



Co-funded by
the European Union

METHODOLOGY, EXAMPLES OF GOOD PRACTICES AND RECOMMENDATIONS



FUTURE FOR EDUCATION



Co-funded by
the European Union

METHODOLOGY, EXAMPLES OF GOOD PRACTICES AND RECOMMENDATIONS

PROJECT "FUTURE FOR EDUCATION"

Přerov, Czech Republic, 2023

Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



Contents

1. Introduction	4
2. Research methodology	5
Sample structure	5
3. Survey results	6
3.1 Popular teaching methods used in distance learning by teachers	6
3.2 Popular teaching methods used in distance learning by students	16
3.3 Degree of preparation of teachers to conduct classes conducted remotely	21
3.4 Programs / websites / internet tools used in remote classes	21
3.5 Technical devices used in the distance learning process	33
3.6 Technical devices used in the distance learning process by students	36
3.7 Technical and non-technical support from schools/universities during distance learning	39
3.8 The biggest challenges for teachers and students in the transition to online/distance learning	45
3.9 Ways to improve online classes according to students' opinions	47
4. Examples of good practices	53
4.1 Access to training platforms / messengers enabling remote learning, including training and technical support	53
4.2 Diversifying classes through the use of various forms of online learning and inclusion	54
4.3 "Equipment" for students and teachers	54
5. Recommendations	55
5.1 Training on platforms and messengers enabling online meetings	55
5.2 Development of educational platforms	56



**Co-funded by
the European Union**

5.3	Support for teachers / academic lecturers in terms of available resources that they could use during remote classes - "all in one place"	56
5.4	Support for the professional development of teachers / academic lecturers.....	57



Co-funded by
the European Union

1. Introduction

This publication is one of the outputs of the international project Future for Education, whose partners are the District Chamber of Commerce Přerov, Med. O.R.O. from Italy and Beskidzka Izba Gospodarcza, Poland, which focused on the horizontal priority Digital Transformation and two specific priorities, namely adapting VET to labour market needs and contributing to innovation in VET.

The COVID-19 crisis has shed light on the importance of digital education for the digital transformation that Europe needs. In particular, it highlighted the increased need to harness the potential of digital technologies for teaching and learning and to develop digital skills for all.

One of the objectives of our project was to map effective and innovative online learning methods in the countries of the partners involved in the project.

We carried out a questionnaire survey among students and teachers of vocational secondary schools. The aim of the questionnaire survey was to evaluate distance learning in the project countries - the Czech Republic, Italy and Poland. Based on the results of this survey, we developed a Methodology of good practice examples and recommendations for the best solution.

Our Methodology aims to offer a summary of the available online digital technologies for learning that have been most used in all partner countries, while providing inspiration and examples of good practice.

The aim is to offer teachers and students of secondary schools basic knowledge on this issue, and thus the possible improvement of online teaching.



2. Research methodology

The main objective of this methodology is to identify best practices and recommendations in the field of education based on the experiences of secondary school teachers gained from distance education conducted in the context of the SARS-CoV-2 pandemic.

The research took the form of a questionnaire survey and was conducted using an online survey technique. The questionnaire survey was conducted in the district of Prerov. The questionnaire was prepared in Czech language for two groups of respondents. The first consisted of high school students who were enrolled in distance education during the pandemic. The second group consisted of teachers who were forced to prepare and conduct distance education under pandemic conditions.

The online questionnaires were available on Google's website and information about the study was distributed via email, Ms Teams platform with geographical limitation to the study region.

The research process lasted from December 2022 to the end of February 2023. 427 students and 54 teachers took part in the study. Basic information about the study is presented in Table 1.

Table 1. Basic information about the study

Test specification	
Research method	Questionnaire
Research technique	CAWI (computer-assisted online interview)
A research tool	Electronic questionnaire
Selection of samples	Sampling for convenience
Sample size	427 students, 54 teachers
Test date	December 2022 – February 2023

Source: own elaboration based on empirical research.

Sample structure

Group of teachers are teachers who taught in upper secondary schools (secondary schools). In the school, students group, 427 people are high school students.



3. Survey results

3.1 Popular teaching methods used in distance learning by teachers

Teachers in their work very often use multimedia presentations. 31,5% of respondents use them very often, and 27,8% of respondents indicate frequent use or partial use. 13,0% of respondents use rarely multimedia presentations, only 1,9% of respondents never used multimedia. Figure 1.

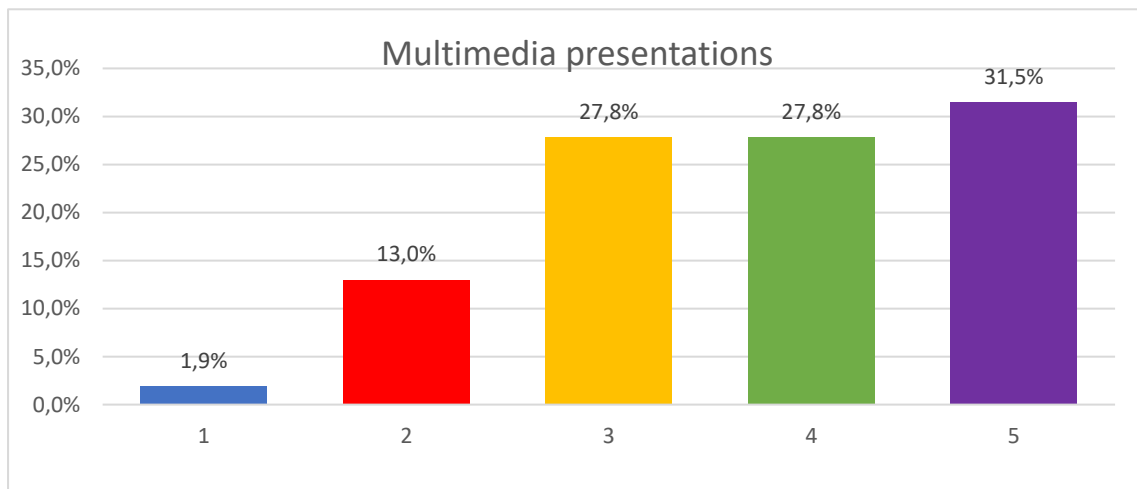


Figure 1. Declared frequency of using multimedia presentations by teachers during remote classes

Source: own elaboration based on empirical research.

Asynchronous remote classes i.e. "recorded" are not that often use. As many as 42,6% of the respondents never used this way of conducting classes, 27,8% of the respondents indicated that they used it rarely, and 14,8% of the respondents sometimes - Figure 2.

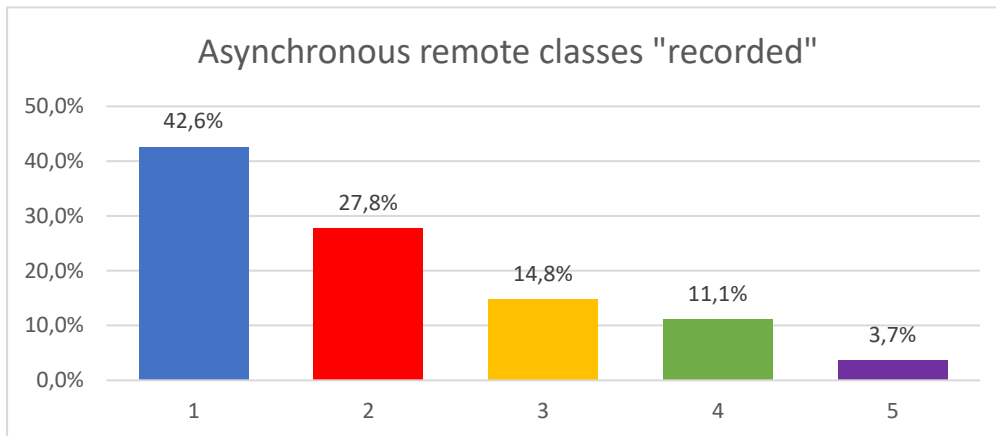


Figure 2. "Recorded" remote asynchronous classes - declared frequency of use during remote classes by teachers

Source: own elaboration based on empirical research.

Academic teachers/lecturers very often conducted live classes. As many as 51,9% of respondents conducted classes in this way during the pandemic, and 18,5% of respondents - often - Figure 3.

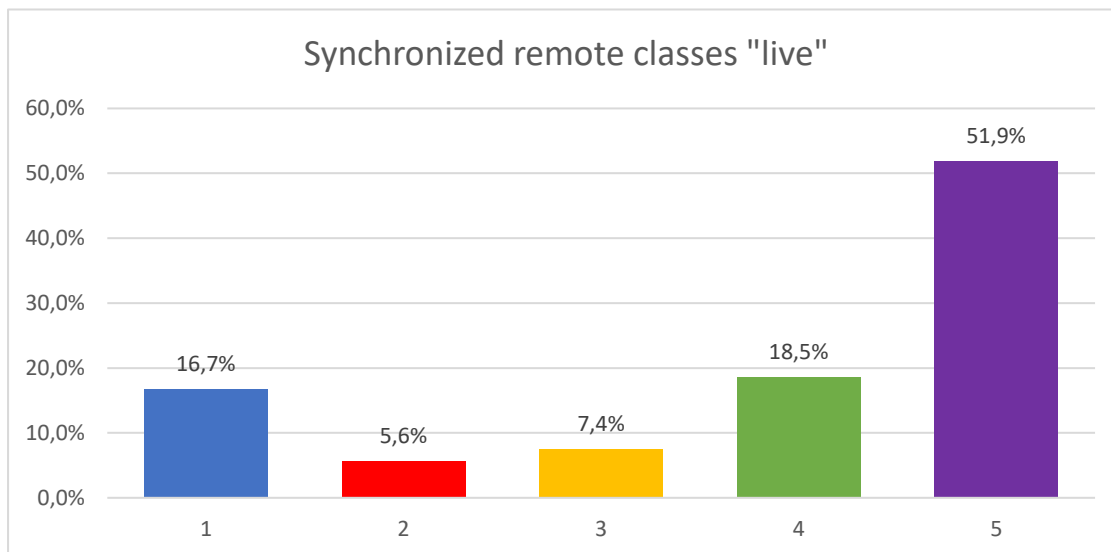


Figure 3. Synchronized remote classes "live" - declared frequency of use during remote classes by teachers

Source: own elaboration based on empirical research.



Teachers very often used homework assignments. Frequent use of this method was indicated by 42,6% of respondents, and often use it over 30% respondents. A relatively large group of respondents 22,2% indicated that they used this method very frequent. Only 3,7% of respondents use this method rarely - Figure 4.

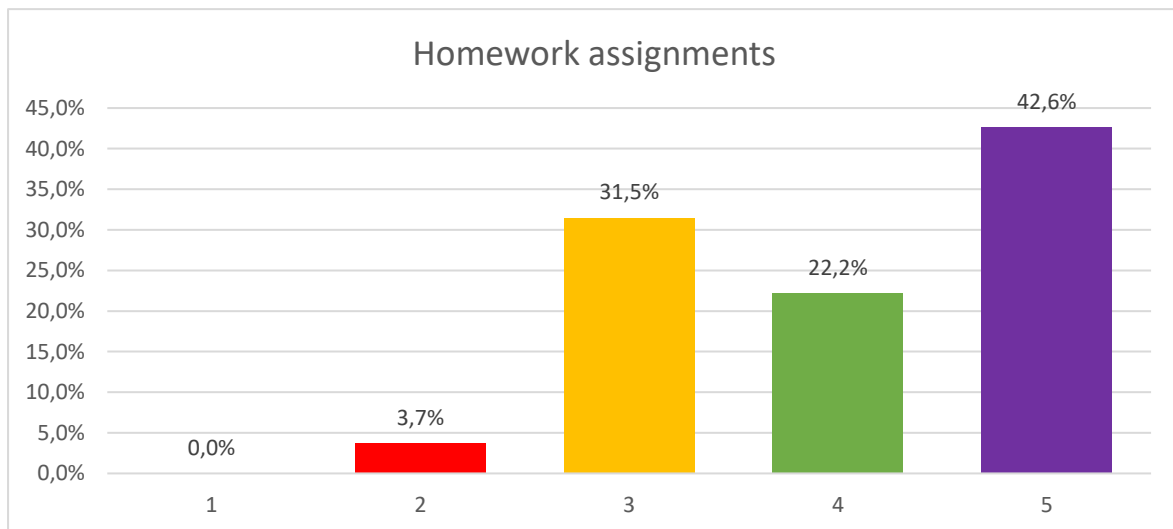


Figure 4. Declared frequency of using homework assignments by teachers during remote classes

Source: own elaboration based on empirical research.

Tasks carried out by students online, e.g. on the platform, also enjoyed great sympathy. Only 5,6% of respondents indicated that they never enriched classes with this form, around 20% of respondents indicated that they used this form rarely or sometimes, 31,5% of respondents declared that they used this form of classes often, and 22,2% of respondents that very often - Figure 5.

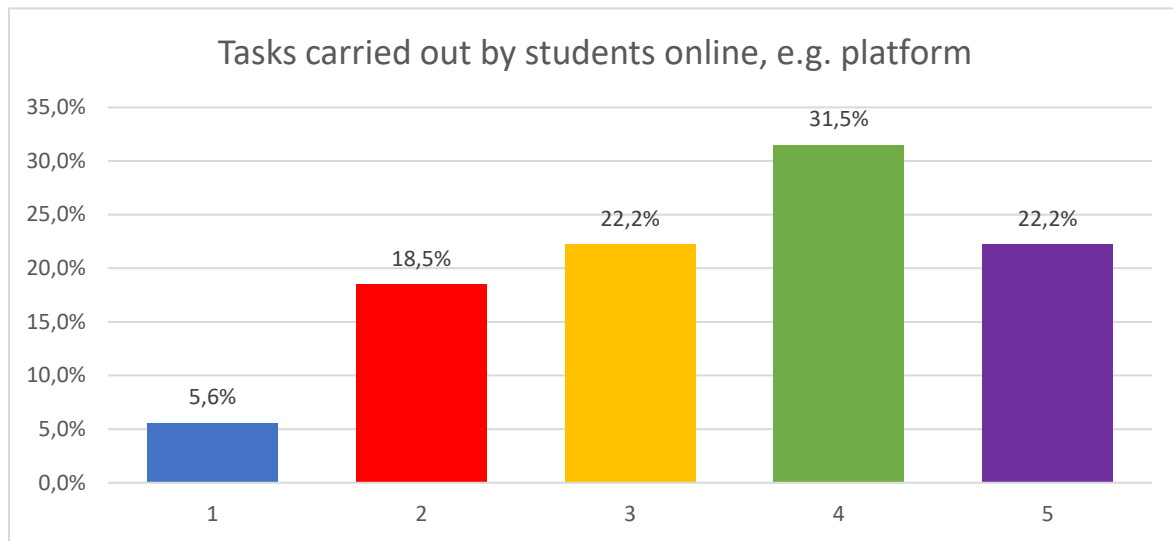


Figure 5. Declared frequency of using tasks performed by students online, e.g. on the platform, during remote classes by teachers

Source: own elaboration based on empirical research.

As many as 16,7% of the respondents indicated that they used e-mail to send teaching materials very often, 22,2% of the respondents often. 13% of respondents sometimes, most respondents, 29,6% rarely used this medium, and 18,5% of respondents never used e-mail to send materials or didactic materials.

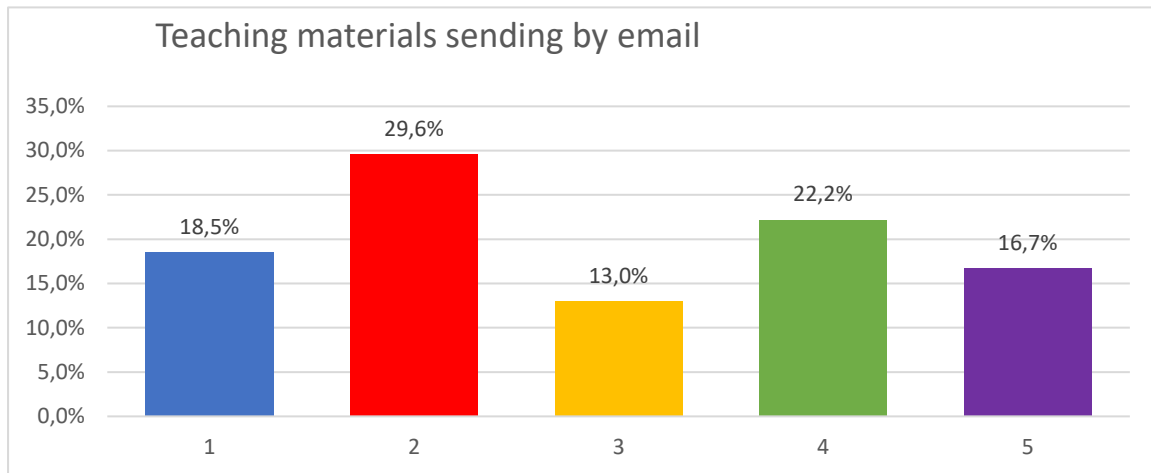


Figure 6. Declared frequency of sending teaching materials by e-mail during remote classes by teachers

Source: own research based on empirical research.

A positive surprise, however, is the fact that for many teachers, individual online consultations with students were a popular form of learning during the pandemic. Although 22,2% of the respondents indicated that they used this form of activity rarely, 9,3% of the respondents not at all, 42,6% of the respondents used this form sometimes, 13% of the respondents often and 14,8% of respondents - very often - Figure 7.

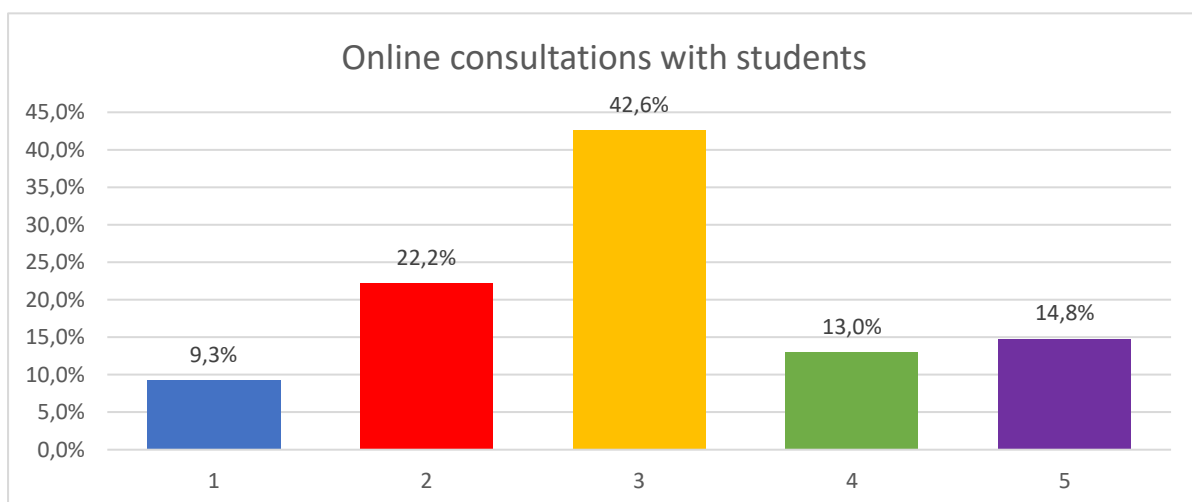




Figure 7. Declared frequency of using individual online consultations with pupils/students during remote classes by teachers

Source: own elaboration based on empirical research.

Some of the respondents used e-mail for consultations. However, 18,5% of the respondents indicated frequent use of this form of organization of classes and consultations, and 11,1% of the respondents indicated very frequent use of this form. As many as 27,8% of the respondents indicated that they used this form sometimes, and 33,3% of the respondents that they used it rarely or never - Figure 8.

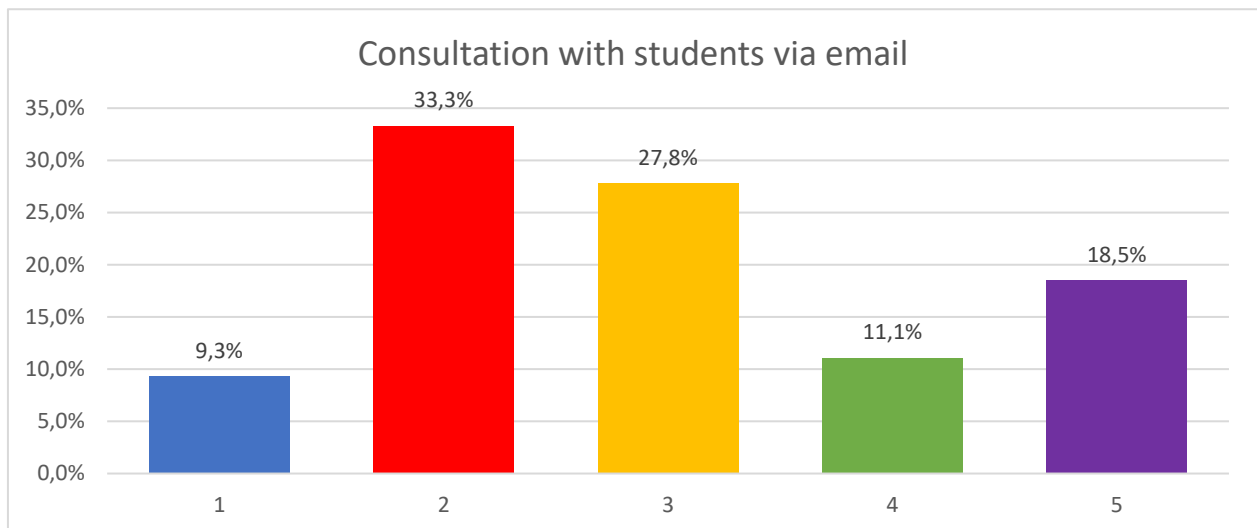


Figure 8. Declared frequency of using e-mail consultations with pupils/students by teachers during remote classes

Source: own elaboration based on empirical research.

Communicators are a popular tool for conducting consultations among teachers. Frequent use of online consultations conducted with the use of messengers, e.g. Messenger, in classes was indicated by 24,1% of respondents, and very frequent 16,7% of respondents. 35,2% of the respondents did not use instant messaging during classes, 14,8% of the respondents did it rarely, and 11,1% of the respondents) - sometimes - Figure 9.

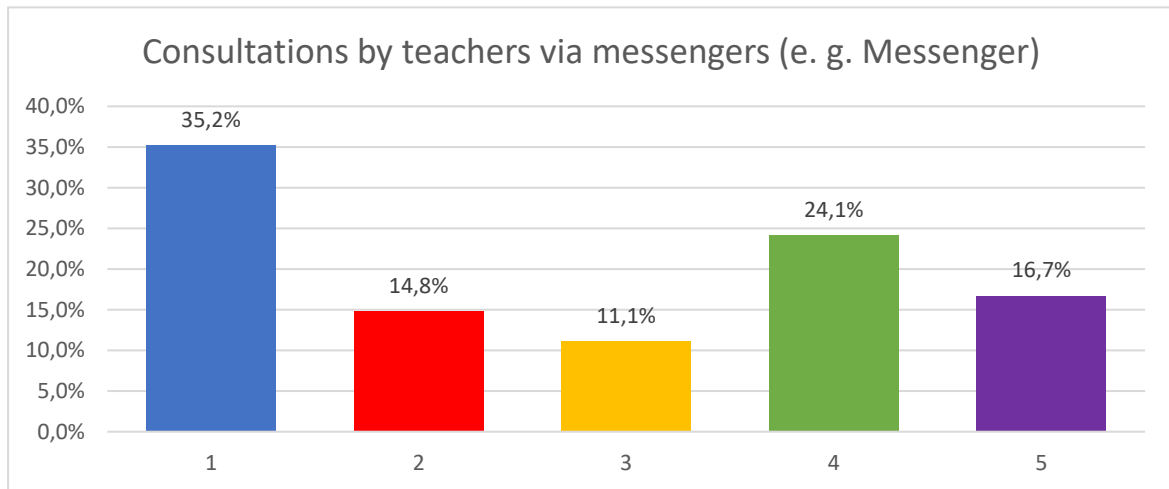


Figure 9. Declared frequency of consultations by teachers via messengers (e.g. Messenger) during remote classes

Source: own elaboration based on empirical research.

Unpleasant surprise was that very large group of respondents during remote classes organized work in teams rarely 25,9% of respondents and 25,2% used this method sometimes. Only 14,8% of the respondents did it very often and 22,2% of the respondents often. Figure 10.

