used by the participants of the research, how they assessed the functionality of the system, what were, according to them, advantages and disadvantages of remote learning, if learning outcomes were achieved or not in their view, and ways in which remote learning could be improved for the future. Quantitative and qualitative methods were being used in the form of a Google Forms survey.

The study conducted in Croatia in June and July 2020 involved teachers (N=74) and students (N=58) from high schools in Croatia. Teachers filled out the anonymous survey which was shared in Facebook groups for teachers *nastavnici.org* and *deutschlehrer Kroatien*. Most teachers (more than 1/3) work in vocational schools, followed by high school teachers, only a few of them work in a couple of different schools. Most of them work as languages teachers (almost 50%), with 5-15 years (43,2%) work experience in education. Only a few of them work as computer science teachers (7,5%) and have 26-35 work experience in education (9,5%).

Students came from secondary schools in Varaždin, Čakovec and Prelog and attended first to fourth grade (between 14 – 19 years old) during the school year 2019/2020. Most of them attended the first grade and the smallest number of them the fourth grade in the school year 2019/2020.

Due to frequent articles in newspapers and television reports about remote learning, as well as general dissatisfaction with it expressed in the media, different teacher and parent groups etc., the aim of this research/study was to investigate whether the impressions of teachers and students related to remote learning correspond to what is presented in the media. The theses posed in this research are as follows:

- Thesis 1: Teachers aren't satisfied with remote teaching.
- Thesis 2: Students aren't satisfied with remote learning.
- Thesis 3: Teachers used various ICT tools for remote teaching.
- Thesis 4: Students love to use various ICT tools.
- Thesis 5: Teachers think that outcomes weren't fully realized during the remote teaching period
- Thesis 6: Students think that outcomes weren't fully realized during the remote teaching period.

3 RESULTS

3.1 Used platforms and materials

As previously mentioned, Croatian schools could choose between different platforms. Their features were described on the CARNET website [7], so that every school chose the most suitable one according to their needs. The study participants mostly used *Loomen*, (31,1%), MS Teams (28,4%), Yammer (21,6%) and Google Classroom (16,2%). Some of them used a combination of two or more platforms, for example *Loomen* and Google Classroom, or Edmodo.

3.1.1 *Loomen*

Loomen [9] is CARNET's (Croatian Academic and Research Network) on the Moodle LMS based (Learning Management System) online platform for distance learning, in this case remote learning. Using *Loomen*, one can take and create classes and courses, present learning contents, check acquired knowledge and outcomes, evaluate knowledge, monitor one's own activities and activities of other participants, record presence and communicate. It offers various tools for creating educational content. Classes can be easily and well organized, students' activities can be monitored in detail, and it is suitable for making tests and tasks with various ICT tools (quizzes, forums, surveys etc.).

Because of its many different functions it is more suitable for older students and higher education. Only files limited to 200 mb can be shared, so teachers and students can not share, for example, videos directly on the platform, which requires usage of other platforms and ICT tools and complicates the teaching and learning process.