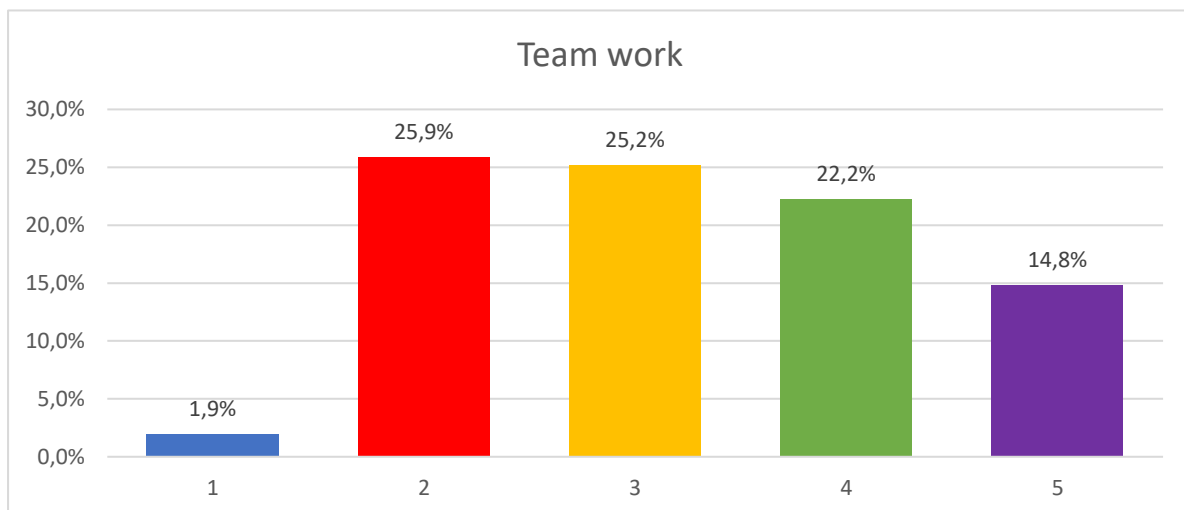


Figure 10. Declared frequency of using teamwork by teachers during remote classes

Source: own elaboration based on empirical research.



Tests, quizzes, and tasks enjoyed great popularity among teachers. As many as 38,9% of the respondents indicated that they very often used this form during classes, 31,5% of the respondents did it often, and 27,8% of the respondents sometimes - Figure 11.

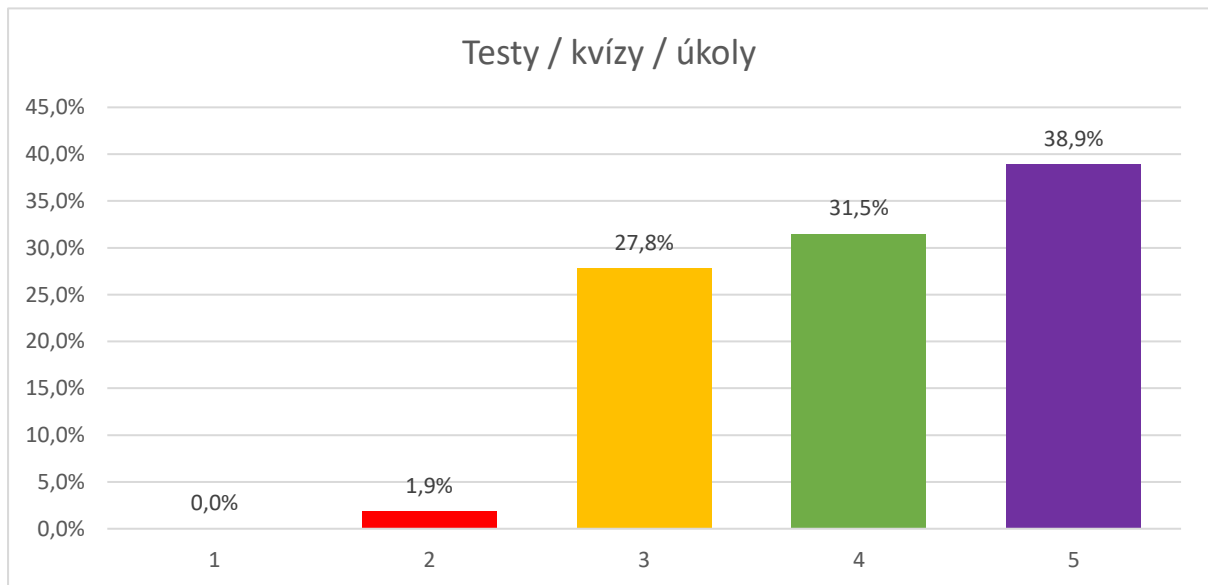


Figure 11. Declared frequency of using tests / quizzes / tasks by teachers during remote classes
Source: own elaboration based on empirical research.

Platforms or applications provided by publishers were not very popular. As many as 29,6% of respondents indicated that they had never used such attractiveness of classes, and 27,8% of respondents that they rarely used them during remote classes. It is comforting, however, that 14,8% of the respondents used such aids sometimes, 14,8% of the respondents - often, and 13% of the respondents - very often - Figure 12.

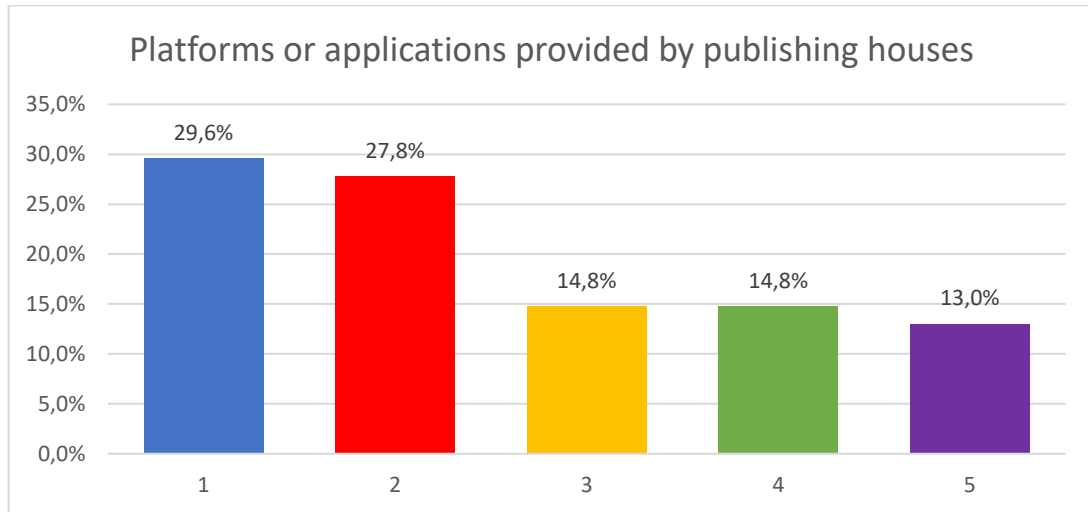


Figure 12. Declared frequency of using platforms or applications provided by publishing houses by teachers during remote classes

Source: own elaboration based on empirical research.

The vast majority of respondents did not use other forms of conducting classes. - Figure 13.

Other forms of distance education used by teachers and academic lecturers during distance education were:

- Edukit - school homework system
- videos available, YouTube presentations
- digital resources related to culture, e.g. ninatka.pl, virtual tours of museums,
- YouTube presentations



2. Doplňte, prosím, jaké další formy distančního vzdělávání jste využívali při online výuce? (výše neuvedené)

26 odpovědí

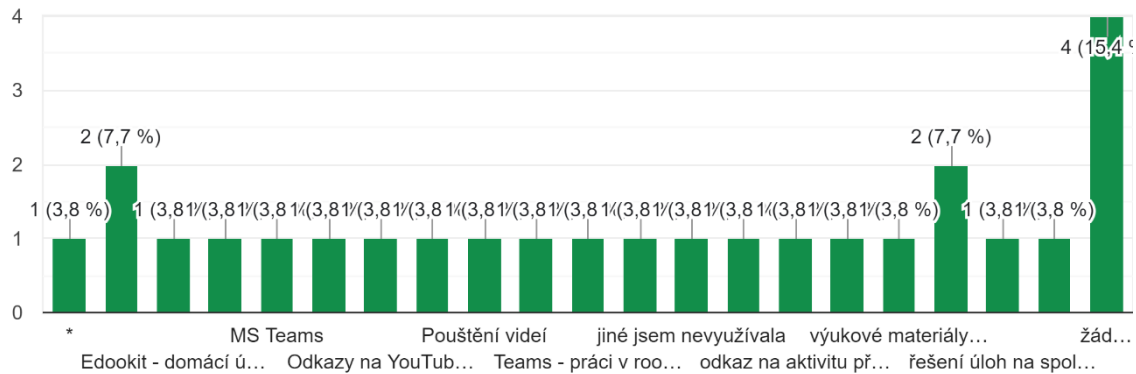


Figure 13. Declared frequency of using other teaching methods by teachers during remote classes

Source: own elaboration based on empirical research.

Among the innovative methods that, according to teachers, could be appreciated in online teaching, they included:

- virtual laboratories, virtual reality
- activating methods: brainstorming, expression methods, case study, forum, elements of coaching,
- artificial intelligence
- test platform,
- generally more time to prepare lessons.

The results obtained in the group of teachers are confirmed in the group of students. The vast majority indicated that they did not know new innovative methods almost 38,5% of respondents. Figure 14.



Students did not encounter classes recorded and played back from the recording. Such an answer was given by 45,9% of the respondents, and 21,3% of the respondents very rarely encountered this form of activity. Unfortunately, 23,9% of the respondents met with this form of activity sometimes, 6,6% of the respondents - often, and 4,9% of the respondents - very often - Figure 16

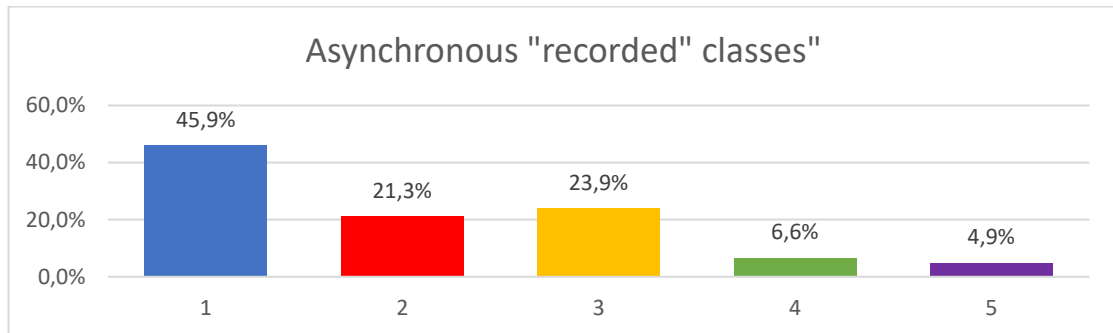


Figure 16. Remote asynchronous "recorded" classes - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

Live classes were a frequent form of class. 33,3% of the respondents met with this form of activity very often, and 23,7% of the respondents met it often. 13,8% of the respondents did not meet such activities, 13,9% of the respondents met rarely, and 18% of the respondents met occasionally - Figure 17.

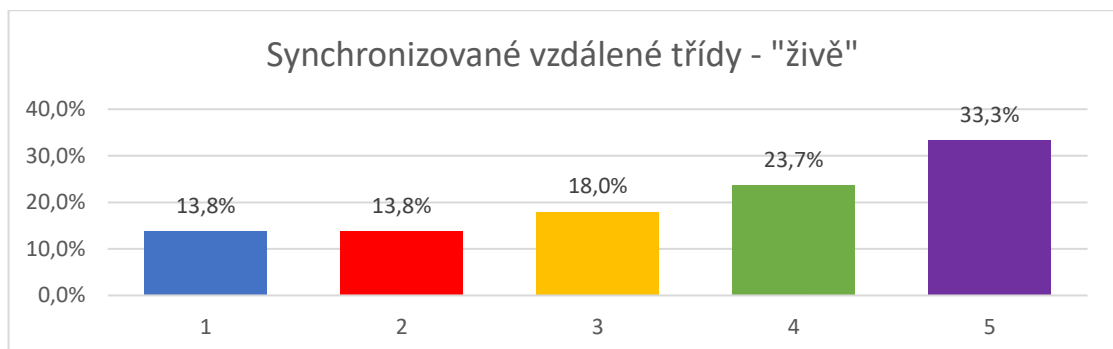


Figure 17. Synchronized "live" remote classes - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.



According to pupils and students, an almost permanent element of distance learning was homework to be done on one's own. 38,2% of the respondents indicated that they very often encountered this form of making classes more attractive, and 32,1% of the respondents indicated that they met with this form of activation often and 20,1% sometimes. Only 10,1% of respondents indicated that they had rarely been given homework and 2,8% of respondents that they had never - Figure 18.

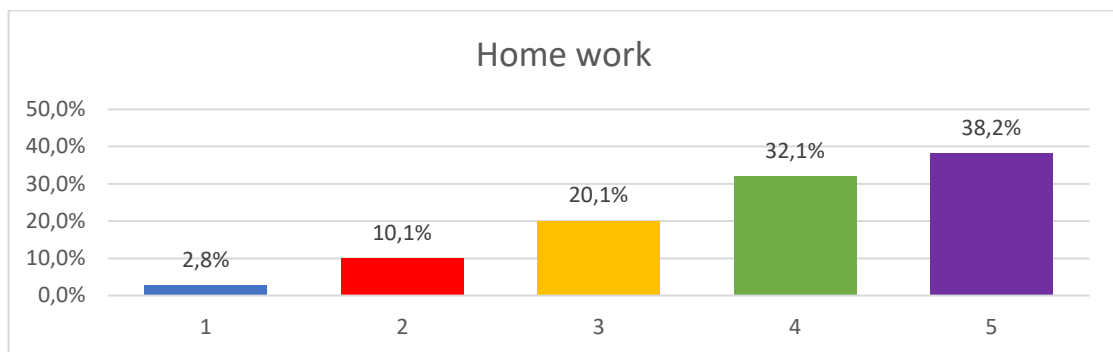


Figure 18. Homework to be done independently - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

The results obtained in the group of pupils and students confirm the high popularity of tasks carried out online, e.g. on platforms. As many as 32,6% of the respondents met with this form of activity often, 30% of the respondents – sometimes, and 16,9% of the respondents – very often. Only 15,7% of the respondents rarely encountered this form of activity, and 6,8% of the respondents never encountered it - Figure 19.

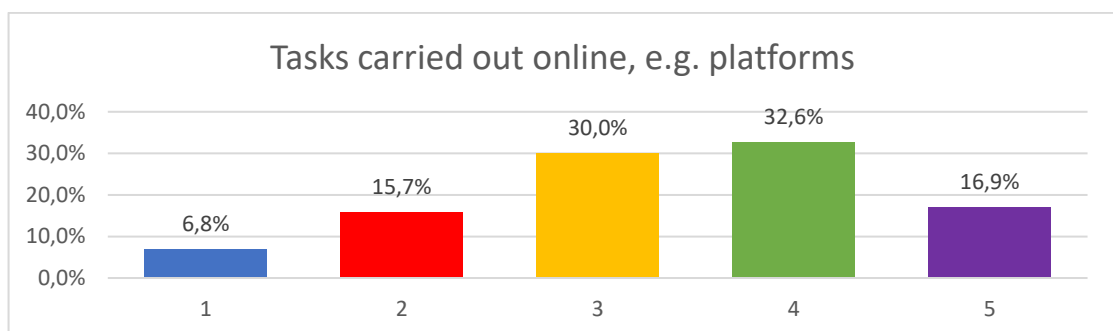


Figure 19. Tasks carried out online, e.g. on platforms - frequency of use during classes in the opinion of students Source: own elaboration based on empirical research.



Student responses to the frequency of emailing instructional materials was very consistent across all responses. The most frequent response from students was sometimes, 23,9% of respondents. Almost identical answers of students are that they have never used this method and very often, 18% and 19,4% of respondents. 20,6% of students answered often and 21,8% rarely.- Figure 19.

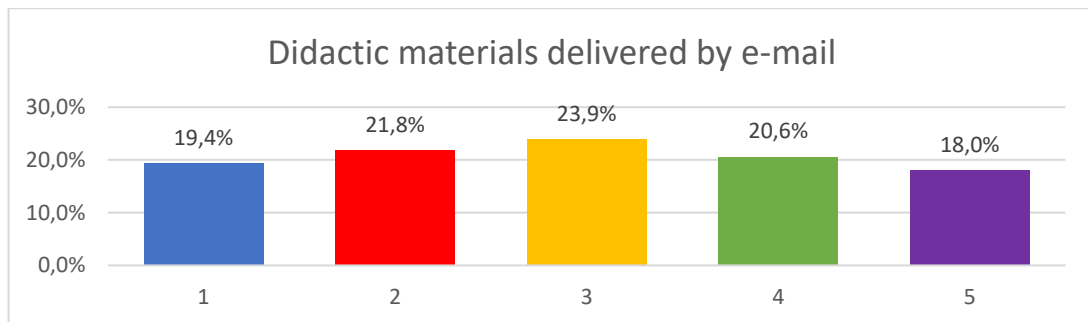


Figure 19. Didactic materials delivered by e-mail - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

However, very few pupils and students confirmed that they were offered individual online consultations with the teacher during remote classes. As many as 39,8% of respondents have never encountered such a form of classes during remote classes, 32,1% of respondents indicated that they met rarely, and 17% of respondents that they met sometimes. Only 6,3% of the respondents indicated that they encountered this form of classes very often, and 7,7% of the respondents that they encountered this form often - Figure 20.

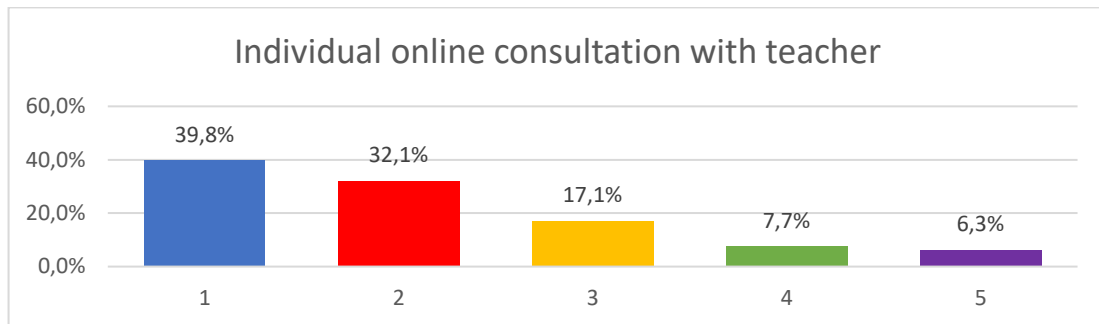


Figure 20. Individual online consultations with a teacher - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

Students also do not confirm consultations with the teacher via e-mail. As many as 21,5% of respondents indicated that they had never encountered such an action, 26% of respondents indicated that they had, but rarely. A large group of respondents, 30,2% of the respondents also indicated that they had encountered this form of conducting classes, but sometimes. Only 9,4% of respondents indicated that they encountered such consultations very often, and 15,7% of respondents indicated that they encountered such consultations often - Figure 21.

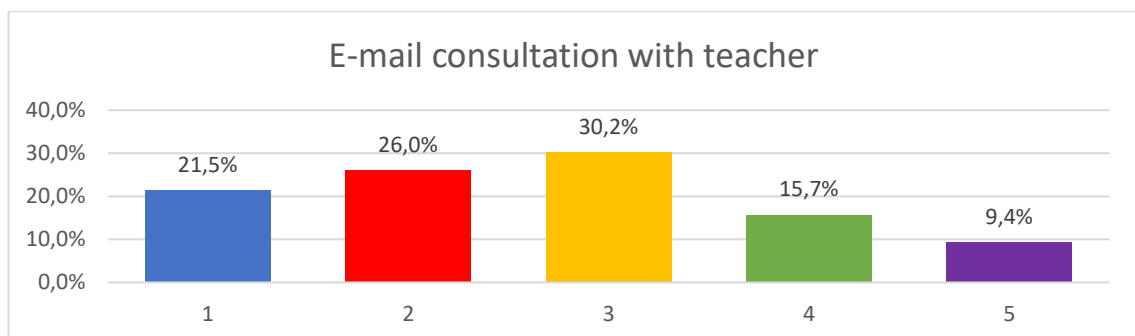


Figure 21. E-mail consultation with a teacher - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.



3.3 Degree of preparation of teachers to conduct classes conducted remotely

The vast majority of teachers describe their preparation for conducting distance education as more time consuming, 81,5% of respondents answered yes. 18,5% of the respondents believe that preparation is just as demanding for online teaching as for regular face-to-face teaching in school. None of the respondents answered that preparing for online instruction is less demanding than preparing for regular classroom instruction.- figure 22.

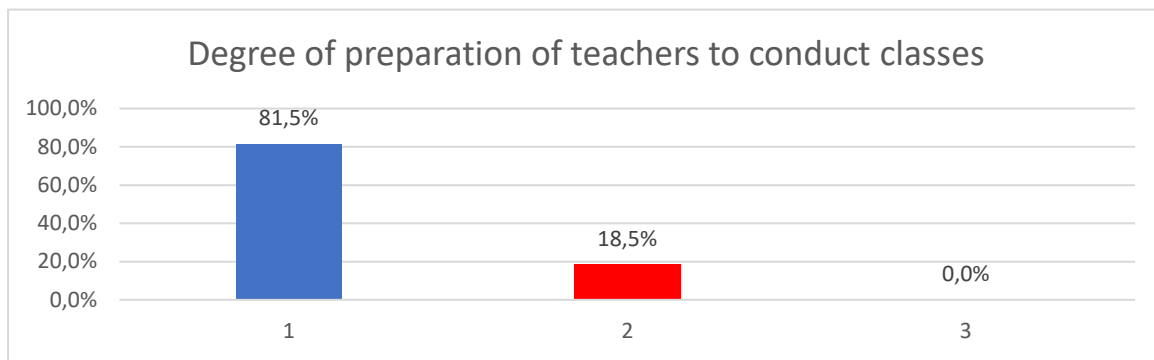


Figure 22. The degree of preparation of teachers to conduct classes conducted remotely before the start of classes

Source: own elaboration based on empirical research.

3.4 Programs / websites / internet tools used in remote classes

Teachers declared the use of many programs and websites during remote teaching. However, these tools are not Skype, as many as 87% of respondents indicated that they had never used this communicator during remote classes, and only 7,4% of teachers indicated that they used it sometimes - Figure 23. Discord software, i.e. a free internet service based on the cloud, for voice calls and communication via text messages with the possibility of placing photos and videos, was the least popular among multiple users. 96,7% of respondents did not use at all. Figure 24. Respondents also did not use messengers such as Messenger or WhatsApp, which are very popular in everyday life, or the popular Facebook. 53,7% of the respondents



declared that they had never used such a means of communication with pupils/students. 16,7% of respondents answered that they used this form of communication rarely or sometimes. However, only 14,8% of the respondents used the indicated messengers and/or Facebook often, and 9,3% of the respondents - very often - Figure 25. Almost the majority 94,4% of the respondents indicated that they had never used this tool to communicate with pupils/students TeamSpeak3 - an instant messenger using VoIP technology for voice and text communication almost the majority was the least popular among multiple users of a given server. - Figure 26.

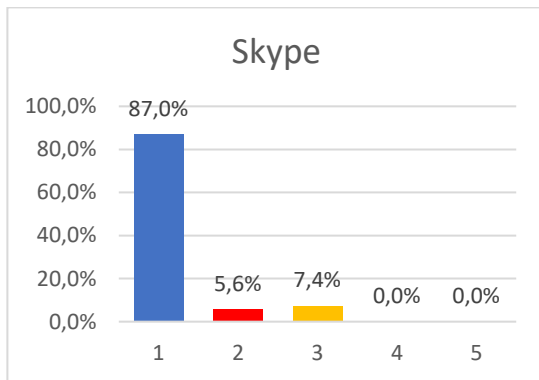


Figure 23. Frequency of using Skype by teachers during remote classes

Source: own elaboration based on empirical research.

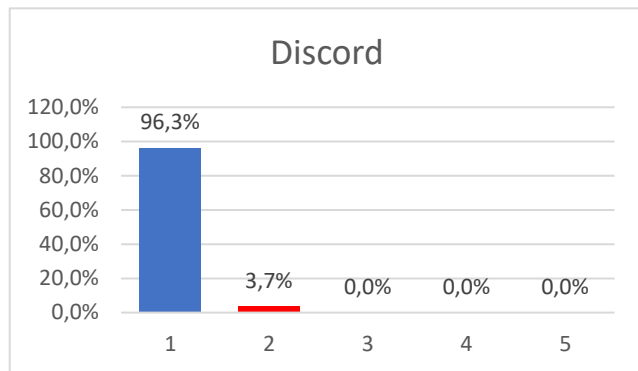


Figure 24. Frequency of using Discord by teachers during remote classes

Source: own elaboration based on empirical research.

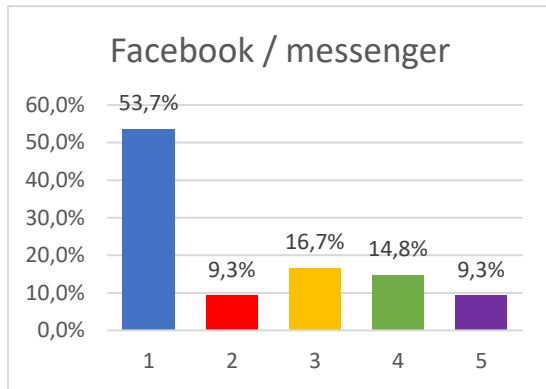


Figure 25. Frequency of using Facebook / Messenger / WhatsApp by teachers during remote classes

Source: own elaboration based on empirical research.