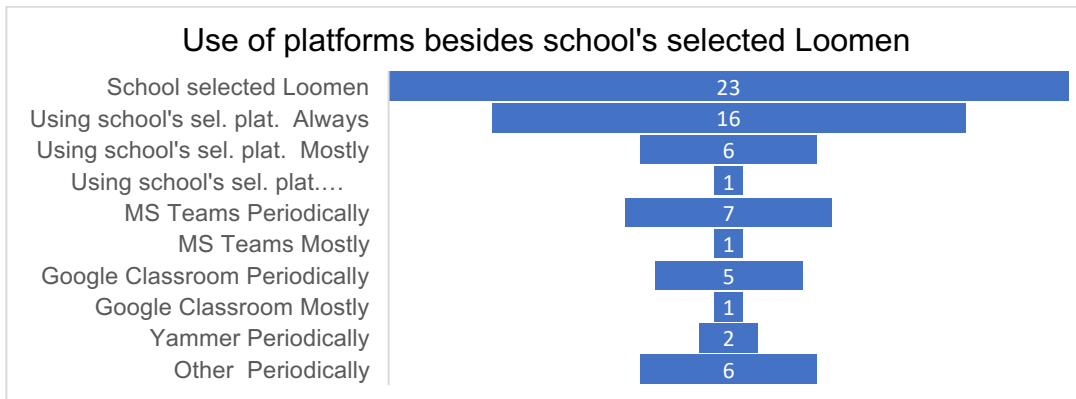


Figure 1. Frequency of using Loomen platform as selected by the schools and other platforms.

3.1.2 MS Teams

MS Teams [9] is a collaboration and communication ICT tool, a part of the Office 365. In MS Teams groups can be created for a particular class, where content and different files can be uploaded and shared, tasks can be assigned, tests can be created by using Microsoft Forms. Files can also be uploaded and saved on the OneDrive, since MS Teams is connected with this service. MS Teams also easily enables communication with other group members. Forming class groups and online classes can be easily organized. But for some users it can be complicated to use this platform.

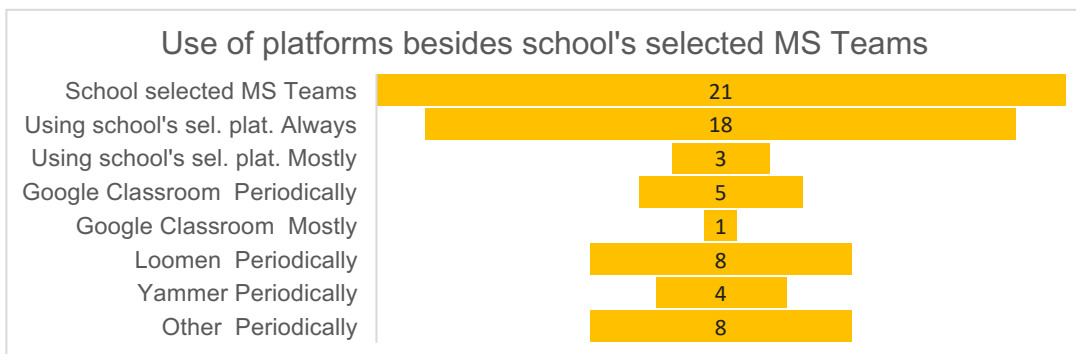


Figure 2. Frequency of using MS Teams platform as selected by the schools and other platforms.

3.1.3 Google Classroom

Google Classroom [9] is also one of the systems for distance learning, a part of G Suite. Virtual classrooms can be easily created. Files and tasks can be easily uploaded and with Google documents tool one can easily work on files, answer questions, solve quizzes and much more. It doesn't have the option to monitor students' activities, which is a big problem for teachers. Using Google Meet teachers can also organize video conferences and synchronous teaching and learning.

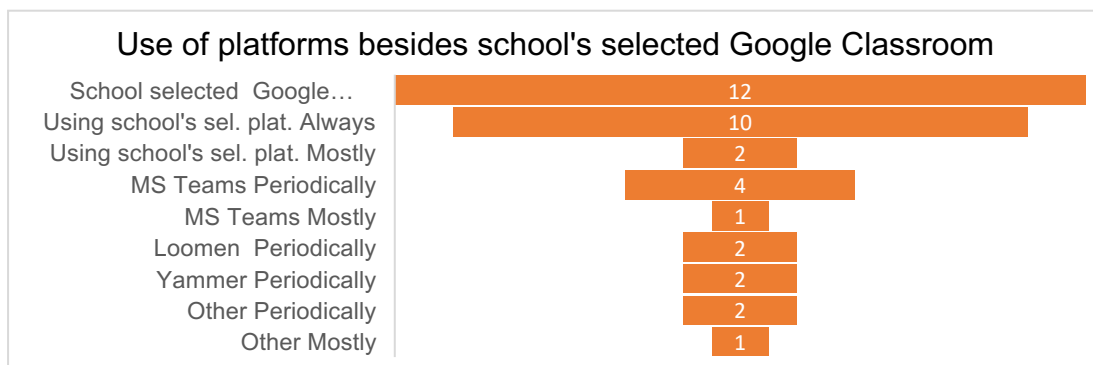


Figure 3. Frequency of using Google Classroom platform as selected by the schools and other platforms.

3.1.4 Yammer

Yammer [9] is a social network, a part of Office 365. Using Yammer groups can be created and within these groups' users can communicate with private messages or group posts. They can also publish and share files. Although it is good as a communication tool, it isn't suitable for organization of online learning for the whole school, because all subjects are included in one group and it leads to confusion and opacity by the teachers and students. Its similarity to other social networks makes it easy to use, but it has more disadvantages than advantages.

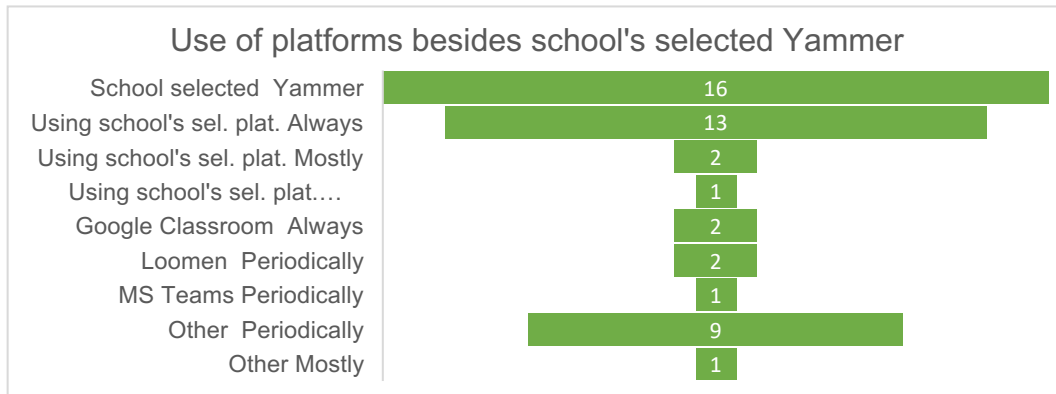


Figure 4. Frequency of using Yammer platform as selected by the schools and other platforms.

3.1.5 The participants' satisfaction with offered platforms

As each platform for online learning has its advantages and disadvantages, participants in this research evaluated the possibilities and functionality of the platforms they were using for remote teaching and learning. Most teachers who used Loomen think the possibilities and functionality of this platform is very good and good. Just a few think they are bad. Google Classroom was the best evaluated platform for online learning. Most teachers think the possibilities and functionality of that platform are very good and good (27 teachers), five teachers think they are excellent, but there were a few teachers who weren't satisfied with the usage of this platform. MS Teams was similarly evaluated as Google Classroom. The worst platform according to teachers is Yammer, and it is the worst evaluated.