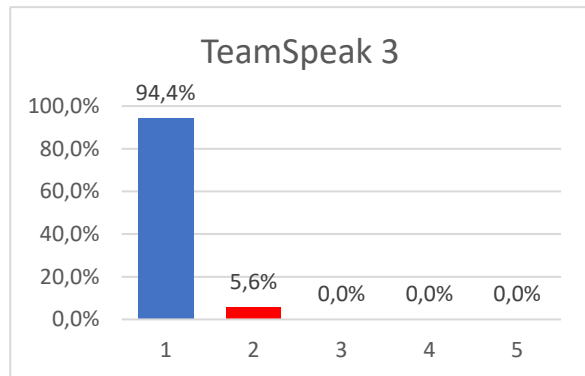


Figure 26. Frequency of using TeamSpeak3 by teachers during remote classes

Source: own elaboration based on empirical research.

Such instant messengers as Microsoft Teams, i.e. applications designed to conduct online meetings both at homes, schools, and companies, enjoyed great popularity. Very frequent use of Ms Teams was indicated by 66,7% of respondents, frequent use by 5,6 % of respondents. 3,7% of respondents indicated that they used Ms Teams rarely – and the same number of respondents 3,7% use it sometimes. 20,4% of respondents never use Microsoft Teams - Figure 27. These results seem to confirm the media reports on the popularity of Microsoft Teams and Zoom, which dominated the market during the coronavirus (COVID pandemic -19).

Many of the respondents also used the possibilities offered by Google, i.e. Google Classroom and Google Meet. Google Classroom is a free online service for schools developed by Google to simplify the process of creating, distributing, and grading assignments electronically. As many as 38,9% of the respondents pointed to the very frequent use of this service, but 44,4% of respondents have never used these tools - Figure 28.

A little less popular was the e-learning platform Moodle (Modular Object-Oriented Dynamic Learning Environment), i.e. a distance learning environment available through a web browser using ICT networks. As many as 59,3% of respondents never used this platform, but



almost 28% of respondents used it very often. 5,6% of teachers use it rarely, and also 5,5% use it sometimes. Only 1,9% of respondents indicated that they used this tool often - Figure 29.

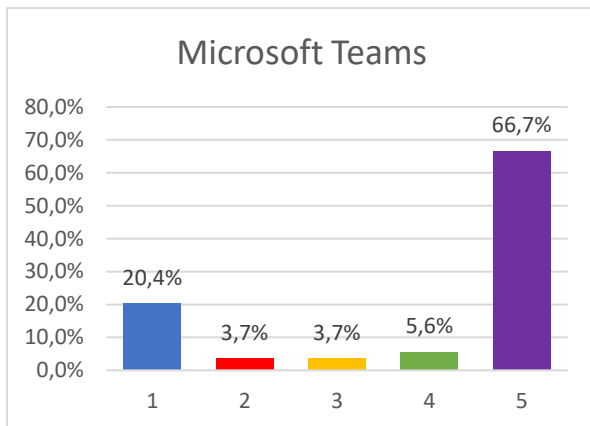


Figure 27. Frequency of using Microsoft Teams by teachers during remote classes

Source: own elaboration based on empirical research.

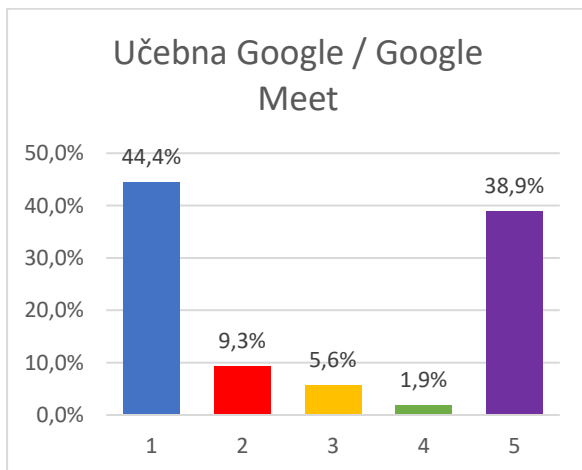


Figure 28. The frequency of using Google Classroom / Google Meet by teachers during remote classes

Source: own elaboration based on empirical research.

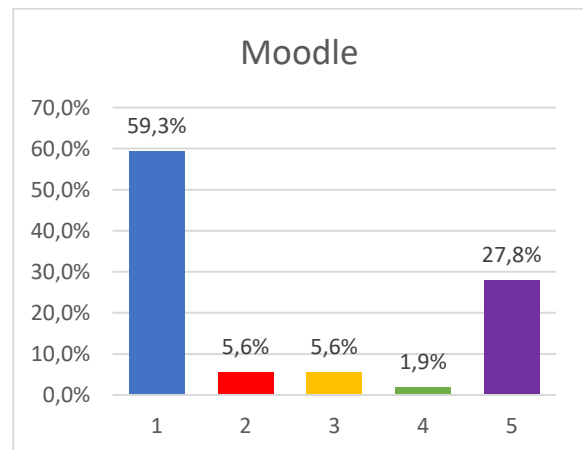


Figure 29. Frequency of using Moodle by teachers during remote classes

Source: own elaboration based on empirical research.



The surveyed teachers rather did not use other communicators than those mentioned earlier. Disk Google never used 50% of respondents, only 20,4% use it very often. 9,3% of respondents use Disk Google sometimes or rarely. 11,1% of teachers indicated, that use this often Figure 30. The tool used during remote classes, however, was YouTube. 11,1% of the respondents indicated that the website was used very often, 38,9% of the respondents) used it sometimes, and it was used frequently by 25,9% of the respondents. 9,3% of respondents rarely used YouTube during classes, and 16,7% of respondents declared that they had never used this service during remote classes - Figure 31.

The respondents did not see the need to use virtual disks. As many as 63% of respondents indicated that they had never used Onedrive. Very frequent use of OneDrive was indicated by 13,4% of respondents and Frequent or Rarely use it 9,3% each. 5,6% of respondents use OneDrive sometimes.- Figure 32. Google Meet was used slightly more often. Very frequent use of this form of storing and sharing files was indicated by 38,9% of respondents, rarely – 9,3% of respondents), sometimes Google Meet was used during remote classes by 5,6% of respondents). However, 44,4% of respondents never used Google meet - Figure 33.

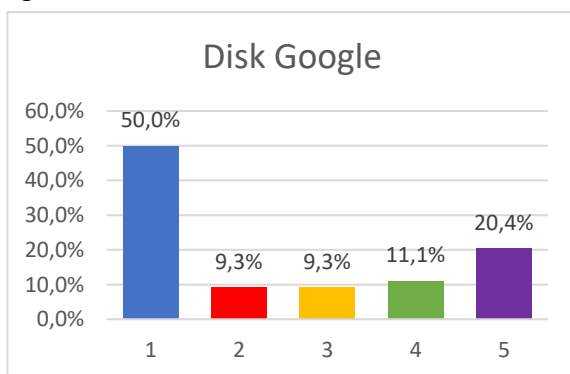


Figure 30. Frequency of using disk google by teachers during remote classes

Source: own elaboration based on empirical research.

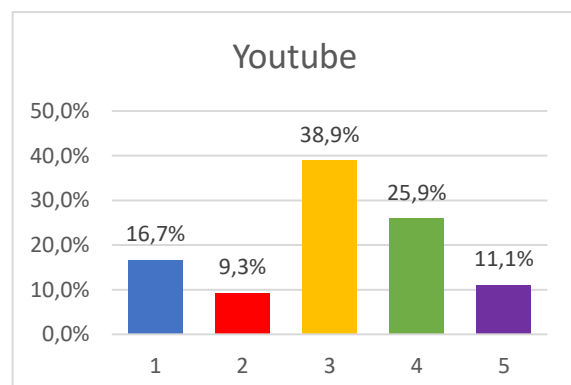


Figure 31. The frequency of using YouTube by teachers during remote classes

Source: own elaboration based on empirical research.

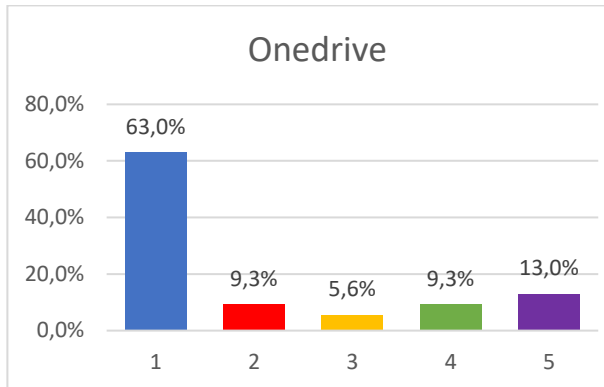


Figure 32. Frequency of using Onedrive by teachers during remote classes

Source: own elaboration based on empirical research.

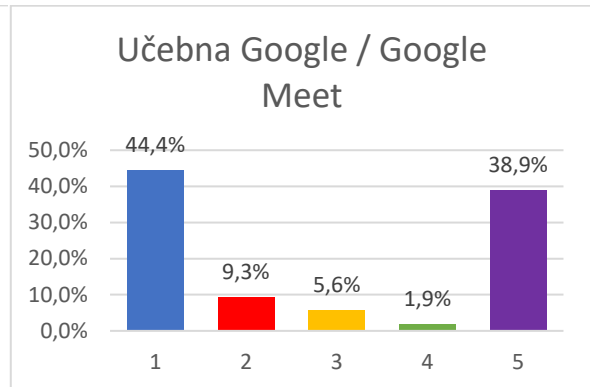


Figure 33. How often teachers use Google Drive during remote classes

Source: own elaboration based on empirical research.

The lack of need or need to store files on virtual drives is also confirmed by the answers about the use of Dropbox. As many as 90,7% of respondents have never used such a possibility on the indicated disk, 7,4% of respondents indicated that they did it very rarely. 1,9% of respondents indicated that they used it sometimes - Figure 34.

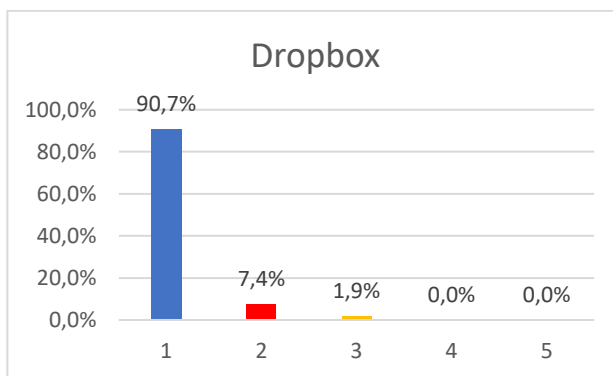


Figure 34. How often teachers use Dropbox during remote classes

Source: own elaboration based on empirical research.



Co-funded by
the European Union

Among the tools used by teachers/academics that were not mentioned in the questionnaire, respondents added individual school applications, the website *realisticky.cz*, online exercises, online dictionaries on publicly available websites, e.g. *Geogebra*, *ERDplus*, *PSPad*, etc. And in response to the question: "Would they like to supplement teaching with new technologies and digital platforms, and if so, which ones?" the interviewed teachers responds:

- Kahoot, Padlet, Tablets and apps on them
- Better technical equipment and methodological support
- Chatgpt, mentimeter, quizlet, etc.
- Virtual reality
- Professional psychological support for teachers, pupils and parents
- Sound systems in classrooms, cameras, visualisers , laptops that can be connected to data projectors
- Professional seminars for teachers on online teaching, working with projector, etc.
- Possibility to connect your classroom with a classroom in another country to practice a foreign language
- Large touch screens
- Kahoot, sokrative, formative, learningapps, Blooket, Nearpod, Slido or Flippity. These apps would definitely improve online learning as well
- More stable internet connection, quality equipment
- A single school edookit with a fast communication channel for group work
- Better visualization and visualisation in mathematics.



According to pupils and students, messengers such as Messenger, WhatsApp, and Facebook were not used more often. Skype never used 92,5% of students and 2,8% used it rarely, only 1,4% of respondents indicated very often – Figure 35. Other communicators students did not used, indicated it 81% of respondents, few 7,3% of respondents indicated rarely and just 3,3% of respondents used it very often. Figure 36.

Among communicators, messenger was the most used, but still little used on a general level. 11% of respondents indicated it was used very often, but 41,9% of respondents never used it during online classes. 19,9% of students used messenger rarely, 17,8% of respondents use it sometimes and very often or often used it 11% of respondents. - Figure 37. Frequency of using TeamSpeak3 by students during remote classes were not popular. 89,5% of respondents never used it. Around 4% of respondents use this sometimes or rarely. Only 1,9% of respondents indicated, that used this very often. Figure 38.

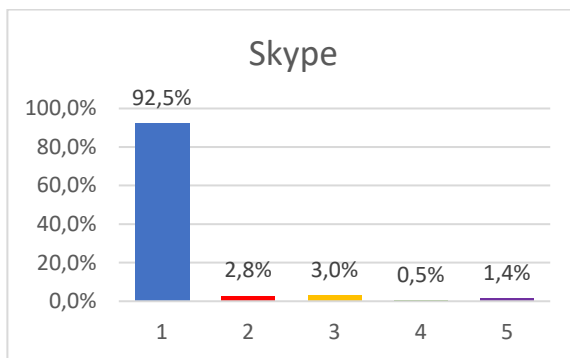


Figure 35. Frequency of using Skype by pupils / students during remote classes

Source: own elaboration based on empirical research.

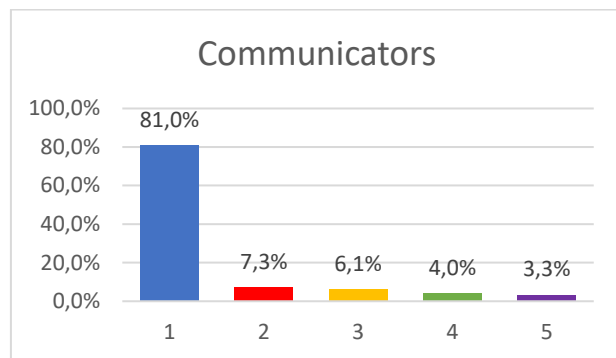


Figure 36. Frequency of using Other communicators by pupils / students during remote classes

Source: own elaboration based on empirical research.

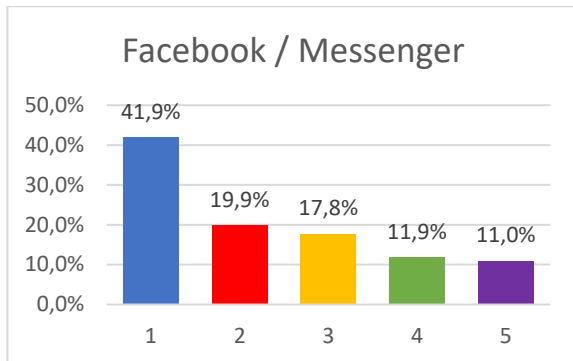


Figure 37. Frequency of using Facebook / Messenger / WhatsApp by students during remote classes

Source: own elaboration based on empirical research.

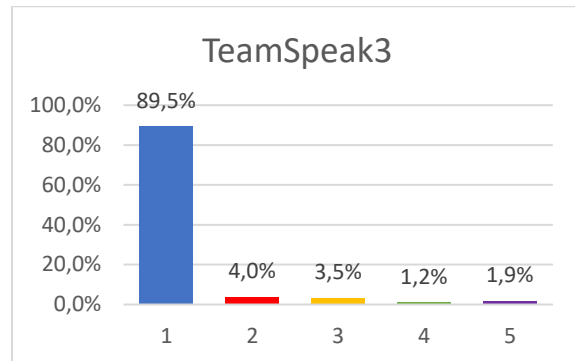


Figure 38. Frequency of using TeamSpeak3 by pupils / students during remote classes

Source: own elaboration based on empirical research.

Ms Teams was very popular among pupils and students. Very frequent use of this communicator was indicated by 59,7% of the respondents, and 4,9% of the respondents used Ms Teams frequently during remote classes. It was not a mandatory tool for the surveyed group, because as many as 30% of the respondents never used this messenger, 3% of the respondents used it rarely, and 3,3% of the respondents - sometimes - Figure 39 .

However, Zoom was not used frequently. Only 5,6% of respondents indicated that they used it very often during remote classes, and only 3% of respondents - often. A large group used this communicator never used it, 78,9% of respondents. 7,5% of the respondents used it rarely, and 5,9% of the respondents sometimes used it - Figure 40.

Tools offered by Google, such as Google Classroom and Google Meet, enjoyed relatively high popularity, which is consistent with the responses of teachers and academic lecturers. As many 34,4% of respondents indicated that they used them very often, 6,1% of respondents - often. However, a similar group of respondents never used these tools – 50,1% of respondents - Figure 41. The Moodle e-learning platform was rarely used. As many as 71,2% of respondents never used it during remote classes, 2,8% of respondents used it, but rarely, and 2,1% of respondents used it sometimes. On the other hand, the group of 20,1% of respondent said they used this very often - Figure 42.

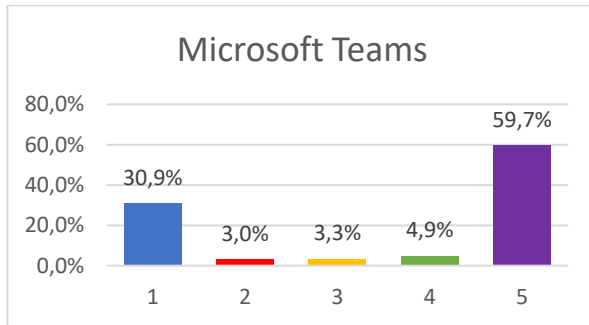


Figure 39. Frequency of using Microsoft Teams by students during remote classes

Source: own elaboration based on empirical research.

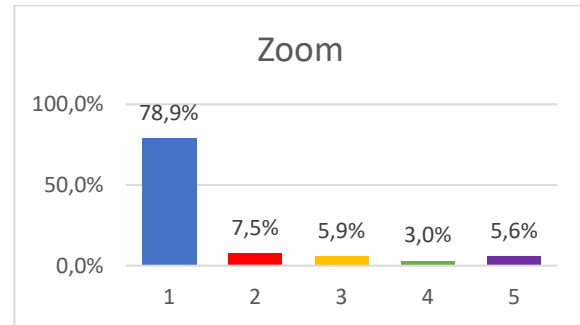


Figure 40. Frequency of using Zoom by pupils / students during remote classes

Source: own elaboration based on empirical research.

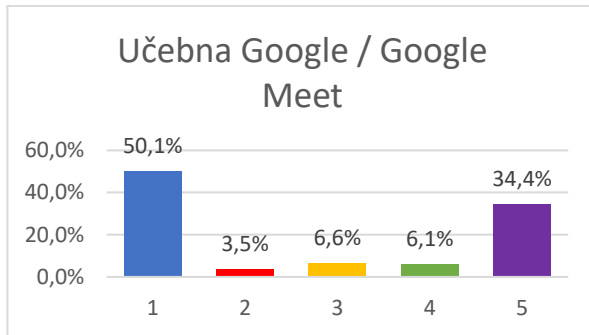


Figure 41. The frequency of using Google Classroom / Google Meet by pupils / students during remote classes

Source: own elaboration based on empirical research.

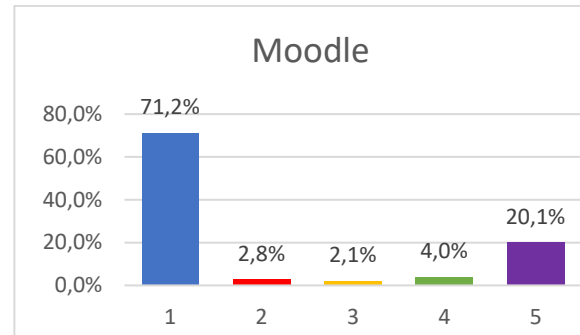


Figure 42. Frequency of using Moodle by students during remote classes

Source: own elaboration based on empirical research.

Few pupils and students used YouTube during remote classes. As many as 41,5% of respondents have never used it during online classes, 19,9% of respondents rarely used it, and 23,9% of respondents - sometimes. 7% of the respondents indicated very frequent use of this website, and 9,6% of the respondents indicated frequent use of this website – Figure 43.

Students - just like teachers - confirm little interest in storing files on virtual drives. 67,2% of respondents never used OneDrive during remote classes, and 13,1% of respondents rarely used it. Only 5,2% of respondents used the possibilities offered by OneDrive very often, and 7,7% of respondents - often - Figure 44. Similarly, Google Drive was rarely used. As many as 58,1% of respondents have never used the space offered by Google Drive, and 8% of respondents rarely used it. Only 12,4% of respondents used this service very often, and 10,1%



of respondents - often - Figure 45. DropBox is the least popular. As many as 98,4% of respondents have never used this drive to store files - Figure 46.

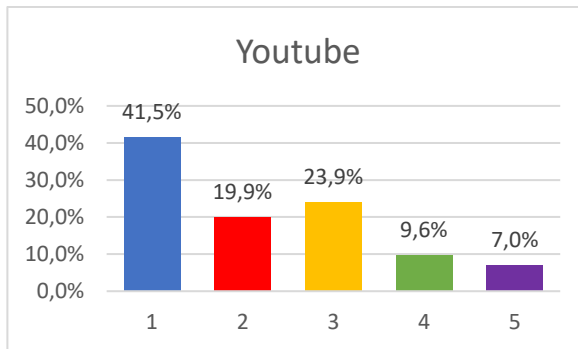


Figure 43. Frequency of using YouTube by pupils / students during remote classes

Source: own elaboration based on empirical research.

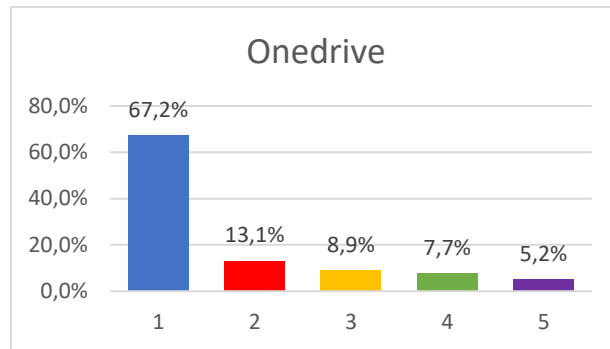


Figure 44. Frequency of using OneDrive by pupils / students during remote classes

Source: own elaboration based on empirical research.

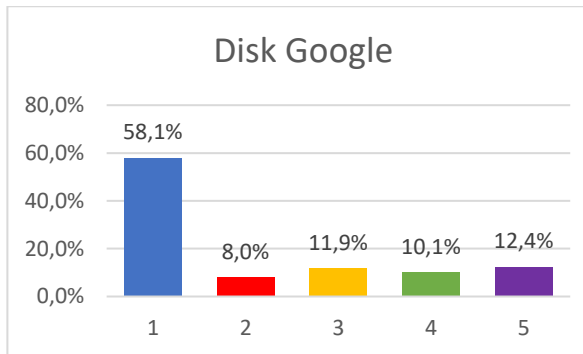


Figure 45. The frequency of using Google Drive by pupils / students during remote classes

Source: own elaboration based on empirical research.

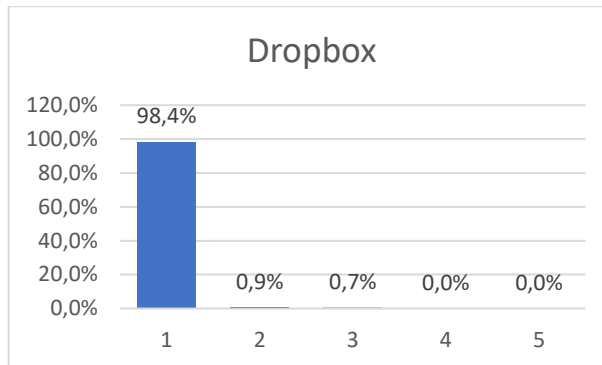


Figure 46. The frequency of using DropBox by pupils / students during remote classes

Source: own elaboration based on empirical research.



3.5 Technical devices used in the distance learning process

In the remote education process, some teachers and lecturers used a desktop computer. Continuous use of a desktop computer was indicated by 14,8% of respondents, and frequent use by 20,4% of respondents. 14,8% of respondents used a desktop computer during remote classes sometimes, and 7,4% of respondents rarely. 42,6% of respondents never used a desktop computer during remote classes - Figure 47.

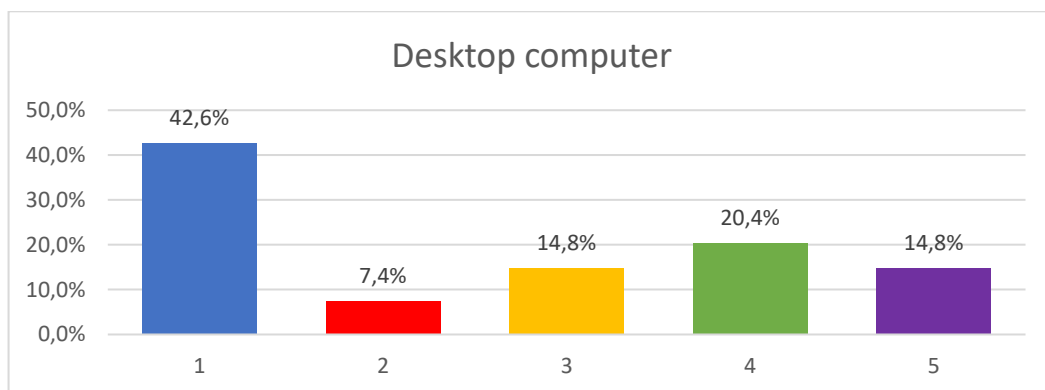


Figure 47. Frequency of using a desktop computer by teachers during remote classes
Source: own elaboration based on empirical research.