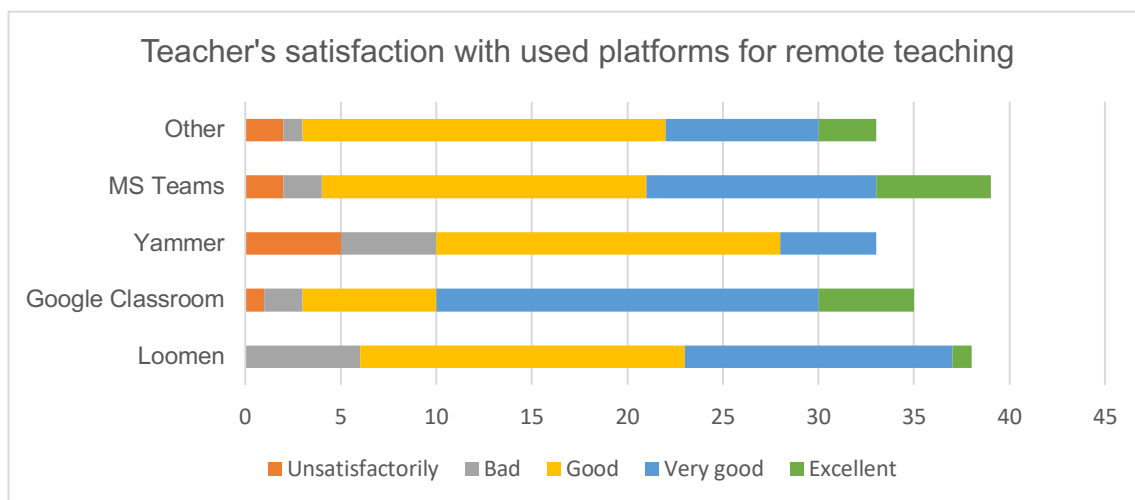


Figure 4. Satisfaction with used platforms for remote teaching.

Students who participated in this research said their schools were using Loomen or Google Classroom, but some teachers used also other platforms. They agreed that the platforms are easy to use, but they had many technical problems because of the system crashing from the Loomen platform and communication with teachers. Most students had no problems with the Google Classroom platform. Just two students out of thirty had problems with Google Classroom: one student mentioned that notifications didn't come on time, and the other that the platform didn't work properly. The students are mostly satisfied and very satisfied with their work on these platforms.

3.1.6 Video conferences and video lessons

At the beginning of remote learning the Ministry of Education recommended the teachers not to have synchronous classes, because not all students have the Internet. Still, some teachers held them in agreement with their students. About 10% of teachers held them most of the time, about 17,4% often, 48,6% periodically, and 27% never. Most teachers didn't make video lessons for their own classes (56,8%), 25,7% did it periodically, 12,3% often and 6% mostly.

3.1.7 Teaching materials

The teachers used textbooks for their subject, their own worksheets or online materials they created using various ICT tools mostly or all the time with remote learning. Sometimes or often they used other teachers' ICT materials and materials from publishing houses and their online platforms, which the teachers were given for free use in the crisis. Some teachers didn't use the textbooks or their own worksheets. A few used materials from the Ministry of Science and Education published on the website from the curricular reform [7], some of them used these materials sometimes. Almost all of them uploaded the materials according to their students' lesson plans: On the day students had their subject (62,2%) and at the exact hour about one-third (31.1%), some teachers did that at any time during the week, and a few were more than a week late in uploading the materials.

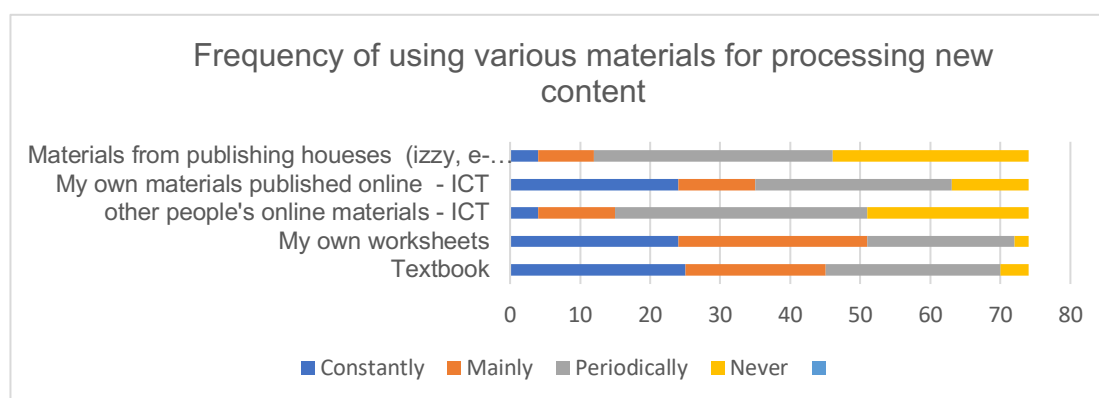


Figure 4. Frequency of using various materials for processing new content.

As previously mentioned, the Ministry of Science and Education supported the Croatian teachers in the remote teaching process with video lessons that were broadcast on a few television channels and could be accessed via YouTube. Lesson plans and teaching materials from Edutorij [12], a platform for teaching materials from and for Croatian teachers was also used. Two-third of teachers used these materials sometimes. The mostly used materials were the ones from Edutorij. These materials were evaluated with an average grade 3.31 (good). The teachers mostly gave students one week to do the tasks (60,8%) or depending on type of the task from one day to several weeks (37,4%). Only a few teachers gave the students one to two days to do the task. In case of questions related to tasks and/or content teachers were at students' disposal mostly on the platform which was used for their school. Some teachers could also be reached sometimes or often per e-mail, Viber, or Facebook, rarely or never by phone or video call. Many teachers (54,1%) were at student's disposal 24/7, almost one-third during the workdays, according to the agreement with students 12,2%, and only a few from 8 till 15 during the workdays.

3.2 ICT tools

Various ICT tools were used for remote teaching and learning. The teachers mostly used free ICT tools, the school purchased licenses for different ICT tools for one quarter of participants, and some teachers purchased the licenses themselves. The smallest number of teachers didn't use any ICT tools. Different ICT tools were mentioned in the survey: Office 365, Google tools, Genially, wizer.me, bookwidgets, Powtoon, Geogebra, Wordwall, learningapps, Kahoot, Linoit, Padlet or some other ICT tools, which could be named in the survey. The most often used and best graded ICT tools were the following: Office 365 tools, Google tools, learningapps, wordwall, Kahoot, Linoit/Padlet and Canva. ICT tools recommended by the teachers for remote learning are Office 365 tools, learningapps, Wordwall and wizer.me. The teachers mostly don't have any negative experience with ICT tools except the platforms Yammer and Loomen, which were not recommended by 4 teachers.

Students said they used various ICT tools for remote learning sometimes or often. They think the most useful ones were Kahoot, learningapps, Quizlet, Quizzis and Geogebra. They also think they could learn more with the help of these ICT tools. Almost all students like using and working with ICT tools, only 4 students don't like using ICT tools or methods with ICT tools.

3.3 Problems during remote teaching and learning due to COVID 19 crisis

According to the teachers, the most common problem was that the chosen platform was very slow or crashing. Many had also problems with their Internet connection. Because the platform was so slow, teachers had difficulties with uploading materials to the platform. Some also had problems with their computers. But most teachers didn't have any problems. According to teachers, the following problems with students occurred: the students didn't do their tasks, which was the case with more than 50%. Most teachers said that the students didn't do all the tasks, or they didn't do them on time. Sometimes the students didn't understand the task, or content. The students didn't reply to the mails or messages from their teachers rarely or sometimes, when they were asked to do the task. Teachers also mentioned other problems like insufficient informational and digital literacy, students copied homework or solutions from other students, bad communication skills, intentionally turning off the camera at video conferences, poor internet connection as an excuse for not doing anything, lack of interest, not reading and following the instructions described in tasks. Students also mostly mentioned technical problems, like the mentioned crash from the *Loomen* system and poor internet connection. They also listed several advantages: usage of Google Classroom, they could determine for themselves when they will work on the platform, 32 out of 58 agree that the used platforms worked well, and 3 partially agree with that statement. Most students agree that they had good communication with their teachers, only a few don't agree. Students mostly think it was easy to control which tasks they did. They only mentioned *Loomen* as the platform where communication with the teachers wasn't as easy as using other platforms. Most students used their own laptop or computer, and smartphone. 7 students from an experimental class also participated in this research, who got the tablet from the Ministry of Science and Education 2018, but only one student used that tablet for remote learning.