A definitely larger number of teachers used a laptop during remote classes. The continuous use of a laptop was indicated by 70,4% of the respondents, and 22,2% of the respondents indicated that they used the laptop often during remote classes. Only 5,6% of respondents never used a laptop during remote classes, and sometimes 1,9% of respondents - Figure 48.

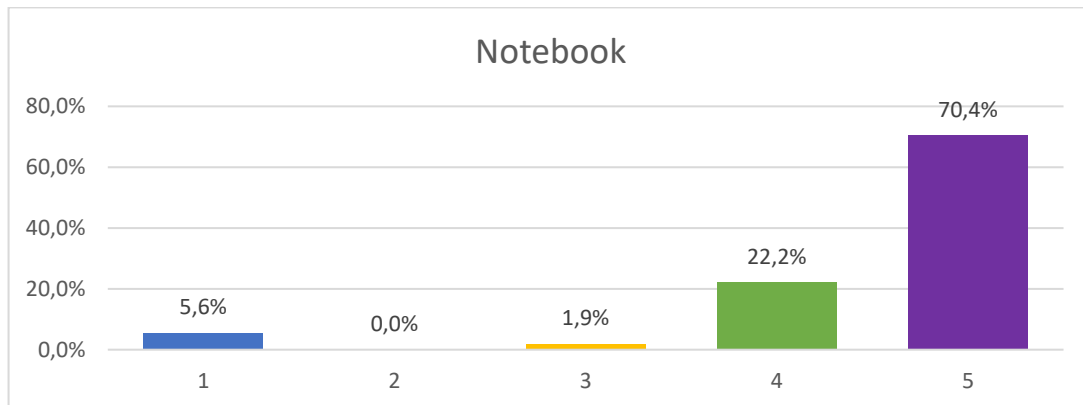


Figure 48. Frequency of using laptops by teachers during remote classes

Source: own elaboration based on empirical research.

Relatively few people, compared to previous answers, used a smartphone during remote classes. Only 16,7% of respondents pointed to the continuous use of a smartphone in the didactic process carried out remotely, and 24,1% of respondents used a smartphone often. For a significant part of the respondents, however, it was only an additional tool. 25,9% of the respondents used the smartphone as a tool for remote classes sometimes, 14,8% of the respondents used it rarely, and 18,5% of the respondents did not use it at all - Figure 49.

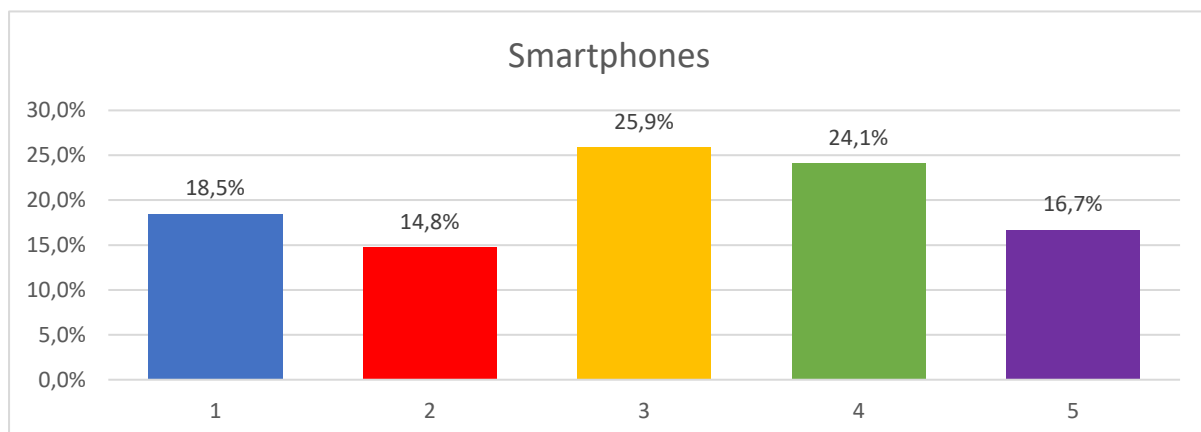


Figure 49. Frequency of using smartphones by teachers during remote classes

Source: own elaboration based on empirical research.

A definitely unpopular tool when it comes to using it in the remote learning process is the tablet. As many as 66,7% of respondents have never used a tablet during remote lessons, 7,4% of respondents rarely used a tablet, 14,8% of respondents - sometimes. However, 5,6% of



respondents indicated that they used the tablet very often, and 7,4% of the respondents - often - Figure 50.

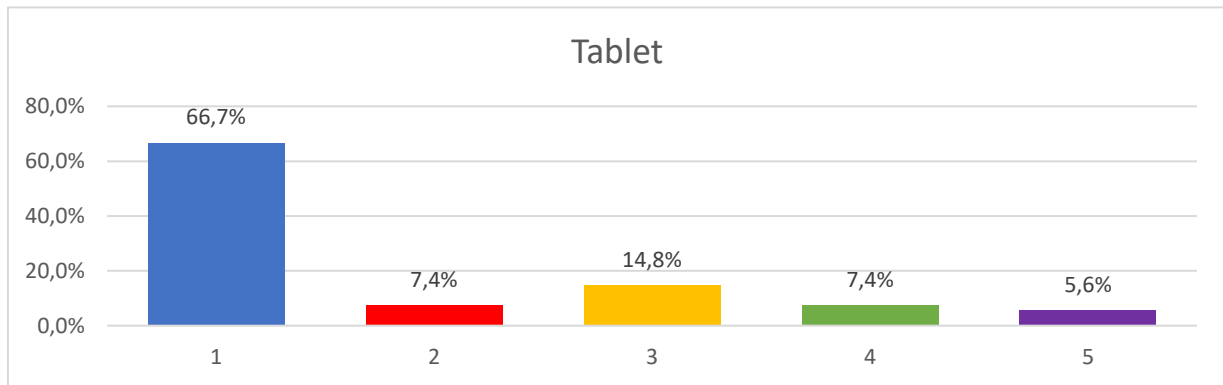


Figure 50. The frequency of teachers using a tablet during remote classes

Source: own elaboration based on empirical research.

Teachers, as in traditional education, used other devices during remote classes, such as a printer or scanner. The continuous use of such devices was indicated by 14,8% of respondents and 44,4% of respondents indicated that they used such devices often. Sometimes additional devices were used by 20,4% of respondents, and rarely – 9,3% of respondents). 11,1% of respondents have never used additional devices - Figure 51.

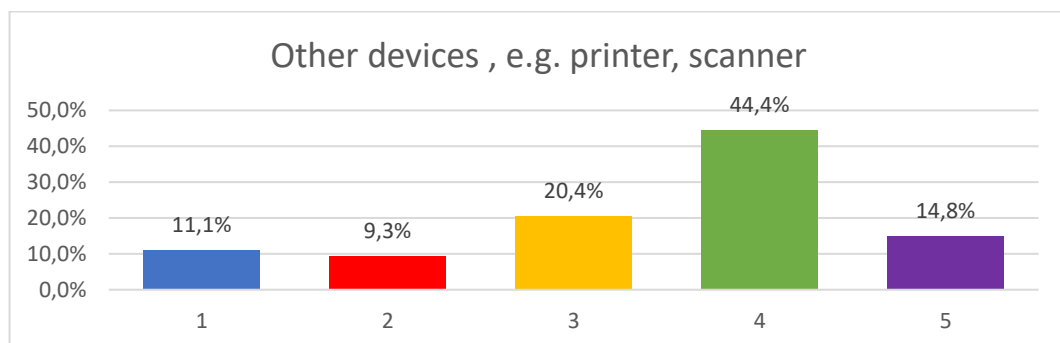


Figure 51. Frequency of using other devices (e.g. printer, scanner) by teachers during remote classes

Source: own elaboration based on empirical research.



3.6 Technical devices used in the distance learning process by students

Similarly, students used technical devices in the remote education process. A group of 21,8% of the respondents used a desktop computer very often in online lessons, 9,4% of respondents - often, but relative large group 51,1% of the respondents indicated that they never used a desktop computer during remote classes, 9,6% of respondents – rarely, almost same number 9,8% of respondents - sometimes - Figure 52.

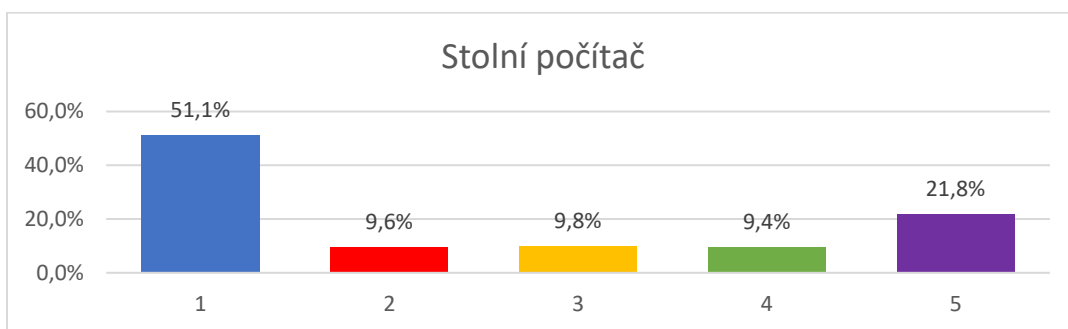


Figure 52. Frequency of using a desktop computer by students during distance learning
Source: own elaboration based on empirical research.

The laptop was a bit more popular. As many as 45,7% of respondents used it in remote education very often, and 24,6% of respondents - often. Sometimes the laptop was used by 8,4% of the respondents and rarely – 5,6% of the respondents. 18,3% of respondents never used a laptop during remote classes - Figure 53.

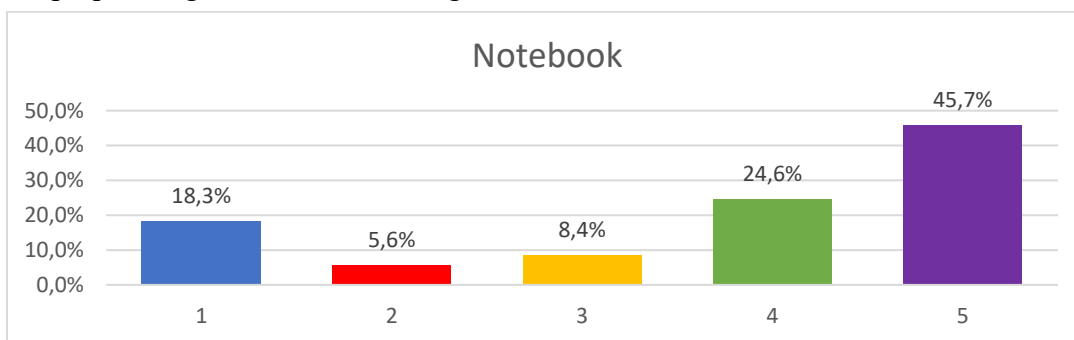


Figure 53. Frequency of using a laptop computer by students during distance learning
Source: own elaboration based on empirical research.



A large part of the respondents in this group indicated the use of a smartphone during remote lessons. 44,3% of the respondents used the smartphone very often, and 34,7% of the respondents often used it. As many as 13,1% of respondents indicated that they used a smartphone sometimes. Only 2,8% of the respondents have never used a smartphone - Figure 54.

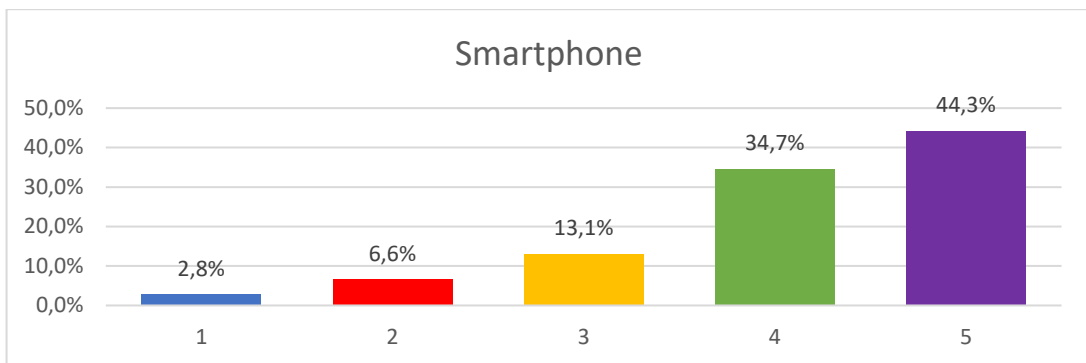


Figure 54. Frequency of using a smartphone by students during distance learning

Source: own elaboration based on empirical research.



The surveyed students and pupils, similarly to teachers, did not use a tablet during remote classes. As many as 80,3% of respondents have never used a tablet during remote classes, rarely – 7,3% of respondents, and sometimes 6,1% of respondents. Only 2,3% of the respondents used the tablet continuously, and often only 5,4% of the respondents - Figure 55.

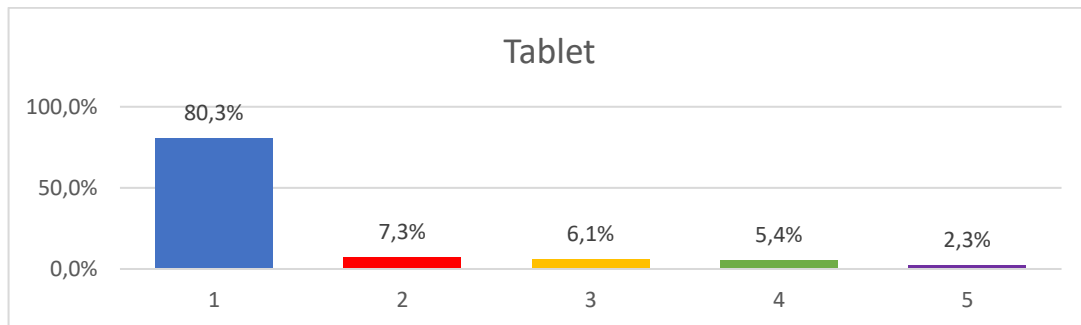


Figure 55. The frequency of using a tablet by students during distance learning

Source: own elaboration based on empirical research.

They used other devices, such as a printer or scanner, much less often. 22,7% of student have never used such devices during online classes. Such devices were rarely used by 13,3% of respondents, and sometimes 28,3% of respondents. 9,8% of respondents each indicated very frequent and 29,3 % of respondents frequent use of the indicated devices - Figure 56.

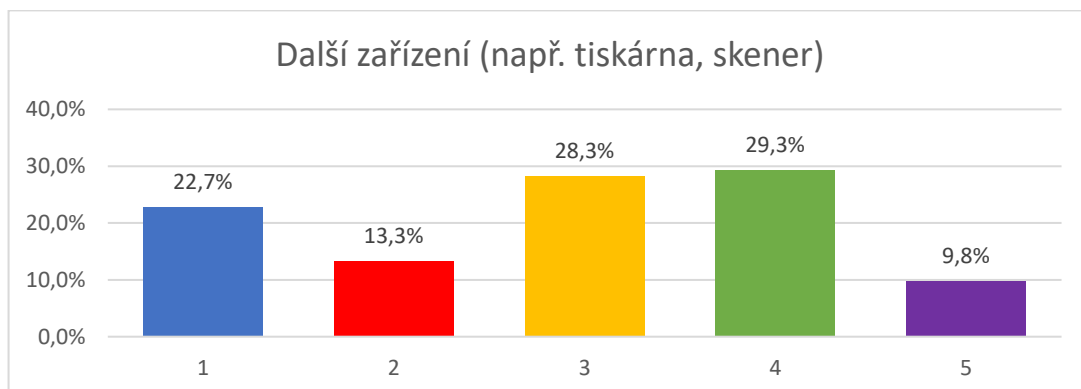


Figure 56. Frequency of using other devices (e.g. printer/scanner) by students during distance learning

Source: own elaboration based on empirical research.



3.7 Technical and non-technical support from schools/universities during distance learning

The vast majority of teachers have used technical equipment owned by schools/universities. As many as 53,7% of respondents have used indicated the continuous use of the equipment provided by the school. 25,9% of respondents used it often, and only 3,7% of respondents indicated that used school technical sometimes. Only 9,3% of the respondents used it rarely and 7,4% of the respondents have never used school technical devices indicated that they used the equipment of the school/university often - Figure 57.

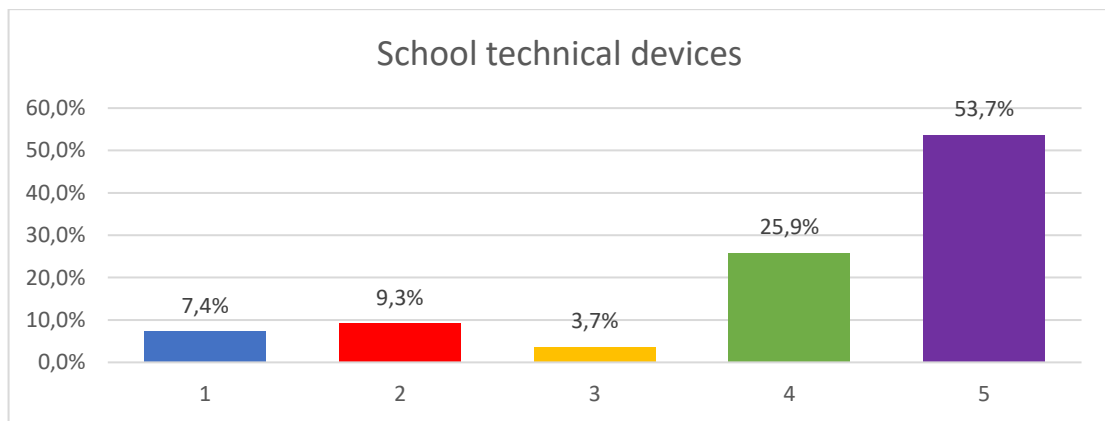


Figure 57. Frequency of using school technical devices by teachers during distance learning

Source: own elaboration based on empirical research.



The vast majority of responding teachers and lecturers used their own equipment. The continuous use of private devices during remote learning was indicated by 35,2% of respondents. Often private devices were used by 37% of respondents. 14,3% of respondents indicated that they used private equipment sometimes in the surveyed or rarely – 5,6% of respondents. 9,3% of respondents indicated that they had never used private equipment during distance learning - Figure 58.

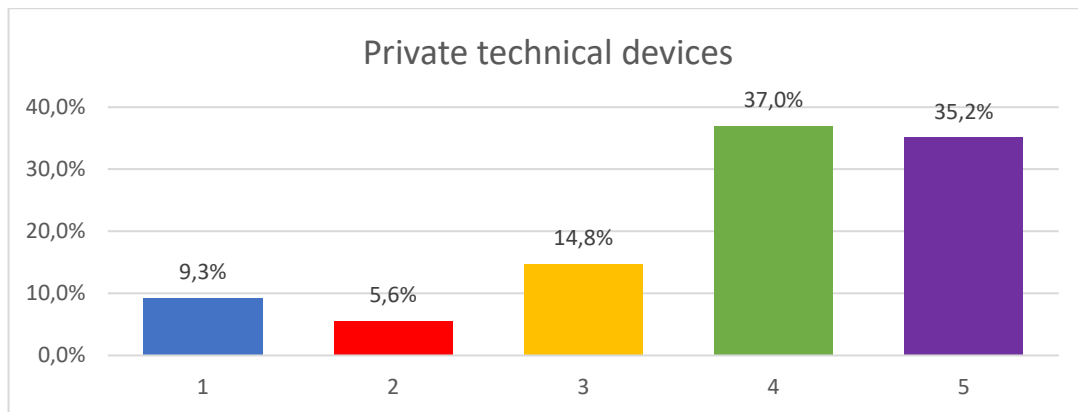


Figure 58. Frequency of using private technical devices by teachers during distance learning

Source: own elaboration based on empirical research.

Most teachers, 68.5% of respondents indicated continuously and 25,9% of respondents indicated very often, conducted online classes from their homes, also due to government regulations in the wake of the COVID pandemic Figure 59.

Only a few teachers used school classroom spaces in exceptional cases. Most teachers said they rarely or never used these spaces. 29,6% of respondents indicated that they've never used classroom during online education and 40,7% of respondents indicated they used them very rarely. Only 13% of respondents indicated that used school classroom often and 16,7% of respondents – sometimes. Figure 60

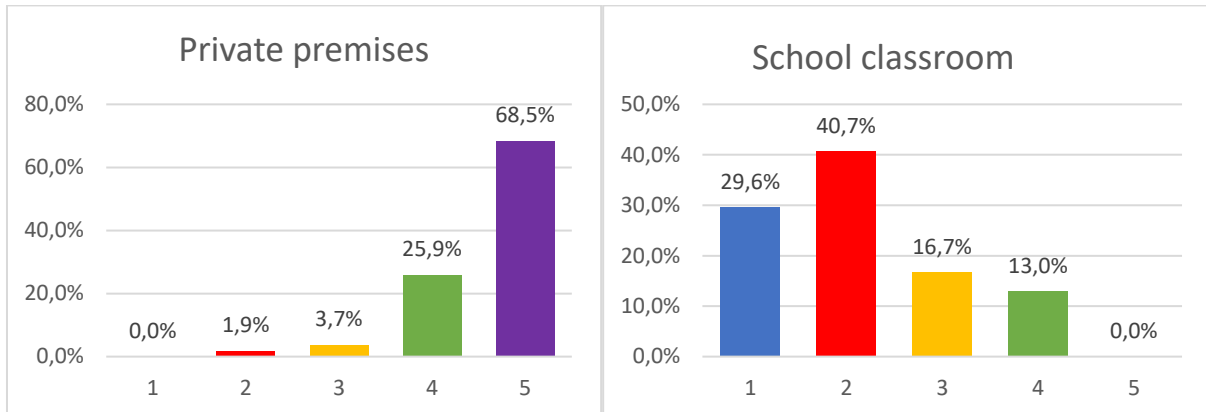


Figure 59. Frequency of using private premises by teachers during distance learning
Source: own elaboration based on empirical research.

Figure 60. Frequency of using school premises by teachers during distance learning
Source: own elaboration based on empirical research.

The vast majority of the surveyed teachers/academic lecturers positively assess the available equipment. As many as 38,9% of respondents answered that the condition of technical devices was very good or good. Only 5,6 % of respondents indicated that the technical equipment they used during remote classes was below average, and 16,7% of respondents indicated that its condition was average - Figure 61.

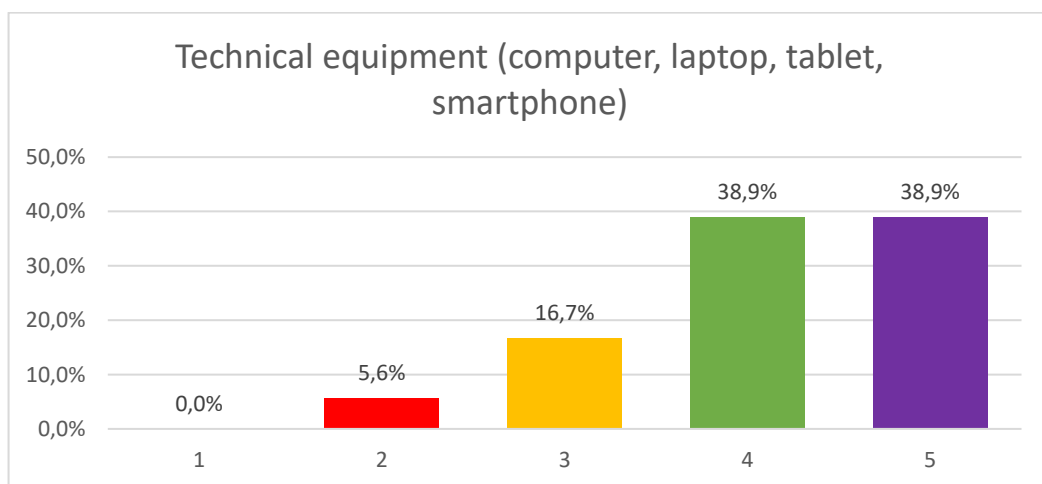


Figure 61. Teachers' assessment of available technical equipment (computer, laptop, tablet, smartphone)



Source: own elaboration based on empirical research.

The surveyed teachers/academic lecturers rated the speed of the Internet connection. 35,2% of the respondents rated it as very good, and 31,5% of the respondents indicated that it was simply good. For 29,6% of the respondent it was average. Only for 3,7% of the respondents below average, and for nobody - insufficient - Figure 62.

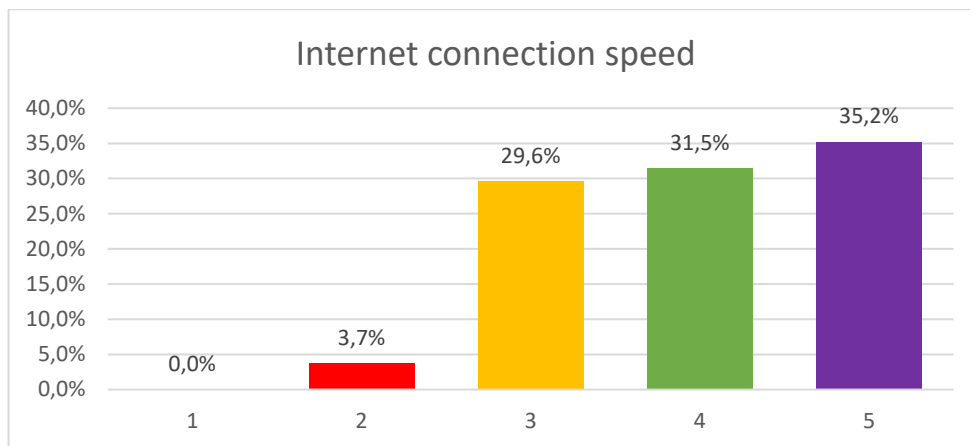


Figure 62. Teachers' assessment of the available Internet connection speed

Source: own elaboration based on empirical research.

Similarly, the stability of the Internet connection was assessed. 25,9% of respondents had a very stable Internet connection. The majority of respondents in this group – 40,7% of respondents indicated that it was simply good, i.e. stable. For 25,9% of the respondents, the stability of the Internet connection was only average and 7,4% of the respondents indicated that it was below average or insufficient - Figure 63.

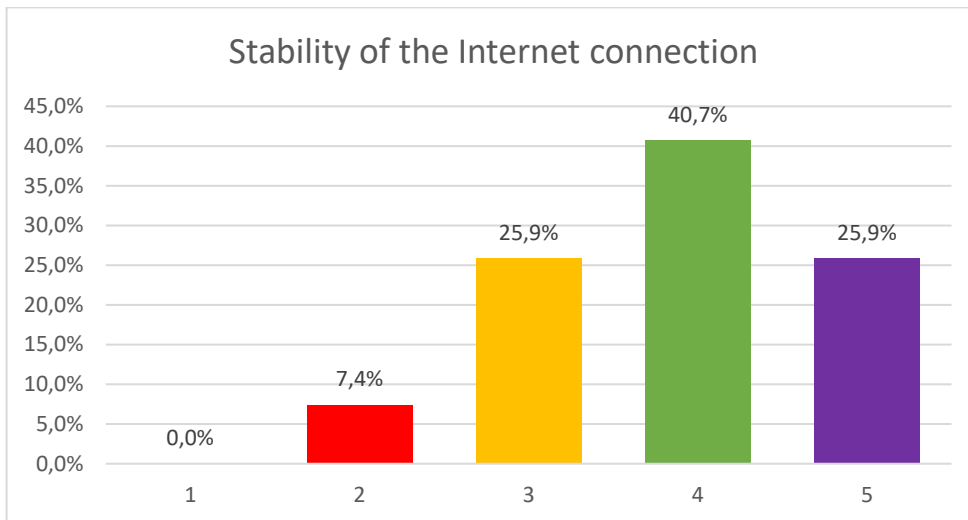


Figure 63. Teachers' assessment of the stability of the available Internet connection

Source: own elaboration based on empirical research.

The surveyed teachers/academic lecturers rated their hardware and software skills relatively highly. As many as 25,9% of respondents believe that they are very good, and 29,6% of respondents that they are good. The majority of respondents in this group 40,7% of the respondents believe that they are at an average level - Figure 64. Only 3,7% of respondents indicated their hardware and software skills as lower than average.

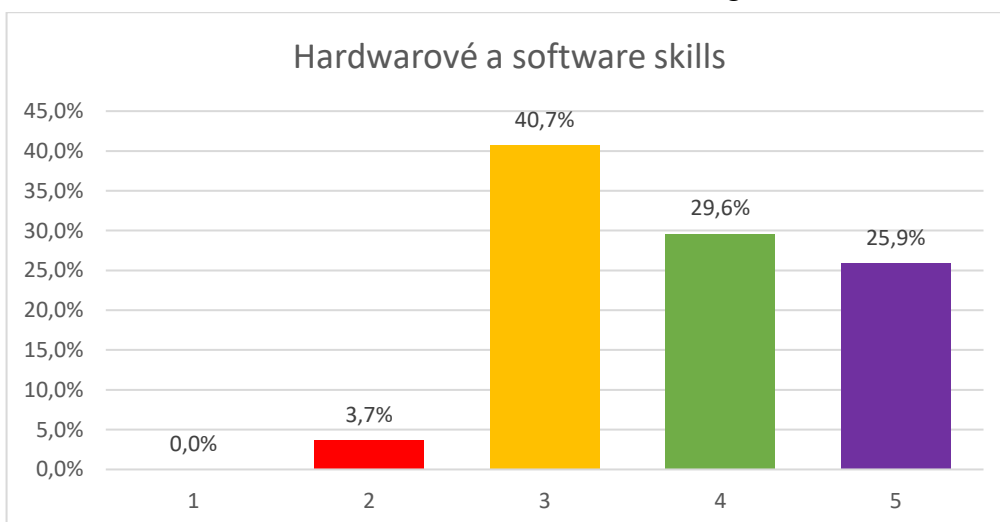


Figure 64. Teachers' assessment of their hardware and software skills

Source: own elaboration based on empirical research.



As for the expected support from schools, formulated by teachers and academic lecturers, according to the respondents, the best support for teachers in online teaching would be possibility of fast cooperation with technical support (IT specialist) – 61,1% of respondents, Professional development: fast online training courses indicated 57,4% of respondents, The same number of respondents reported more free resources and tools from educational technology companies, websites with useful resources - such an answer was given by 51,9% of respondents), and webinars and TechMeets for teachers to share ideas and challenges - such support was indicated by 38,9% of respondents. - Figure 65.

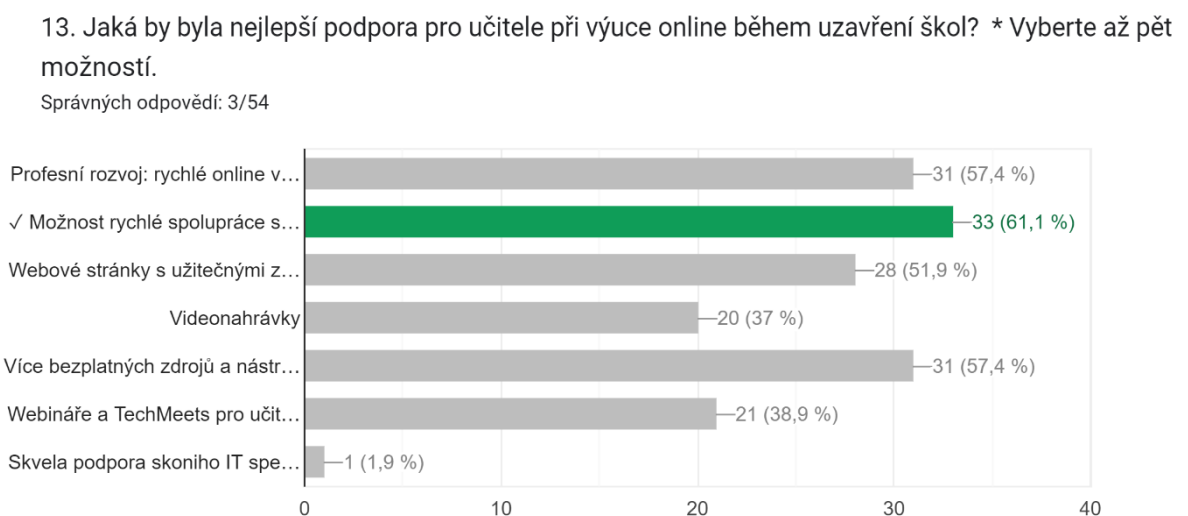


Figure 65. The best support for lecturers in the online learning process indicated by teachers

Source: own elaboration based on empirical research.

The assessment of the support offered by schools/universities for pupils and students is slightly worse. Only 29,5% of the respondents answered that their school/university offered the possibility of renting IT equipment for online classes. In the case of 11% of the respondents, such support was offered, but in the opinion of the respondents, to an insufficient extent. 14,5% of the respondents unequivocally answered that such support was not offered by the school, and 45% of the respondents had no knowledge of this subject - Figure 66.

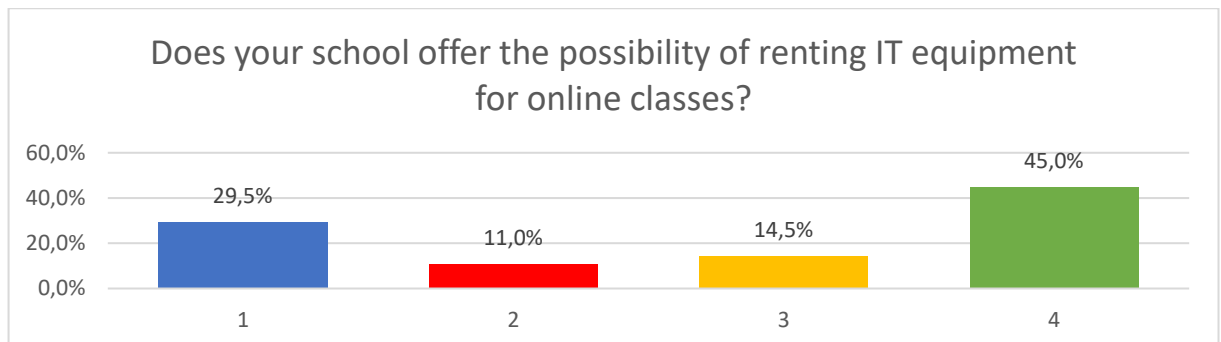


Figure 66. Pupils' and students' answers to the question "Does your school offer the possibility of renting IT equipment for online classes?"

Source: own elaboration based on empirical research.

3.8 The biggest challenges for teachers and students in the transition to online/distance learning

When it comes to the biggest challenges for teachers in transitioning to online instruction, the most common response, as articulated by teachers, is keeping students' attention during online instruction, cited by 90% of respondents, followed by "teachers' access to technology," cited by 70% of respondents. Converting course content for online/distance learning instruction ranked next, with 64.5% of respondents citing this as the biggest challenge. More work and the stress of working from home was cited by 55.6% of respondents. Lack of digital competency of teachers in online teaching was cited by 40.7% of respondents. Student access to technology was cited as another challenge by 38.9% of respondents. 29.6% of respondents cited time management and organization as a challenge.- Figure 67.



12. Jaké jsou podle Vás největší výzvy pro učitele při přechodu na online / distanční vzdělávání? *
Vyberte až pět možností.

Správných odpovědí: 0/54

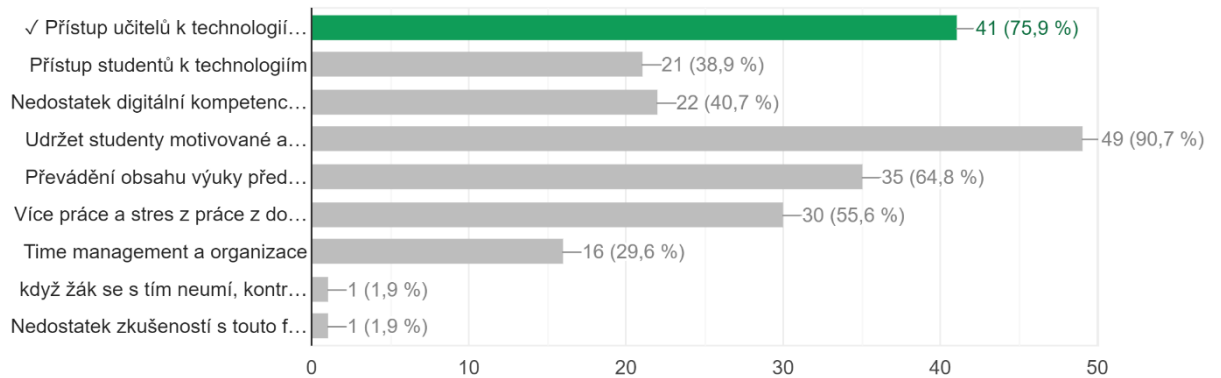


Figure 67. The best challenges for lecturers in the online learning process indicated by teachers

Source: own elaboration based on empirical research.

The answers obtained in the group of pupils and students are very similar. Surprisingly, this group also identified maintaining the motivation and attention of students during remote learning as the biggest problem related to the transition to remote learning – 80,6% of respondents answered this question. In the next places, according to this group, were: the ability of teachers to effectively use the equipment and software used in distance learning - this is how the situation was assessed by 66,3% of respondents, the lack of direct interaction with other students in the class/group - this problem was indicated by 39,8% of respondents, teachers' access to technology (computers, software, stable Internet connection, etc.) - this problem was indicated by 50,6% of respondents, more work to be done independently without the help of teachers - this problem was noticed by 43,3% of respondents, students' access to technology (computers, software, stable internet connection, etc.) - this answer was indicated by 33,7% of respondents). Slightly fewer responses were given to such problems as the lack of possibility



to meet/consult directly with the teacher/lecturer - this problem was indicated by 34,2% of respondents, transforming classes and didactic content for the purposes of distance learning - this problem was indicated by 40,7% of respondents and effective time management and organization of distance learning by the student - this was a problem for 30% of the respondents - Figure 68.

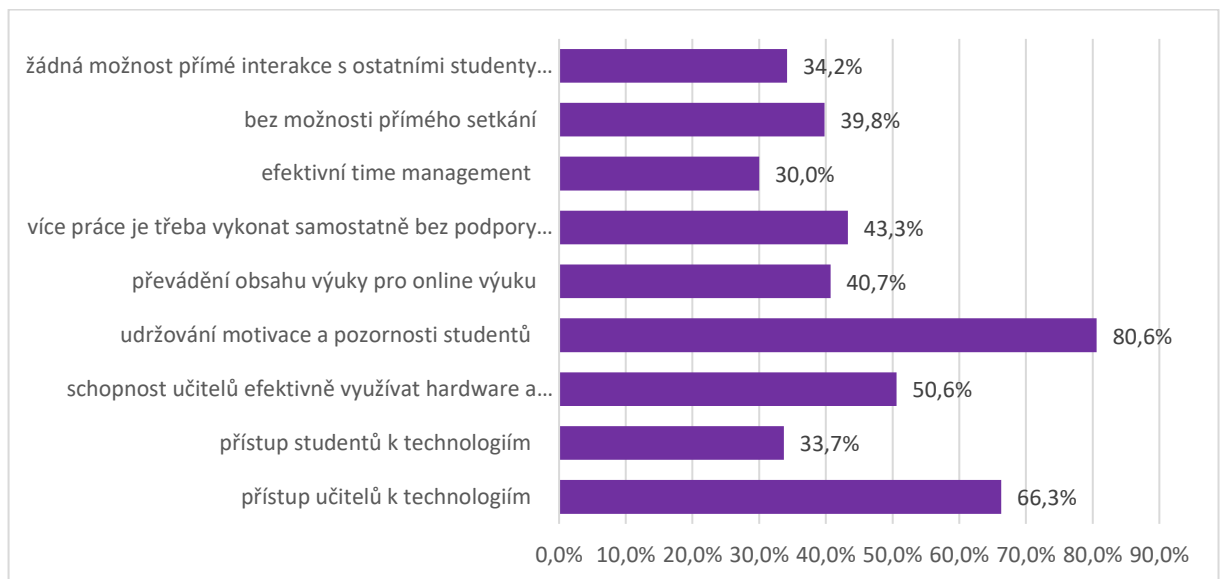


Figure 68. The biggest challenges and problems related to the transition to distance learning, according to pupils and students

Source: own elaboration based on empirical research.

3.9 Ways to improve online classes according to students' opinions

Pupils and students assess the distance learning they experienced during the SARS-CoV-2 pandemic rather well. However, only 6,1% of respondents rated online classes very well, and 37,7% of respondents rated them very well. 50,8% of respondents assigned an average rating to online classes. Unfortunately, as many as 9,4% of the respondents assessed the remote classes they were given as below average, and 3,7% of the respondents assigned them the lowest rating, which would indicate an unsatisfactory level - Figure 69.

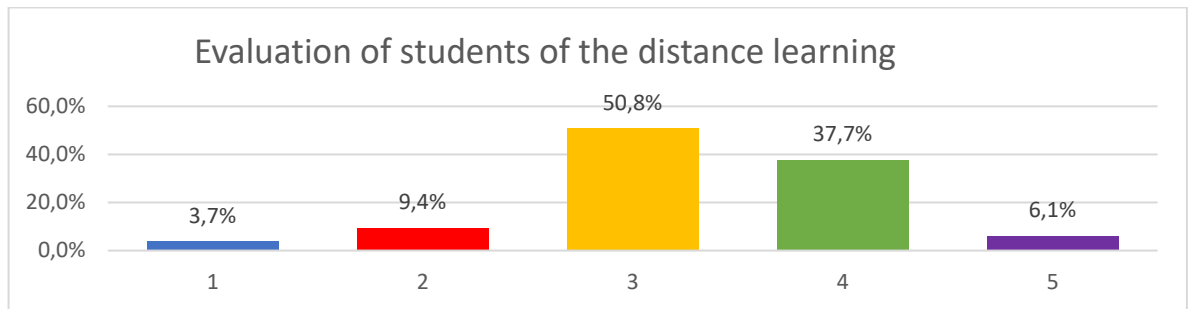


Figure 69. Evaluation of pupils and students of the distance learning level

Source: own elaboration based on empirical research.

However, respondents when asked if they know of other innovative methods that would be welcome in online teaching, most of them indicated that they did not know of such methods. Such an answer was given by 93,4% of respondents. Only 6,6% of the respondents indicated that they knew additional, innovative methods that could be used during online classes - Figure 70.

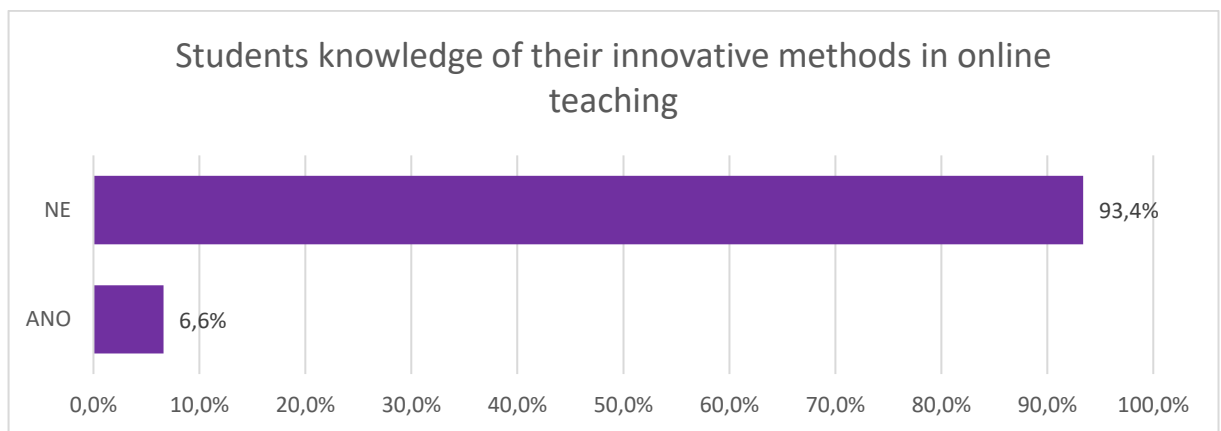


Figure 70. Students' knowledge of other innovative methods which, in their opinion, would be welcome in online teaching

Source: own elaboration based on empirical research.

Among these methods, pupils and students included:

- Making teachers more effective on PC work
- More active and interesting presentations,
- Inquiry-based learning



Half of the students surveyed would like to supplement their learning with new technologies and digital platforms, 49,2% of respondents. The other half of the students 50,8% of respondents clearly stated that they would not want to - Figure 71.

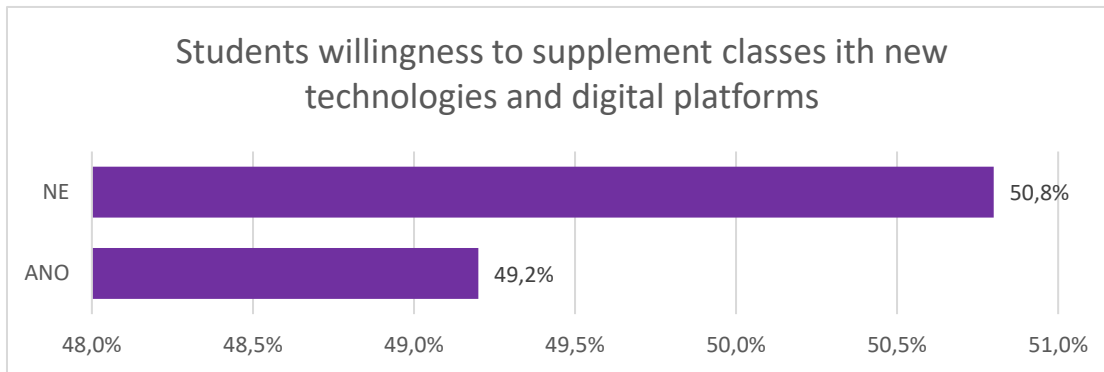


Figure 71. Pupils' and students' willingness to supplement classes with new technologies and digital platforms

Source: own elaboration based on empirical research.

People who would like changes in remote classes, new technologies and digital platforms that they would like to be used in online teaching include, for example:

- a) e-learning platforms,
- b) training platforms,
- c) applications, and websites that can enrich students / students with new skills, e.g. canvas,
- d) study apps such as Quizlet, Kahoot! E.t.c.
- e) multimedia presentations in Canva,
- f) Discord,
- g) 3D technique in technical drawing,
- i) Photomath.

Pupils and students, however, would very much like to participate in the creation of content, e.g. by using platforms for co-creation during online classes - this option is interesting for 86,2% of respondents. Many people also found the possibility of the opportunity to participate in the content 35,8% of respondents had this opinion - Figure 72.

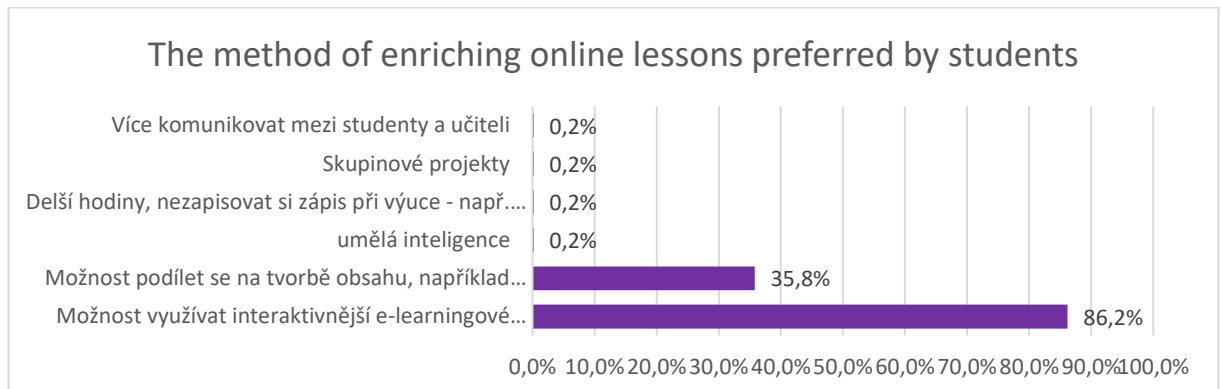


Figure 72. The method of enriching online lessons preferred by pupils and students

Source: own elaboration based on empirical research.

The elements that were missing during remote classes, pupils and students included:

Motivation, personal contact, sufficient clarification of the material discussed - interaction with the teacher, practice (teaching), more involvement in the teaching.

Use of shared documents, screens, presentations, more use of screen sharing for students to present, form and shared whiteboard.

The vast majority of respondents indicated that their knowledge acquired as a result of distance learning in relation to the standard form of teaching at school has not changed - such an answer was given by 41,5% of respondents. 30,4% of respondents assessed the knowledge acquired in online learning as lower than that which they could obtain in traditional face-to-face education. Group of pupils and students, i.e. 13,9% of the respondents indicated that they gained more knowledge in online teaching. 3,3% of respondents even believe that this knowledge has improved significantly. A different opinion is held by 11,5% of the respondents, who believe that the knowledge obtained in remote learning is much lower - Figure 73.