3.4 Content and achieved outcomes

Teachers mostly reduced the amount of content. Most teachers reduced the content by 25%, some by about 50%, and a few think they processed less than 50% of the content they work on in F2F teaching. About 20% of the teachers said they did the whole content planned for this school year. According to students, they worked on the new content as follows: Students got written explanations of the new content, which they had to learn and process by themselves. Often teachers just wrote what they need to learn and do in the textbook. Most students replied that their teachers sometimes made video lessons for their classes, more than one-third had sometimes lessons via video conferences. Students rarely or never watched video lessons made for a YouTube channel for remote learning. Students, 75,9%, also said their teachers were always or mostly at their disposal for extra explanations or questions, 22% said sometimes, and only 1% said rarely. None said the teachers were never at student's disposal. When it comes to learning outcomes, most teachers (39,2%) think almost all outcomes regarding contents processed during remote learning and teaching were achieved, about 2% less think the outcomes were partially achieved. About 11% think the outcomes were fully achieved, and, on the other side, 11% also think the outcomes mostly weren't achieved. Only a few think (1,4%) the outcomes weren't achieved at all. Students' answers were similar. Almost half of them (43,1%) think that 75% of the outcomes were achieved, while 36,2% think they achieved about 50% of the learning outcomes. About 8% think they achieved all outcomes, and 13,8% think they achieved less than 50% of the outcomes. None of the students think they didn't achieve any outcomes. The students graded the knowledge they got during remote learning with the average grade 3,29, and remote teaching itself with the average grade of 3,5. Thus, students are pretty satisfied with remote teaching and learning.

3.5 Remote learning vs. F2F learning and how to make it better

In the COVID 19 crisis most teachers (62,2%) would choose F2F classes with epidemiological measures as opposed to 43,1% students. More students (39,7%) would also rather choose hybrid teaching, similarly to teachers (31,1%). Far more students than teachers (17,2% as opposed to 6,8% respectively) would choose remote learning. Teachers suggested propositions for improvement of remote learning. According to them, hybrid teaching should be used, schedules should be more realistic, students' learning skills should be improved, students should work on their habits (for example, frequently checking the assignments). Teachers should teach in video conferences, have more teacher training,

communication and teaching should take place synchronously. Teachers should also receive vouchers to buy equipment and ICT tools licenses for better and creative teaching. Some think teachers and students should get all the equipment from the state. Less content should be taught, and for students who don't work regularly, unique criteria should be determined. Some of the answers were also that remote teaching should be prohibited and that only F2F learning and teaching should be used in schools.

4 CONCLUSIONS

The research results showed that both students and teachers were mostly satisfied with remote teaching and learning, as well as with content and support they had at their disposal, so the thesis 1 and 2 aren't true. During remote teaching and learning the most frequently occurring problem were technical problems with platforms used for remote teaching and irregularity of students' work. Students think also they had too many tasks and were spending far too much time in front of the computer to do all the tasks. Proposals for improvement are as follows: limitation of tasks, reduction of content in some subjects, more video conferences, that is synchronous remote teaching and classes according to the real time lesson plan. Students like the possibility to self-determine their time for remote learning and the option to decide for themselves when they wanted to do a certain task. Both students and teachers used various ICT tools, so the thesis 3 and 4 are true. Related to learning outcomes both teachers and students think that a smaller number of outcomes was achieved, and few teachers and students think none were achieved, so thesis 5 and 6 are partially true. In case of the re-transition to remote learning, modules for each subject should be organized and developed, there should be more video lessons and different activities should be created using various ICT tools. Teachers should also limit their time when they can be at students' disposal. The task limitation should also be reconsidered. Teachers should have more teacher training courses for remote learning. Some used platforms should be improved, with extra tools like video conferences tools. Students and teachers agree that remote learning and teaching has its advantages, but both prefer face-to-face teaching and learning.

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