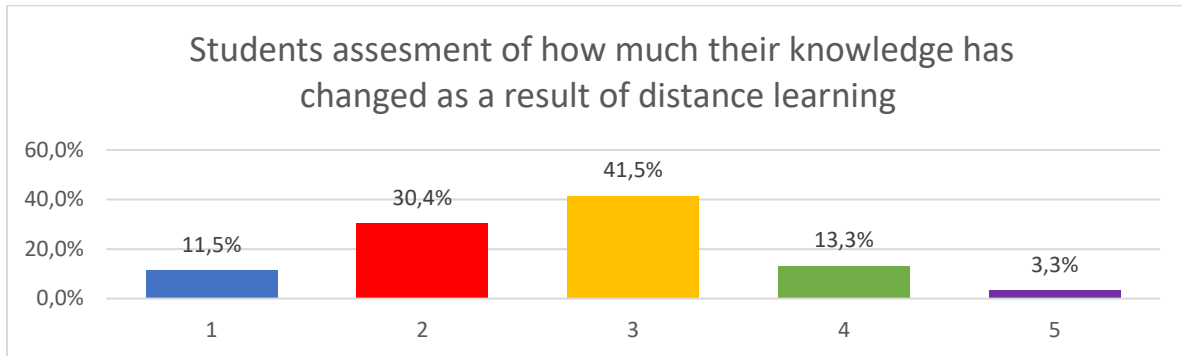


Figure 73. Pupils' and students' assesment of how much their knowledge has changed as a result of distance learning compared to the standard form of teaching at school

Source: own elaboration based on empirical research.

Answers to the question: "To what extent did the transition to remote learning mode affect the comfort and ease of learning?" received a comparable number of responses.

1 - the difficulty of knowledge acquisition has increased during distance learning compared to stationary learning – group of 54,3% of respondents

2 - it is easier to assimilate knowledge during distance learning compared to stationary learning – group of 23,9% of respondents

3 - the transition to distance learning did not affect the degree of difficulty of knowledge acquisition in relation to stationary learning – group of 21,5% of respondents

4 - the difficulty of knowledge acquisition increased during distance learning compared to stationary learning – group of 0,2% of respondents

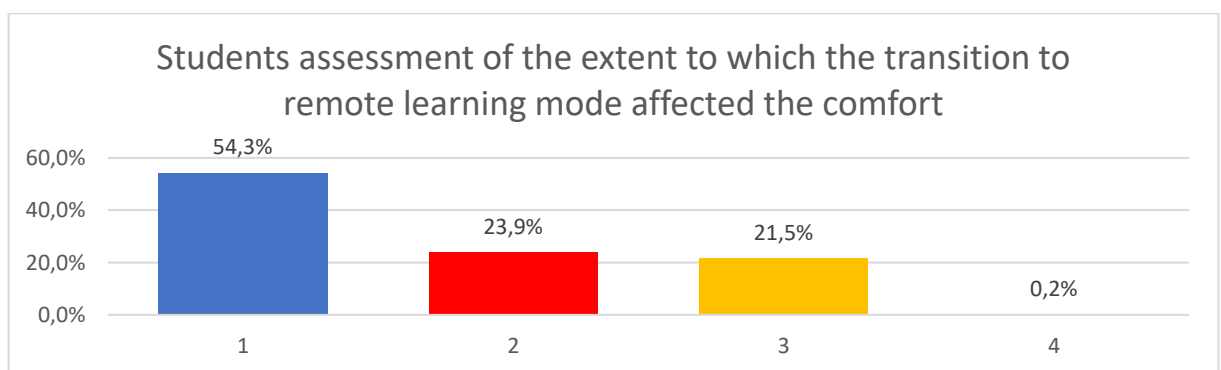


Figure 74. Pupils' and students' assesment of the extent to which the transition to remote learning mode affected the comfort and ease of learning

Source: own elaboration based on empirical research.



Co-funded by
the European Union

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



4 Examples of good practices

4.1 Access to training platforms / messengers enabling remote learning, including training and technical support

Identified problem

Teachers and academic lecturers used many programmes, websites and tools in the online learning process. Microsoft Teams was a popular tool, as confirmed by students. However, the survey responses indicate that some teachers were not fluent with the tools/platforms they used. The support they wanted and mentioned during the research was the ability to work quickly with technical support (IT specialist), fast online training courses or more free resources and tools from educational technology companies

An example of good practice

During the coronavirus pandemic (COVID-19) caused by the SARS-CoV-2 virus, messengers such as Microsoft Teams and Zoom dominated the market. These tools enable teamwork and online meetings. In addition, purchasing them allows you to get technical support and training in the services - features offered. Many schools, including secondary schools, have purchased access to these tools along with an IT support and training package on the capabilities and technical solutions used on the purchased platforms. Thus, access for both teachers and academic staff and students was free (as part of the purchased package) and teachers and academic staff were guaranteed technical support to enable quick resolution of technical problems or issues related to the use of these communicators.



4.2 Diversifying classes through the use of various forms of online learning and inclusion

Identified problem

An issue that has arisen in relation to the transition to distance learning is maintaining student motivation and attention while learning. This problem was pointed out by both teachers and students. It proved to be much harder to keep students' attention when teaching online, and at the same time students pointed to the lack of interactivity in online learning. Teachers used homework assignments that students were expected to do at home, and made very little use of methods such as virtual labs, activation methods and techniques that promote teamwork. In general, the survey suggests that there is a need to make online learning more attractive and interesting to students and thus focus their attention.

An example of good practice

Teachers also tried to use other programs, websites to make online education more attractive. In distance learning, they used, among other things, teamwork, tests, quizzes and assignments conducted online during class. The level of making learning more attractive - according to the survey results - was not the highest, but most pupils and students rated the distance learning they experienced during the SARS-CoV-2 pandemic as average. When asked if they knew of other innovative methods they would welcome in online learning, most said they did not know of such methods. Teachers themselves are interested in further training themselves in new digital technologies.

4.3 "Equipment" for students and teachers

Identified problem

The problems identified by pupils and students are problems with the technical equipment necessary for distance learning. Teachers and students would welcome new technologies accessible within the school facilities, especially laptops.

Access to good quality internet connections was also a problem for many. The vast majority, including teachers and academic staff, used private computer equipment for online learning. Students were only able to rent equipment for online learning in some cases.



Co-funded by
the European Union

An example of good practice

Based on the available grant titles, school founders could apply for funds to purchase distance learning equipment for both students and teachers. The aim of the projects was to provide schools and students with the necessary equipment to continue distance education due to the COVID-19 epidemic. With the funds obtained, it was possible to purchase computing equipment such as laptops or tablets, necessary accessories (e.g. mice, headphones) that were available to teachers or students.

5 Recommendations

5.1 Training on platforms and messengers enabling online meetings

Identified problem

Teachers use many programs, websites and tools in the process of online education, but their survey responses indicate that they do not have extensive knowledge of the possibilities in this area, including new applications designed to conduct online meetings, do not use cloud solutions. They are interested in further education about the new possibilities of digital technologies, which they could use in distance or hybrid form of education.

Recommendation

Planning trainings presenting different options for conducting distance courses, including available platforms for online meetings, considering tools available from a web browser and free tools. Presentation of various educational platforms. Presentation of the possibilities and principles of using cloud services.



5.2 Development of educational platforms

Identified problem

Teachers use many programs, websites and tools in the process of online education, but indicate the need for access to educational platforms. There is more interest in free resources and tools from education technology companies. They would welcome free educational platforms that can combine multiple features simultaneously to engage students. This need is also stated by pupils and students who would like to sort more attractively, e.g. through the possibility of using more interactive e-learning platforms (films, animations, quizzes, games, etc.).

Recommendation

Further education in the field of new digital technologies is recommended, especially so that teachers have enough possibilities and opportunities for continuous education, given the very rapid development in this area. Another possible way is to develop educational platforms in the Czech language that offer opportunities to improve competences (courses) for free. An important element of education is also the possibility of confirming acquired skills, therefore another advantage of the above-mentioned platforms would be the possibility of obtaining certificates confirming the completion of completed courses.

5.3 Support for teachers / academic lecturers in terms of available resources that they could use during remote classes - "all in one place"

Identified problem

According to teachers, the best support for teachers in online teaching was websites with useful resources. They also point to the need to organize webinars or meetings where they can share ideas and challenges. The needs defined in this way indicate a dispersion of knowledge about the materials, including interactive ones, that are available and can be used during distance learning (not limited to lesson plans and curricula).

Recommendation

The creation of a unified website dedicated to online education, where materials (videos, courses, educational platforms, etc.) that could be used in specific subjects during distance education will be presented. These sites should be available free of charge to all educators.



Co-funded by
the European Union

5.4 Support for the professional development of teachers / academic lecturers

Identified problem

A group of teachers identified a need for rapid online learning courses. This need is confirmed in the group of pupils and students who reported a problem with maintaining attention during classes and the need to make classes more attractive.

Recommendation

Regular training in effective and efficient online learning e.g. on online learning methods, given the very rapid development of digital technologies and innovative methods in this area.



Co-funded by
the European Union

METHODOLOGY, EXAMPLES OF GOOD PRACTICES AND RECOMMENDATIONS

Catania, Italy, 2023

Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number: 2021-1-CZ01-KA220-VET-000034839



Contents

1. Research methodology.....	3
2. Sample structure and Survey results.....	3
2.1. Popular teaching methods used in distance learning.....	3
2.2. Degree of preparation of teachers to conduct classes conducted remotely	12
2.3. Programs / websites / internet tools used in remote classes	14
2.4. Technical devices used in the distance learning process	29
2.5. Technical and non-technical support provided from schools during distance learning ...	34
2.6. The biggest challenges for teachers and students in the transition to online/distance learning.....	40
2.7. Ways to improve online classes according to students' and teachers' opinions	42



1. Research methodology

The main purpose of the research is to identify good practices and recommendations in the field of education, based on the experience gained during remote teaching, which took place in connection with the SARS-CoV-2 pandemic. The research area covers focused on the Catania area and its province.

The study was in the form of two questionnaire surveys prepared in Italian for two groups of respondents. The first one was made up of students who attended remote classes during the pandemic and the second survey was prepared for teachers forced to remotely prepare and conduct classes in the conditions of the pandemic.

2. Sample structure and Survey results

The results of the surveys are related to the two different groups. For the first one, comprehending teachers, we had 44 respondents, while for the second group, which was composed of students, we had 121 respondents.

2.1. Popular teaching methods used in distance learning

Among the forms of distance learning teachers most commonly used while conducting classes during distance learning there were multimedia presentations and live classes. Speaking of live classes, 23 teachers out of 44 respondents used them very often, 7 people indicated frequent use and 8 used them sometimes, as opposed to just 6 people who affirmed they didn't use them (3 never and 3 rarely) - Figure 2. In the case of multimedia presentations, just 10 teachers out of 44 used them very often, but 13 often and 16 sometimes, while only 5 people did not usually use them (3 never while 2 rarely) - Figure 1.



Figure 1. Declared frequency of using multimedia presentations by teachers during remote classes

Source: own elaboration based on empirical research.

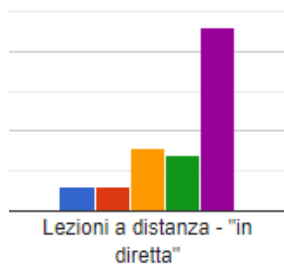


Figure 2. Declared frequency of using synchronized classes "live" by teachers while conducting remote classes

Source: own elaboration based on empirical research.

The two less-used methods were recorded classes and consultations with students by email. In the first case, 14 respondents affirmed they never did asynchronous remote classes, 12 used them rarely, and 15 people sometimes. Just the remaining 3 people (2 very often and 1 often) claimed to have used them regularly - Figure 3. Similarly, teachers declared a scarcity of consultations with students by email: ten out of 44 respondents never used them, 16 rarely used them and 15 sometimes. In this case too, just the remaining 3 teachers (1 very often and 2 often) claimed to have used them regularly - Figure 4.



Figure 3. Declared frequency of using "recorded" asynchronous classes by teachers while conducting remote classes

Source: own elaboration based on empirical research.

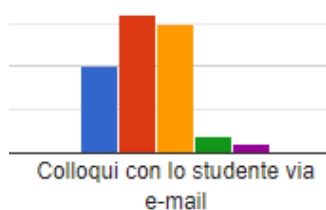


Figure 4. Declared frequency of using e-mail consultations with students during remote classes

Source: own elaboration based on empirical research.

Teachers often used tests, quizzes, tasks. Frequent use of this method was indicated by 18



respondents, and very frequent by 11. A relatively large group of respondents indicated that they used this method occasionally – 9 people - or rarely - 6 - Figure 5.

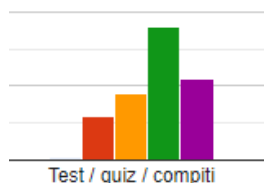


Figure 5. Declared frequency of using tests / quizzes / tasks by teachers during remote classes

Source: own elaboration based on empirical research.

Teachers used e-mails in the didactic process carried out remotely. Most respondents indicated that teaching materials were sent via e-mail. As many as 28 people indicated that they used e-mail to send teaching materials often (14) and sometimes (14). Six people never used this medium, but 9 people used e-mail very often to send materials. Only 3 respondents indicated that they rarely used e-mail to send didactic materials via e-mail while conducting online classes - Figure 6.

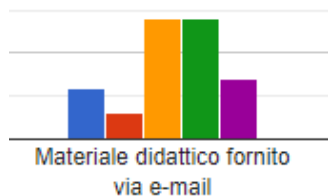


Figure 6. Declared frequency of sending teaching materials by e-mail during remote classes by teachers

Source: own research based on empirical research.

Talking about homework assigned by teachers during remote classes, the most frequent response was that teachers assigned them rarely (14 respondents), but a consistent number (13 respondents) affirmed that they used often this method. Then, 11 people answered they used this method sometimes, while the remaining 6 respondents were equally divided into those who affirmed they never used this method and those who said they used it very often - Figure 7.

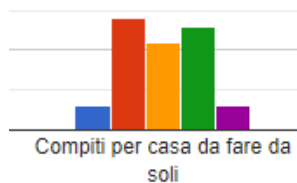


Figure 7. Declared frequency of using homework assignments by teachers during remote classes

Source: own elaboration based on empirical research.



Tasks carried out by students online, e.g. on the platform, enjoyed great sympathy. Although 2 people indicated that they never enriched classes with this form, and 9 respondents that they used this form rarely, 19 people indicated that they used this form sometimes, 10 respondents that they used this form often, and 4 people very often - Figure 8. Less frequent use of this form of classes may, however, result from the lack of availability of tasks to be done online in the case of a specific subject - Figure 8.

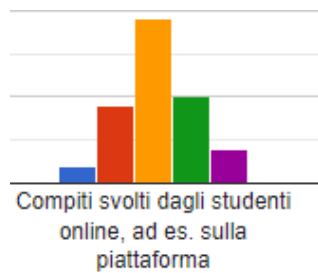


Figure 8. Declared frequency of using tasks performed by students online, e.g. on the platform, during remote classes by teachers

Source: own elaboration based on empirical research.

Individual online consultations with students were not commonly used during the pandemic by teachers who responded to this survey. Although 17 respondents indicated that they used this form of activity sometimes, 7 people used them often, 3 very often, 9 respondents did not use this form at all, and 8 rarely - Figure 9.



Figure 9. Declared frequency of using individual online consultations with students during remote classes by teachers

Source: own elaboration based on empirical research.

Some of the respondents used e-mail for consultations. However, 2 of the people who responded to our survey indicated frequent use of this form of consultation, and just 1 indicated very frequent use of this form. As many as 15 respondents indicated that they used this form sometimes, and 26 that they used it rarely (16 respondents) or never (10 respondents) - Figure 10.

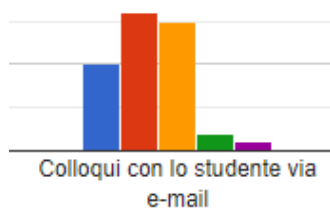


Figure 10. Declared frequency of using emails for consultations with students during remote classes
Source: own elaboration based on empirical research.

Communicators are not so popular for conducting consultations among teachers. Indeed, frequent use of online consultations conducted with the use of messengers, e.g. Messenger, in classes was indicated by 8 respondents, and very frequent use by 3 respondents. 15 respondents did not use instant messaging during classes, 12 used it sometimes, and 6 respondents rarely - Figure 11.



Figure 11. Declared frequency of consultations using instant messaging (e.g. Messenger) during remote classes
Source: own elaboration based on empirical research.

A large group of respondents during remote classes organized work in teams. As many as 21 people did it sometimes, 8 people often, and 5 people very often. The remaining 10 people did not use teamwork very frequently (6 very rarely and 4 not at all) - Figure 10.

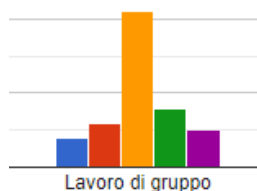


Figure 12. Declared frequency of using teamwork by teachers during remote classes
Source: own elaboration based on empirical research.

Platforms or applications provided by publishers were not very popular. As many as 10



respondents indicated that they had never used such tools, and 13 that they rarely used them during remote classes. It is comforting, however, that 10 respondents used such aids sometimes, 7 respondents often, and 4 very often - Figure 13.



Figure 13. Declared frequency of using platforms or applications provided by publishing houses by teachers during remote classes

Source: own elaboration based on empirical research.

Most respondents did not use other forms of conducting classes: 37 respondents out of 44 gave such an answer. Other teaching methods during remote classes were used by a total of 7 respondents - Figure 14.

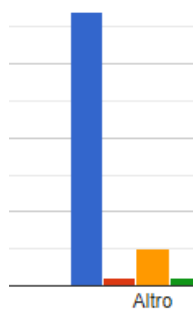


Figure 14. Declared frequency of using other teaching methods by teachers during remote classes

Source: own elaboration based on empirical research.

We obtained only three answers relating to other forms of distance learning that teachers used during distance learning, and they were:

- Teaching material provided via Classroom platform
- Laboratory exercises
- Listening activities

We also asked teachers which innovative methods could be appreciated in online teaching and just 10 out of 44 wrote some options, and one of them (Flipped classroom) was mentioned by two respondents. Among these methods, they included:

- Guided or specifically pre-developed courses - Courses based on important and well-



known platforms: an example is Zanichelli Online

- Debates, group works and reports on a proposed topic, followed by Power point presentations and sharing.
- Some methods that involve students more.
- Flipped classroom
- Using quick tests
- Learning by doing
- Gamification
- Kahoot
- Quiz

The results obtained in the group of teachers are mostly confirmed in the group of students. The vast majority indicated that they encountered multimedia presentations during remote classes, including 13 students out of 121 respondents affirmed they were used very often, 33 respondents often, and 44 respondents sometimes. 15 respondents did not experience this form of conducting classes, and 16 respondents indicated that it was very rare - Figure 15.

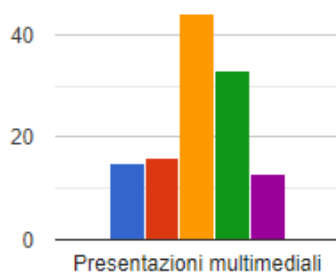


Figure 15. Frequency of multimedia presentations during classes in the opinion of students

Source: own elaboration based on empirical research.

Students did not encounter classes recorded and played back from the recording. Such an answer was given by 59 respondents out of 121, 24 respondents very rarely encountered this form of activity. Unfortunately, 24 respondents met with this form of activity sometimes, 10 respondents often, and 4 respondents very often - Figure 16.



Co-funded by
the European Union

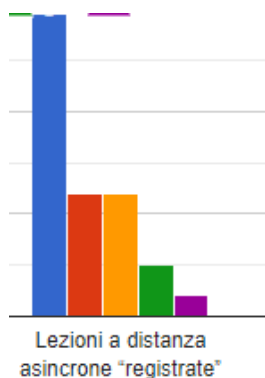


Figure 16. Frequency of remote asynchronous "recorded" classes in the opinion of students

Source: own elaboration based on empirical research.

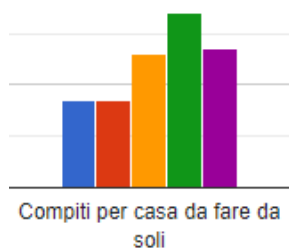
Live classes were a frequent form of class. 46 students met with this form of activity very often, and 29 respondents met it often. 24 people met occasionally, 13 students did not meet such activities, and 9 respondents met rarely - Figure 17.



Figure 17. Frequency of synchronized "live" remote classes in the opinion of students

Source: own elaboration based on empirical research.

According to students, an almost permanent element of distance learning was homework to be done on one's own. 34 respondents indicated that they often encountered this form, 27 indicated that they met with this form very often and 26 sometimes. Only 17 respondents indicated that they had rarely been given homework and 17 students that they had never - Figure 18.



Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



Figure 18. Frequency of homework assigned to be done independently in the opinion of students

Source: own elaboration based on empirical research.

The results obtained in the group of students confirm the high popularity of tasks carried out online, e.g. on platforms. As many as 37 respondents met with this form of activity often, 24 respondents very often, and 32 sometimes. Only 13 students rarely encountered this form of activity, and 15 never encountered it - Figure 19.

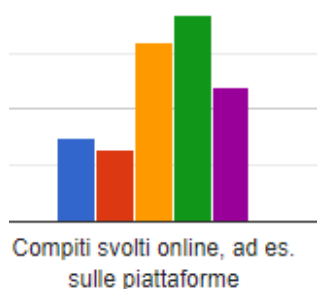


Figure 19. Frequency of tasks carried out online, e.g. on platforms in the opinion of students

Source: own elaboration based on empirical research.

Many students confirmed receiving teaching materials by e-mail. As many as 37 respondents indicated that they sometimes received didactic materials in this way, and 26 pupils often and 23 very often. 18 respondents indicated that they never received didactic materials by e-mail, 100 people and 17 respondents received teaching materials in this way rarely - Figure 20.

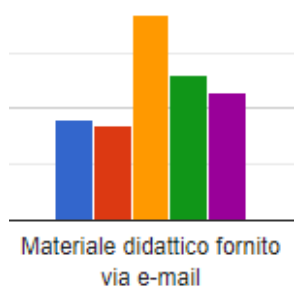


Figure 20. Frequency of didactic materials delivered by e-mail in the opinion of students

Source: own elaboration based on empirical research.

However, very few students confirmed that they were offered individual online consultations with the teacher during remote classes. As many as 30 respondents have never encountered such a



form of consultation during remote classes, 27 respondents indicated that they met rarely, and another group of 27 that they met sometimes. 26 respondents indicated that they encountered this form often, and only 11 that they encountered this form very often - Figure 21.

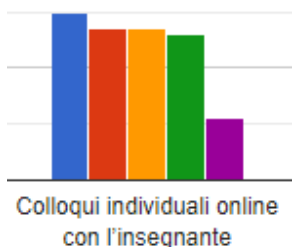


Figure 21. Frequency of individual online consultations with teachers in the opinion of students

Source: own elaboration based on empirical research.

Students also do not confirm consultations with the teacher via e-mail. As many as 47 respondents indicated that they had never encountered such a form, 36 respondents indicated that they had, but rarely. A group of 27 respondents also indicated that they had encountered this form of conducting classes, but sometimes. Only 7 respondents indicated that they encountered such consultations often, and 4 encountered such consultations very often - Figure 22.

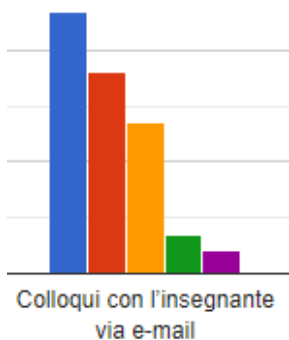


Figure 22. Frequency of e-mail consultation with teachers in the opinion of students

Source: own elaboration based on empirical research.

2.2. Degree of preparation of teachers to conduct classes conducted remotely

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



Many teachers describe their preparation for conducting classes remotely as average. On a scale of 5 values that go from *very poor* - 1 - to *very good* - 5 - and in the middle *poor* - 2 -, *average* - 3 -, and *good* - 4 -, 17 respondents answered their degree of preparation before classes started to conduct them remotely was on average. Only one teacher out of 44 respondents believed to have been very poorly prepared before classes started, and 2 respondents that they were poorly prepared. Although the transition to remote teaching was unplanned and sudden, forced by the pandemic and the desire to protect teachers and students from the Coronavirus, 15 respondents said that they were well prepared, and 10 respondents very well - figure 23.

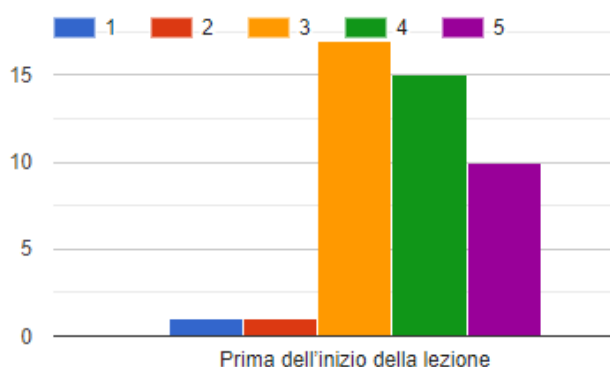


Figure 23. The degree of preparation of teachers before classes starts to conduct them remotely

Source: own elaboration based on empirical research.

During the remote classes, 16 teachers indicated a good level of preparation, 15 on average, and 9 a very good level. Only 2 respondents indicated that their preparation was poor, and another group of 2 that it was very poor - Figure 24.

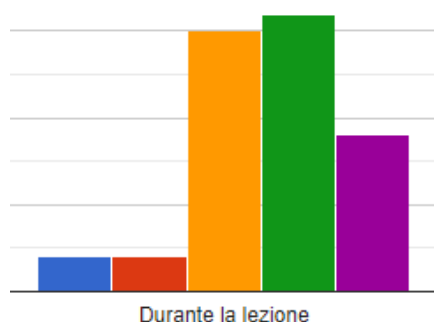


Figure 24. The degree of preparation while conducting remote classes

Source: own elaboration based on empirical research.



2.3. Programs / websites / internet tools used in remote classes

Teachers declared the use of many programs and websites during remote teaching. However, among these tools Skype is not so commonly used, as many as 29 respondents indicated that they had never used this communicator during remote classes, six respondents used it sometimes, another group of six people used it rarely and only 3 people indicated that they used it very often - Figure 25.

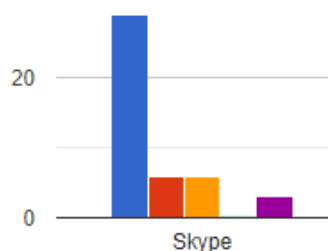


Figure 25. Frequency of using Skype by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Almost no one used Discord software, i.e. a free internet service based on the cloud, for voice calls and communication via text messages with the possibility of uploading photos and videos. 43 out of 44 respondents indicated that they never used this software and just one teacher used it sometimes - Figure 26.



Figure 26. Frequency of using Discord by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Respondents also did not use the popular Messenger or Facebook to conduct remote classes. 35 respondents declared that they had never used such a means of communication with students. 4 respondents answered that they used this form of communication sometimes, 3 respondents



used the indicated tools very often, and only one person used it rarely and another one often - Figure 27.

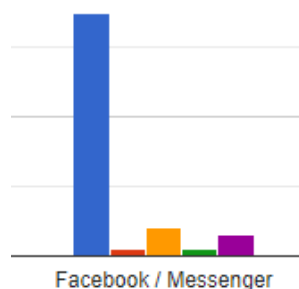


Figure 27. Frequency of using Facebook, Messenger by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Also, in the case of TeamSpeak3, an instant messenger using VoIP technology for voice and text communication, almost no one used this tool. As many as 42 out of 44 respondents indicated that they had never used this tool to communicate with students and just one teacher used it sometimes and another one rarely - Figure 28.



Figure 28. Frequency of using TeamSpeak3 by teachers to conduct remote classes

Source: own elaboration based on empirical research.

The frequency of using other applications designed to conduct online meetings both at homes, schools, and companies such as Microsoft Teams and Zoom, is significantly higher, but still not always used. Thirteen respondents answered that they used Microsoft Teams sometimes, while very frequent use of it was indicated by 7 respondents, and frequent use by only 2 respondents.



The same number of respondents also indicated that they used Teams rarely (2 respondents) and never by 16 respondents - Figure 29.

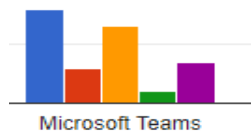


Figure 29. Frequency of using Microsoft Teams by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Some people used Zoom platform to conduct classes. This platform was used very often by 5 respondents, often by another group of 5 teachers, sometimes by 10 respondents. 17 respondents never used Zoom platform to conduct classes and 7 respondents rarely - Figure 30.

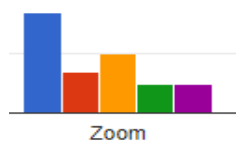


Figure 30. How often teachers use Zoom to conduct remote classes

Source: own elaboration based on empirical research.

Most respondents used the options offered by Google, i.e. Google Classroom and Google Meet. Google Classroom is a free online service for schools developed by Google to simplify the process of creating, distributing, and grading assignments electronically. The primary goal of Google Classroom is to streamline the file-sharing process between teachers and students. As many as 26 respondents pointed to very frequent use of this service and 11 a frequent use. Then 4 respondents sometimes, 2 rarely and only one never used these tools - Figure 31.



Co-funded by
the European Union

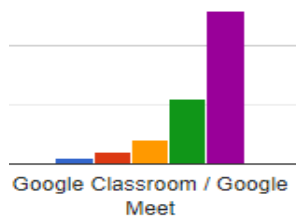


Figure 31. The frequency of using Google Classroom / Google Meet by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Less popular was the e-learning platform Moodle (Modular Object-Oriented Dynamic Learning Environment), i.e. a distance learning environment available through a web browser using ICT networks. As many as 37 respondents never used this platform, 4 respondents indicated that they used this tool very often, 2 respondents very rarely, and only one teacher used it sometimes - Figure 32.

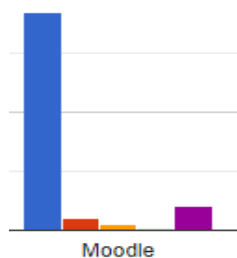


Figure 32. Frequency of using Moodle by teachers to conduct remote classes

Source: own elaboration based on empirical research

Teachers did not use communicators. This answer was given by 43 out of 44 respondents. And the remaining person used them rarely - Figure 33.

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



Co-funded by
the European Union



Figure 33. How often teachers used instant messengers to conduct remote classes

Source: own elaboration based on empirical research.

Despite its recognized popularity, YouTube was not a very common tool used by teachers to conduct remote classes. Only 4 respondents indicated that they used this website very often, 5 teachers used it frequently, and it was used sometimes by 9 people. 8 respondents rarely used YouTube during classes, and a group of 18 people declared that they had never used this service during remote classes - Figure 34.



Figure 34. The frequency of using YouTube by teachers to conduct remote classes

Source: own elaboration based on empirical research.

The respondents did not see the need to use virtual disks, and in particular not OneDrive. As many as 37 respondents indicated that they had never used OneDrive to conduct remote classes. Very frequent use was indicated by 3 people, 2 respondents used it sometimes and the remaining two affirmed one to have used it rarely and the other one to have used it often - Figure 35.

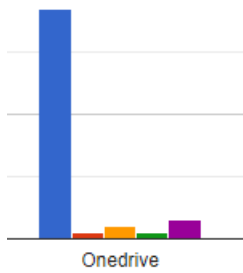


Figure 35. Frequency of using OneDrive by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Google Drive was used more often. Very frequent use of this form of storing and sharing files was indicated by 7 teachers to conduct remote classes, frequent use by 13 respondents and sometimes by 9 people. However, 9 people used it rarely and 6 never used this disk - Figure 36.

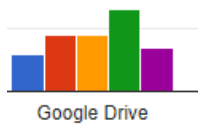


Figure 36. How often teachers use Google Drive to conduct remote classes

Source: own elaboration based on empirical research.

The lack of need to store files is also confirmed by the answers of teachers about the use of Dropbox. As many as 27 respondents never used such a tool, 9 people indicated that they did it very rarely, 5 teachers sometimes, 2 used Dropbox very often and just 1 person often used it - Figure 37.

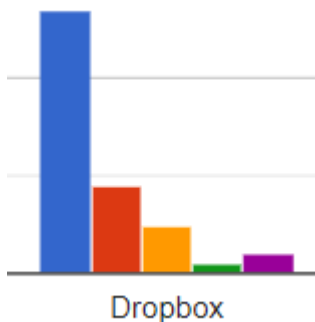


Figure 37. How often teachers use Dropbox to conduct remote classes

Source: own elaboration based on empirical research.



When we asked teachers how often they used E-Dziennik, practically no one answered positively, since 43 out of 44 never used it and just one person answered to have used it rarely - Figure 38. Indeed, it is a tool commonly used in Poland, but no one use it in Italy.



Figure 38. Frequency of using the E-Dziennik by teachers to conduct remote classes

Source: own elaboration based on empirical research.

Few of the people who answered our survey used the Cisco Webex package to conduct remote classes. As many as 27 teachers indicated that they never used this tool, 4 rarely and 7 sometimes. Nonetheless 5 responded used it frequently, and one very frequently - Figure 39.

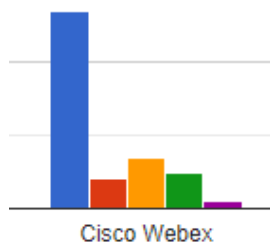


Figure 39. Frequency of using Cisco Webex by teachers to conduct remote classes

Source: own elaboration based on empirical research.



Qlick Meeting platform, which allows people to conduct webinars (product presentations, training, online courses), business meetings, and video conferences, operating using a web browser was almost never used by teachers to conduct remote classes. 42 respondents out of 44 indicated that they had never used it during online classes.

Only one teacher used this platform, but rarely, and another one often - Figure 40.



Figure 40. The frequency of using Qlick Meeting by teachers to conduct remote classes

Source: own elaboration based on empirical research.

The respondents did not add many other websites to the tools listed in the questionnaire. Just one answer of a teacher who used Edmodo to conduct remote classes.

And in response to the question: "Would you like to refill lessons with new technologies and digital platforms, and if so, which ones?" besides respondents who did not have nothing to suggest and/or share, there were 13 answers reported below:

- Online learning would be more effective if students were able to pay attention during the teaching activity, without any environmental and/or family distractions. I don't think it's a problem of platforms.
- Support to teachers in the creation of websites that can be used by their students.
- Creating games or quizzes via specific platforms such as Kahoot



- Teachers and students should be provided with tools of the same level of reliability
- Technologies based on "gamification", game-based learning
- No, used ones are enough and then they are expensive.
- I'm for face-to-face teaching
- Zanichelli digital platforms

- Reprogram from this perspective
- Using quick tests
- No, Google Drive
- Canva-Kahoot
- Thing link

The results obtained in the group of teachers are confirmed by the answers of students. 101 respondents out of 121 never met or used Skype during remote classes. 7 respondents used it, but rarely. 6 students used it during remote classes, another group of 6 students used it frequently and just one person used it very frequently - Figure 41.

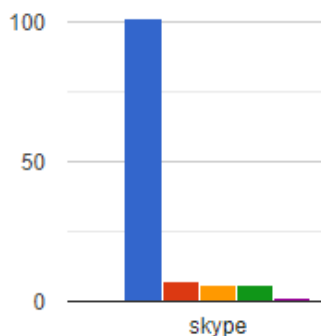


Figure 41. How often students used Skype while participating in remote classes

Source: own elaboration based on empirical research.

Discord was used slightly less often. Very frequent use of this software was indicated by 2 respondents, and just 3 people used it often. However, as many as 103 respondents never used this tool during remote classes, only 5 students used it sometimes, and the remaining 8 people used it, but rarely - Figure 42.

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



Co-funded by
the European Union

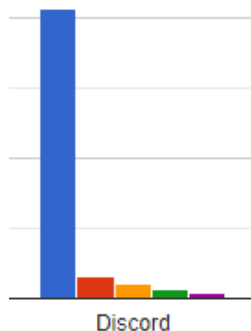


Figure 42. How often students used Discord while participating in remote classes

Source: own elaboration based on empirical research.

According to students, messengers such as Messenger, WhatsApp, and Facebook were used more often. Even if 53 respondents affirmed that they never used them while participating in remote classes, there are 22 people who used them sometimes, 16 students very often, and 12 often. The remaining 18 respondents used it, but rarely - Figure 43.

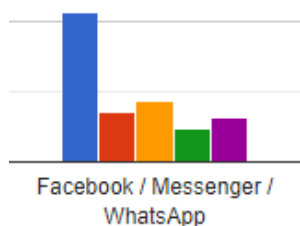


Figure 43. How often students used Facebook, Messenger and WhatsApp while participating in remote classes

Source: own elaboration based on empirical research.

As teachers answered, also students affirmed that TeamSpeak3 was hardly used during remote classes. As many as 111 respondents out of 121 never used this tool, 6 used it, but rarely and concerning the remaining 4 students: 2 used it sometimes and another group of 2 often - Figure 44.



Figure 44. How often students used TeamSpeak3 while participating in remote classes
Source: own elaboration based on empirical research.

Microsoft Teams was not very popular among students. Very frequent use of this tool was indicated by just 3 respondents, and only 2 people used it frequently during remote classes. 97 students never used Microsoft Teams, 7 respondents used it rarely, and 12 sometimes - Figure 45.

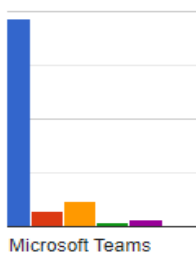


Figure 45. How often students used Microsoft Teams while participating in remote classes
Source: own elaboration based on empirical research.

According to the students' response, Zoom was more used. Even if 56 respondents affirmed that they never used it during remote classes, 19 people used it sometimes and another group of 19 used it often. However, 16 respondents rarely used it and the remaining 11 used Zoom very often - Figure 46.

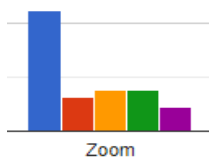


Figure 46. How often students used Zoom while participating in remote classes
Source: own elaboration based on empirical research.



Tools offered by Google, such as Google Classroom and Google Meet, enjoyed relatively high popularity among students, which is consistent with the responses of teachers. As many as 72 respondents indicated that they used them very often, and 27 often. Then, there are 12 students who used it sometimes, 4 just rarely and a group of 6 people never used these tools - Figure 47.

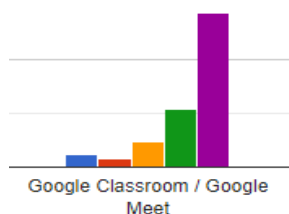


Figure 47. How often students used Google Classroom / Google Meet while participating in remote classes
Source: own elaboration based on empirical research.

Moodle e-learning platform was rarely used. As many as 110 people out of 121 respondents never used it during remote classes, 5 people used it, but rarely, and 5 used it sometimes. The remaining person used it often - Figure 48.



Figure 48. How often students used Moodle while participating in remote classes
Source: own elaboration based on empirical research.

YouTube was a bit more popular. Even if 61 students never used it during online classes, and 19 respondents used it, but rarely, 23 people used YouTube sometimes, 10 people indicated frequent use of this website, and 8 people indicated very frequent use of it – Figure 49.

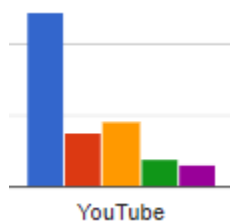


Figure 49. How often students used YouTube while participating in remote classes

Source: own elaboration based on empirical research.

Students - just like teachers - confirmed little interest in storing files on virtual drives, and particularly not in OneDrive. 93 people out of 121 respondents never used OneDrive during remote classes, and 10 respondents rarely used it. 13 people used it sometimes, and only one used the possibilities offered by OneDrive very often, while 4 people often – Figure 50.

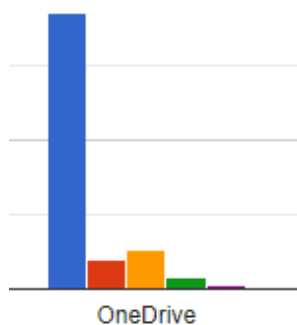


Figure 50. How often students used OneDrive while participating in remote classes

Source: own elaboration based on empirical research.

Google Drive was used more because even if 62 students out of 121 respondents never used it, 20 people affirmed that they used it sometimes, and 15 that they often used it while participating in remote classes. Another group of 12 respondents said they used it very often and the same number of respondents affirmed that they used it just rarely - Figure 51.

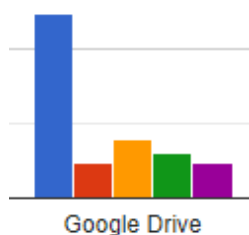




Figure 51. How often students used Google Drive while participating in remote classes
Source: own elaboration based on empirical research.

Dropbox is the least popular. As many as 105 respondents never used this drive to store files, 7 people affirmed that they used it but rarely, another group of 7 used it sometimes and only 2 answers considered frequent use - Figure 52.



Figure 52. How often students used Dropbox while participating in remote classes
Source: own elaboration based on empirical research.

Almost no one used an e-journal: 111 respondents indicated that they never used it and 7 that they used it but rarely. Only two answered that they used it sometimes and one student said to have used it frequently - Figure 53.



Figure 53 How often students used e-journal while participating in remote classes
Source: own elaboration based on empirical research.



The vast majority have never used Cisco Webex. This answer was given by 99 people and 8 used it but rarely. Another group of 8 used it sometimes and concerning the remaining 6 respondents: 3 of them used it often and the others very often - Figure 54.

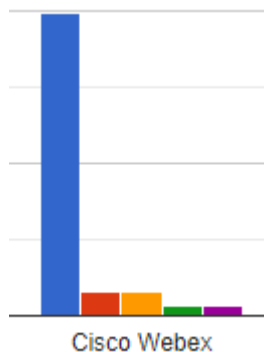


Figure 54. How often students used Cisco Webex while participating in remote classes

Source: own elaboration based on empirical research.

Similarly, the Qlick Meeting platform was even more rarely used. As many as 108 students never used it during remote classes, 4 very rarely and only 3 respondents used it often. The remaining 6 people used it sometimes - Figure 55.



Figure 55. How often students used Qlick Meeting while participating in remote classes

Source: own elaboration based on empirical research.



Few people also indicated that they used other communication tools. 89 respondents indicated that they did not use other tools apart from those already mentioned and 20 rarely used some other tools, 7 sometimes, 4 often and only one affirmed a very frequent use of other tools - Figure 56.



Figure 56. How often students used other communicators while participating in remote classes

Source: own elaboration based on empirical research.

2.4. Technical devices used in the distance learning process

In the remote education process, not many teachers used a desktop computer. 16 respondents answered that they never used such a computer during remote classes, while 12 teachers affirmed that they often used it, and 6 six people always used a desktop computer. A group of 5 teachers indicated that they used it rarely, and another group of the same number that they used it sometimes - Figure 57.

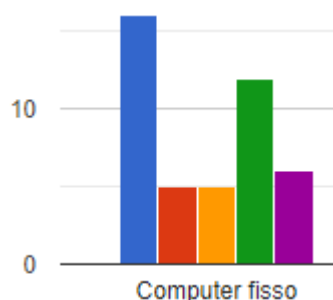


Figure 57. How often teachers used a desktop computer while conducting remote classes

Source: own elaboration based on empirical research.



A larger number of teachers used a laptop while conducting remote classes. Continuous use was indicated by 21 people out of 44 respondents, and 19 respondents indicated that they often used laptops during remote classes. Only 2 people used it rarely and another group of 2 sometimes - Figure 58.

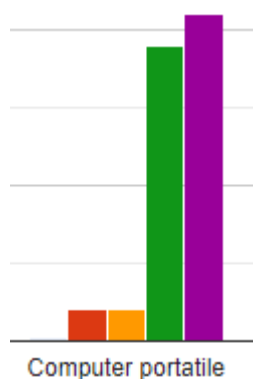


Figure 58. How often teachers used laptops while conducting remote classes

Source: own elaboration based on empirical research.

Relatively few people, compared to previous answers, used a smartphone during remote classes. Only one teacher pointed to having continuously used smartphone to carry out online lessons, and 8 respondents used a smartphone often. For a significant part of the respondents, however, it was only an additional tool. 13 people used it as a tool for remote classes sometimes, 9 used it rarely, and 13 did not use it at all - Figure 59.

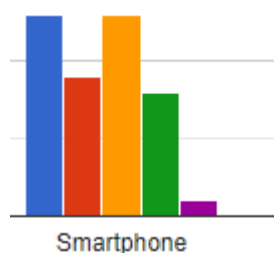


Figure 59. How often teachers used smartphones during remote classes

Source: own elaboration based on empirical research.



Tablets were not so popular among teachers during remote classes. As many as 18 respondents never used a tablet, 11 people sometimes, and 2 rarely used it. However, 10 people indicated that they often used tablets, and 3 always - Figure 60.

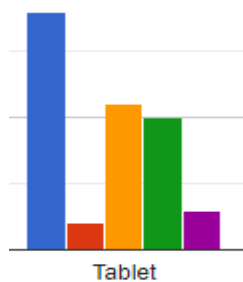


Figure 60. How often teachers used a tablet during remote classes

Source: own elaboration based on empirical research.

During remote classes, teachers did not frequently use other devices, such as a printer or scanner, as in traditional education. Continuous use of such devices was indicated by only 3 respondents and a group of 8 indicated that they used such devices often. Sometimes additional devices were used by 5 people, and rarely by eight. 20 respondents never used these additional devices - Figure 61.

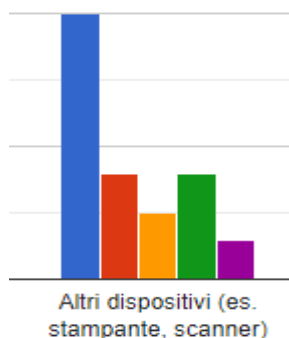


Figure 61. How often teachers used other devices (e.g. printer, scanner) during remote classes

Source: own elaboration based on empirical research.



Similarly, students had to use technical devices to attend remote education. A relatively large group of 75 people never used a desktop computer during online lessons, and 9 people used it but rarely. A group of 8 respondents used it sometimes, but a group of 20 people responded to have used this device very often and another group of 9 that they often used it while participating in remote classes - Figure 62.

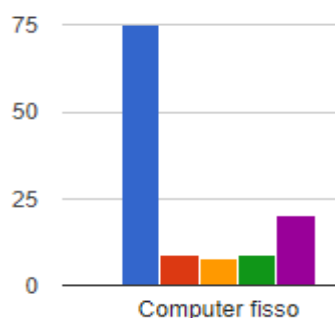


Figure 62. How often students used a desktop computer during distance learning

Source: own elaboration based on empirical research.

Laptops were a bit more popular. As many as 32 people almost never used it in remote education, and 20 respondents often. 17 people used laptops sometimes while 11 affirmed they used them rarely and 41 people never - Figure 63.

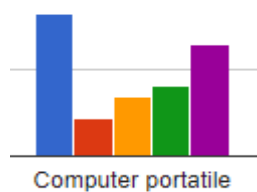


Figure 63. How often students used a laptop computer during distance learning

Source: own elaboration based on empirical research.



A large part of the respondents in this group indicated the use of a smartphone during remote lessons. 41 respondents out of 121 used smartphones very often, and 23 often used it. As many as 38 respondents indicated that they used a smartphone sometimes. Only 10 people affirmed that they rarely used smartphone during remote classes and 9 that they never used them - Figure 64.

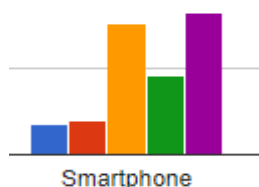


Figure 64. Frequency of using a smartphone by students during distance learning

Source: own elaboration based on empirical research.

Similarly, to teachers, surveyed students did not use tablets during remote classes. As many as 75 respondents out of 121 never used them during remote classes, 9 used them but rarely, and 14 people sometimes. Then, 11 people used the tablet often, and 12 very often - Figure 65.

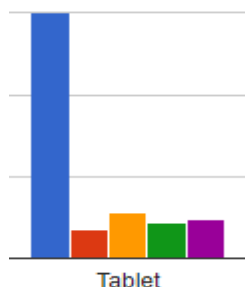


Figure 65. How often students used a tablet during distance learning

Source: own elaboration based on empirical research.

However, they used other devices, such as a printer or scanner, much less often. 88 students never used such devices during online classes, and they were rarely used by 15 respondents, sometimes by 8 people, often by 5 and very often by the remaining 5 people - Figure 66.

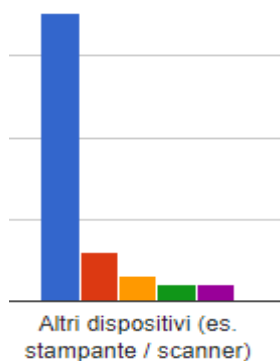


Figure 66. How often students used other devices (e.g. printer/scanner) during distance learning

Source: own elaboration based on empirical research.

2.5. Technical and non-technical support provided from schools during distance learning

In this survey, a lack of schools in providing technical equipment came to light. Indeed, a group of 15 teachers affirmed that they never used such equipment, and a group of the same number used some equipment but rarely. Ten respondents used them sometimes. Only 4 people indicated frequent and very frequent (two and two respectively) use of the equipment provided by the school - Figure 67.



Figure 67. How often teachers used school technical devices during distance learning

Source: own elaboration based on empirical research.

The vast majority of responding teachers used their own equipment. Indeed, 32 people out of 44 respondents indicated a continuous use of private devices during remote learning. Another group of 8 teachers often used private devices. Only two people affirmed that they used private equipment sometimes and two other people that they used it rarely. None of the respondents indicated that they never used private equipment during distance learning - Figure 68.



Co-funded by
the European Union

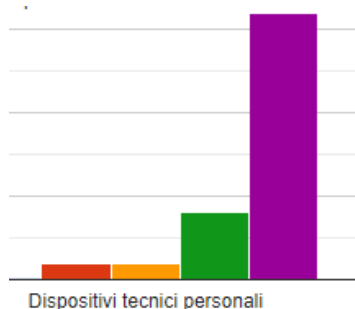


Figure 68. How often teachers used private technical devices during distance learning

Source: own elaboration based on empirical research.

Regarding the places where teachers conducted their online classes the results are varied: when we asked if they conducted classes in lecture rooms 18 respondents affirmed that they used these sometimes, a group of 9 teachers did it often and another group of the same number never did it. The remaining 8 people are divided into those who did it rarely (4) and those who did it very often - Figure 69.

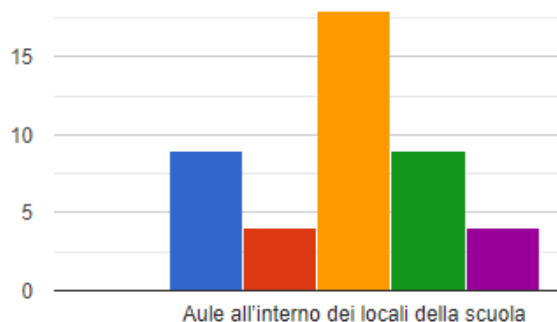


Figure 69. How often teachers used lecture rooms during distance learning

Source: own elaboration based on empirical research.

When we asked teachers if they used private rooms while conducting online classes: a group of 19 people answered that they often used them, 11 people sometimes, and another group of 11 very often. Then two teachers answered that they never used them and only one did it rarely - Figure 70.



Co-funded by
the European Union

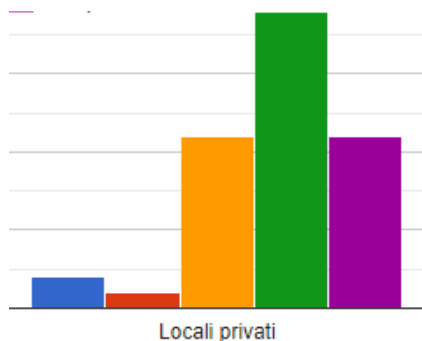


Figure 70. How often teachers used lecture rooms during distance learning

Source: own elaboration based on empirical research.

Then we also asked teachers to assess the premises and technical conditions in which they conduct their online classes using a scale from 1 (Insufficient) to 5 (very good item). Regarding local conditions, 19 respondents affirmed that they were average, 17 affirmed they were good, 7 that they were very good, and the remaining person assessed local conditions below average.

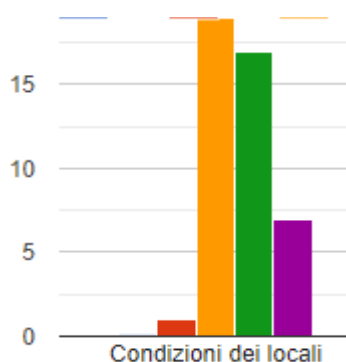


Figure 71. Teachers' assessment of local conditions

Source: own elaboration based on empirical research.

Speaking of the condition of technical devices, 17 teachers answered that they were good, 13 respondents that they were average, 7 people that they were very good, 4 teachers indicated that the technical equipment they used during remote classes was insufficient, and 3 people indicated that its condition was below average - Figure 72.

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839

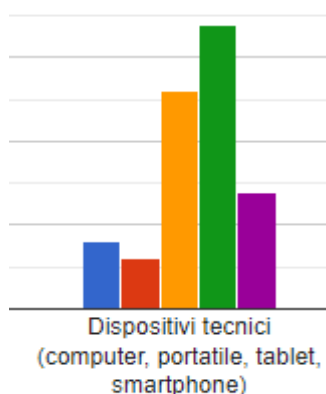


Figure 72. Teachers' assessment of available technical equipment (computer, laptop, tablet, smartphone)
Source: own elaboration based on empirical research.

The surveyed teachers rated also the speed of the Internet connection: 16 respondents out of 44 rated on average, 15 indicated that it was good, seven that it was below average and only 6 people rated it as very good - Figure 73.

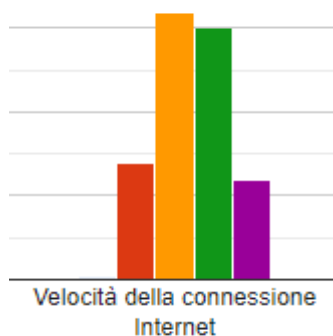


Figure 73. Teachers' assessment of the available Internet connection speed
Source: own elaboration based on empirical research.

Similarly, the stability of the Internet connection was assessed. 15 people rated it average, another group of the same number indicated that it was good, 7 people indicated that it was below average and the remaining 7 respondents had a very stable Internet connection - Figure 74.

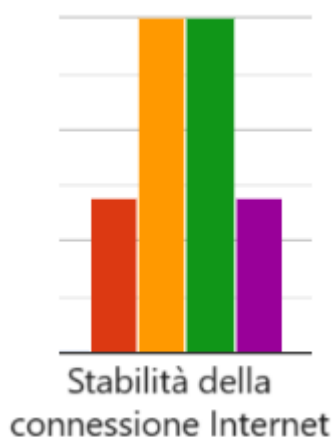


Figure 74. Teachers' assessment of the stability of the available Internet connection

Source: own elaboration based on empirical research.

Regarding the teachers' assessment of their hardware and software skills: 16 respondents believe that they are good, 12 people think that they are at an average level, 8 respondents that they are very good, 7 teachers that they are below average and only one person that it is insufficient - Figure 75.

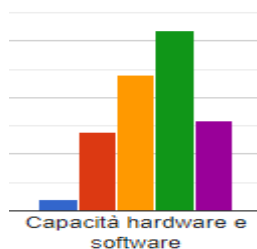


Figure 75. Teachers' assessment of their hardware and software skills

Source: own elaboration based on empirical research.

As for the expected support from schools, formulated by teachers, according to the respondents, among those mentioned the best support for teachers in online teaching would be websites with useful resources - such an answer was given by 26 respondents out of 44, more free resources and tools from companies dealing with educational technology - such a suggestion was made by 25 people, the possibility of quick cooperation with technical support (IT specialist) - this answer was indicated by 23 teachers and support for their professional development with fast online



learning courses - such an opinion was shared by 20 people. The surveyed group also pointed to webinars and Tech Meets for teachers to share ideas and challenges - such support was indicated by 18 respondents, and video recordings - the answer indicated by 8 people - Figure 76.

Quale sarebbe il miglior supporto per gli insegnanti per insegnare online durante la chiusura delle scuole?



44 risposte

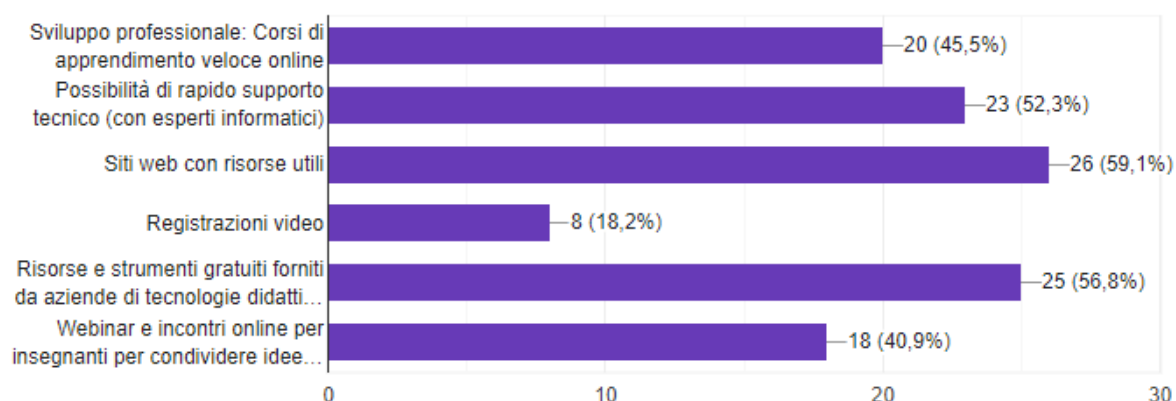


Figure 76. The best support for teachers to teach online during schools closure

Source: own elaboration based on empirical research.

The assessment of the support offered by schools for students is slightly worse. Only 52 students out of 44 respondents answered that their school offered the possibility of renting IT equipment for online classes. In the case of 35 people, such support was offered, but in the opinion of the respondents, to an insufficient extent. 9 respondents unequivocally answered that such support was not offered by their school, and 25 students had no knowledge of this subject - Figure 77.



La tua scuola ha offerto / offre la possibilità di noleggiare attrezzature informatiche per le lezioni online?

121 risposte

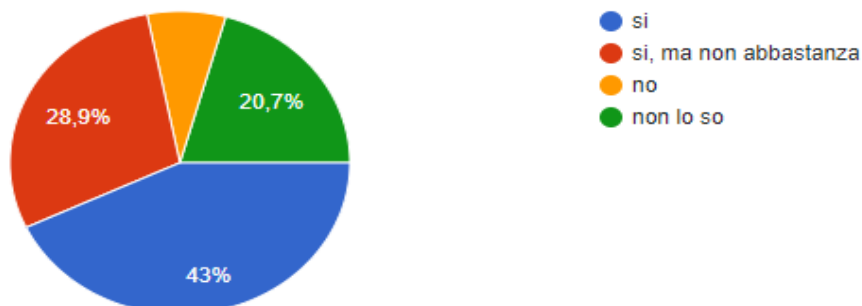


Figure 77. Students' answers to the question "Does your school offer the possibility of renting IT equipment for online classes?"

Source: own elaboration based on empirical research.

2.6. The biggest challenges for teachers and students in the transition to online/distance learning

According to teachers, the biggest challenge with the transition to distance learning was keeping students motivated and focused. This opinion was shared by as many as 37 people out of 44 respondents. The following places in this group were occupied by: lack of pedagogical competence of teachers/lecturers in online teaching - this problem was indicated by 24 people, converting classes and content for online/distance learning - this answer was indicated by 21 teachers, time management and organization - this problem was indicated by other 21 people, students' access to technology - this answer was indicated by 20 respondents, teachers' access to technology (computers software, stable internet connection, etc.) - this problem was indicated by 17 respondents, and more work and stress related to working from home - this problem was also indicated by 9 teachers. This group did not indicate any other problems related to the transition to distance learning - Figure 78.



Quali pensa siano le maggiori sfide per gli insegnanti nel passaggio verso la didattica a distanza / online?



44 risposte

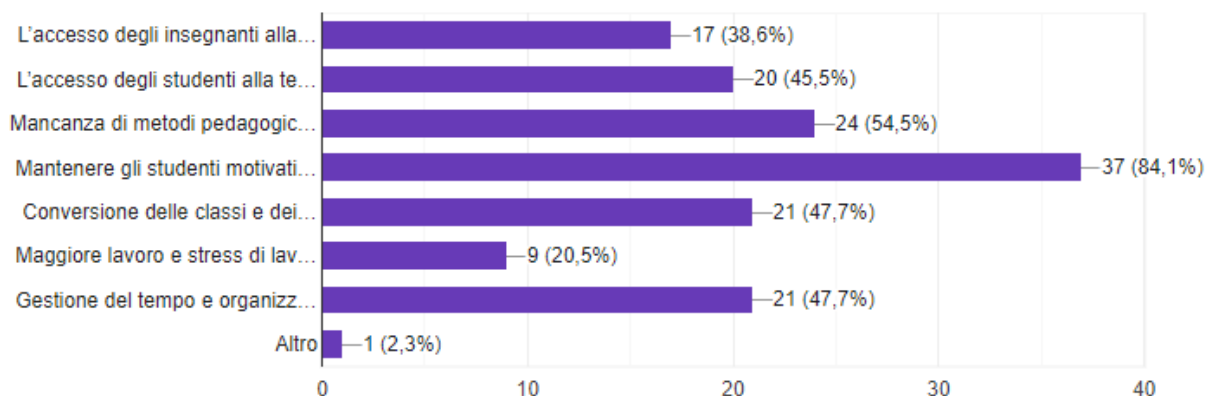


Figure 78. The biggest challenges and problems related to the transition to distance learning according to teachers

Source: own elaboration based on empirical research.

The answers obtained in the group of students are very similar. Surprisingly, this group also identified maintaining the motivation and attention of students during remote learning as the biggest problem related to the transition to remote learning - 78 people out of 121 respondents answered this question. In the next places, according to this group, were: teachers' access to technology (computers, software, stable Internet connection, etc.) - this problem was indicated by 57 students, the lack of direct interaction with other students in the class/group - this problem was indicated by 53 respondents, students' access to technology (computers, software, stable internet connection, etc.) - this answer was indicated by 50 respondents, the ability of teachers to effectively use the equipment and software used in distance learning - this is how the situation was assessed by 48 respondents, more work to be done independently without the help of teachers - this problem was noticed by 47 pupils. Slightly fewer responses were given to such problems as transforming classes and didactic content for the purposes of distance learning - this problem was indicated by 39 people, the lack of possibility to meet/consult directly with the teacher/lecturer - this problem was indicated by 38 respondents, and effective time management and organization of distance learning by the student - this was a problem for 35 students out of 121 respondents - Figure 79.



Quali pensi siano le maggiori sfide e i maggiori problemi riscontrati da studenti e insegnanti nel passaggio alla didattica a distanza?



121 risposte

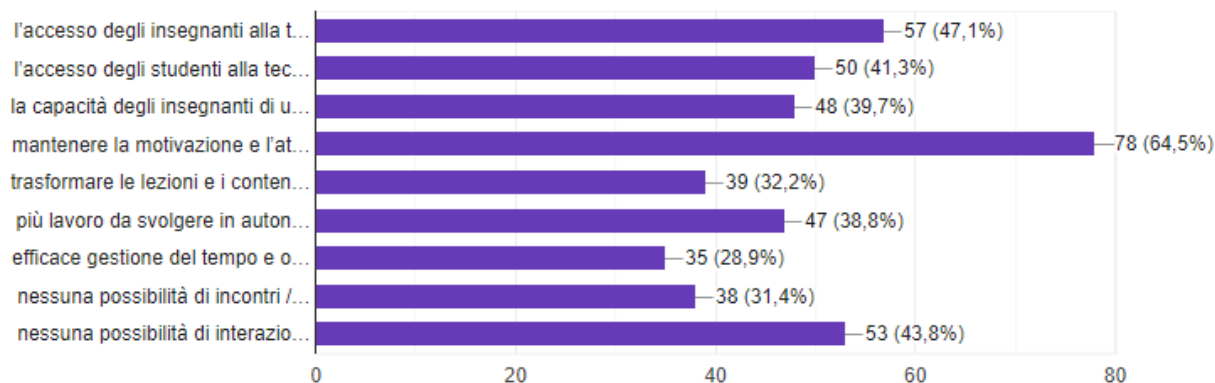


Figure 79. The biggest challenges and problems related to the transition to distance learning, according to pupils and students

Source: own elaboration based on empirical research.

2.7. Ways to improve online classes according to students' and teachers' opinions

In the survey, there was, then, a question addressed to students in which they had to assess the distance learning they experienced during the SARS-CoV-2 pandemic on a scale from 1 (very bad) to 5 (very good). They assessed their experience rather well. However, only 14 people out of 121 respondents rated online classes very well, but a group of 50 students assessed good experience, 41 respondents assigned an average rating to online classes, and unfortunately, as many as 10 people (8,3% of the respondents) assessed the remote classes they were given as below average, and 6 people (5% of the respondents) assigned them the lowest rating, which would indicate an unsatisfactory level - Figure 80.



Come valuti il livello della didattica a distanza nella tua scuola?

Copia

121 risposte

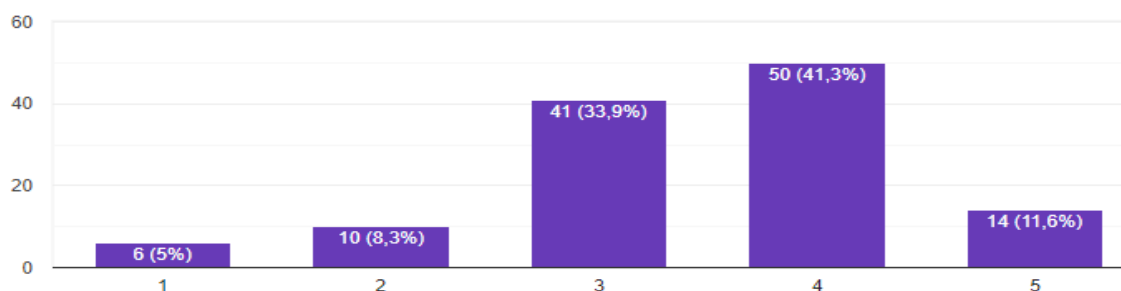


Figure 80. Evaluation of students of the distance learning level of their school

Source: own elaboration based on empirical research.

However, when respondents were asked if they knew of other innovative methods that would be welcome in online teaching, most of them indicated that they did not know of such methods. Such an answer was given by 115 respondents. Only 6 students indicated that they knew additional, innovative methods that could be used during online classes - Figure 81.

Conosci altri metodi innovativi che potrebbero essere ben accolti nella didattica online?

121 risposte

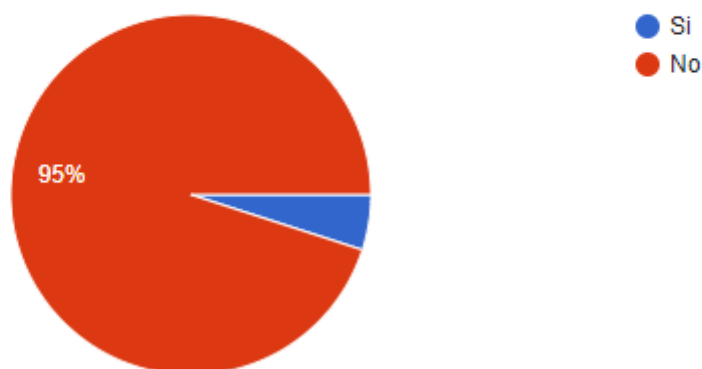


Figure 81. Students' knowledge of other innovative methods which, in their opinion, would be welcome in online teaching

Source: own elaboration based on empirical research.



Among methods mentioned by students who knew other methods, there were:

- make students more autonomous and not always depending on teachers
- make teaching hours less stressful, perhaps briefer since trying to understand behind a computer is not very simple
- I think we need more teachers and more organization, to avoid problems related to Internet, poor connection, etc.
- send videos of the lessons to absentees
- simply use other platforms other than Classroom which in past years caused so many problems by interfering with the normal course of lessons.
- using interactive software or apps/games by both teachers and students at the same time, so as not to burden lessons and increase attention.

However, few students would like to supplement their classes with new technologies and digital platforms. Only 11 respondents gave such an answer. The rest - 110 people - clearly indicated that they would not like to do it - Figure 82.

Vorresti integrare le lezioni con nuove tecnologie e piattaforme digitali? Di che tipo?

121 risposte

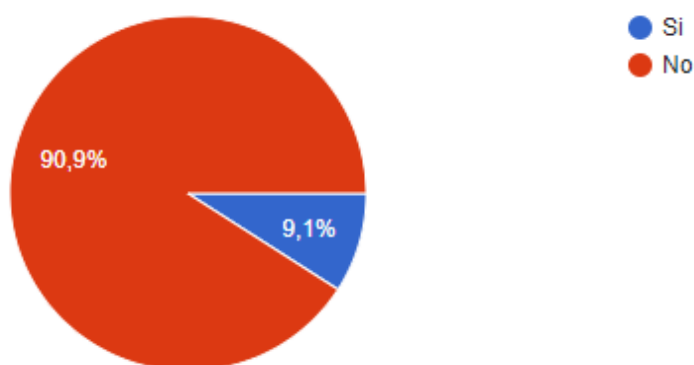


Figure 82. Students' willingness to supplement classes with new technologies and digital platforms

Source: own elaboration based on empirical research.



Below the students' answers regarding the kind of new technologies and digital platforms that they would like to be used in online teaching:

- Chat GPT
- Classroom
- Discord,
- Perhaps use more phones for educational purposes
- PlayStation party lessons

Students found the possibility of using more interactive e-learning platforms (films, animations, quizzes, games, etc.) very attractive - 77 people out of 121 respondents had this opinion. They would also like to participate in the creation of content, e.g. by using platforms for co-creation during online classes - this option is interesting for 60 respondents. One opinion that appeared is that platforms should be easy to use, and another student pointed out that lessons should just be well done and specific - Figure 83.

Come arricchiresti le lezioni online per renderle più interessanti per te?



121 risposte

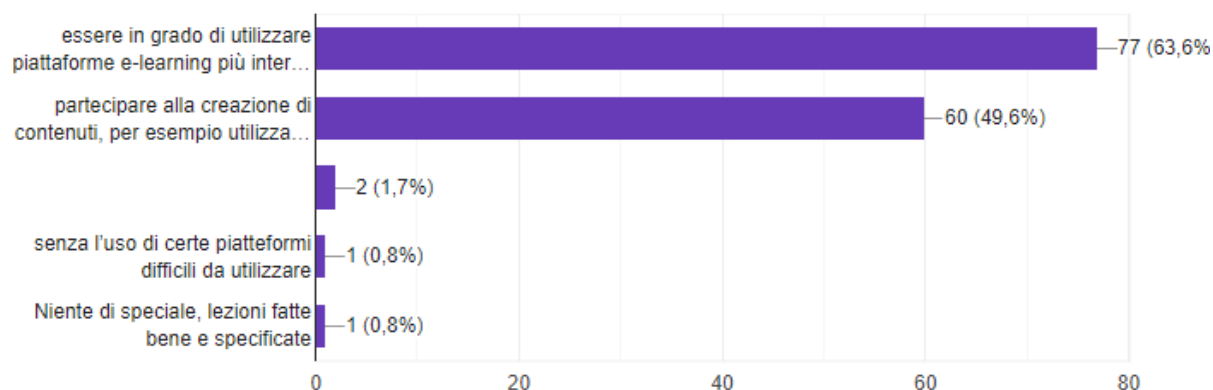


Figure 83. The method of enriching online lessons preferred by pupils and students

Source: own elaboration based on empirical research.



Beside some students affirmed that they lacked nothing/no one during remote classes, among the elements that were missing during remote classes, students included classmates/friends on the first place, because most mentioned this, but also:

- Simplicity and speed of interaction
- Relationship with peers
- Collaboration with other students and dialogue with the teacher
- Distance from professors and classmates, playful relationships and confrontation
- Interaction with the class
- The possibility of leaving the monotony of home and arriving at school and laughing, joking, etc.
- The possibility to socialize
- Imposing more seriously lessons and topics to be studied and above all practical activities
- Presence of professors
- More difficulty in understanding topics
- Direct approach with teachers is necessary to better understand new subjects
- School in general, seeing each other and bonding with other students at the institute
- Non-virtually communication
- Unfortunately, I have never done online teaching even if requested
- Interaction with professors and classmates
- Face to face with teachers
- Seeing my classmates asking me for rubbers
- Possibility to have physical relationships
- Workshops and laboratory lessons in presence
- The desire to learn subjects
- Direct contact with others
- Concentration
- Playing
- Support from teachers



- Wake-up time
- Follow in person lessons
- I haven't studied much and it's a big deal
- Connection problems
- Attention dropped very often
- The tranquillity that was at home
- Ability of professors to be able to manage technologies not known to them
- I had several problems when it happened that my connection with video lessons interrupted, and I had no way to re-enter the lesson
- Getting together with friends and do group work
- Be present all together
- In remote classes you don't learn anything
- Attention and concentration during face-to-face lessons were higher compared to online lessons
- Direct interaction with professors and learning that in case of difficulty I could ask for help
- Better following lessons if in class
- Real teaching
- be able to learn in a better way and have the possibility to clarify doubts with professors
- Lesson at school
- Studying

The vast majority of respondents indicated that their knowledge has not changed as a result of distance learning in relation to the standard form of teaching at school - such an answer was given by 62 students. 27 people assessed that they gained more knowledge in online teaching, and 21 declared that the knowledge acquired in online learning was lower than that which they could obtain in traditional face-to-face education. However, 7 respondents even believe that this knowledge has improved significantly. A different opinion is held by 4 people who believe that the knowledge obtained in remote learning is much lower - Figure 84.



Quanto sono cambiate le tue conoscenze in seguito alla didattica a distanza rispetto alla modalità standard di insegnamento proposto a scuola?

121 risposte

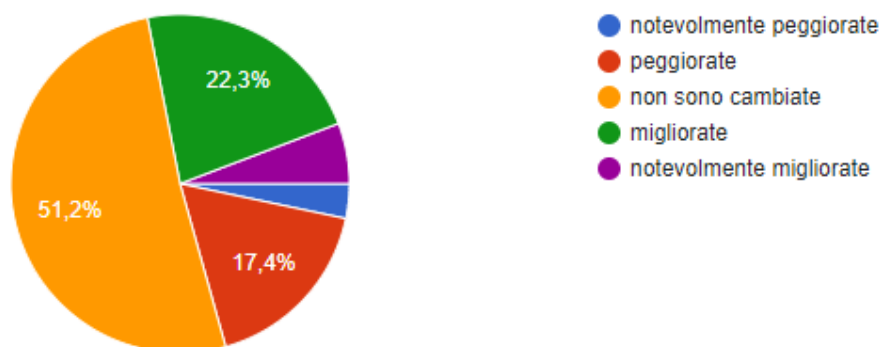


Figure 84. Students' assessment of how much their knowledge has changed as a result of distance learning compared to the standard form of teaching at school

Source: own elaboration based on empirical research.

According to answers to the question: "To what extent did the transition to remote learning mode affect the comfort and ease of learning?" a large group of respondents: 66 people believes that during distance learning the difficulty of acquiring knowledge increased compared to face-to-face learning, 32 people think that the transition to remote learning mode did not affect the degree of difficulty in acquiring knowledge in relation to the standard form, and only 23 respondents believe that it is easier to acquire knowledge during distance learning compared to face-to-face learning - Figure 85.

In che misura il passaggio alla modalità di apprendimento da remoto ha influito sul comfort e sulla facilità di apprendimento?



121 risposte

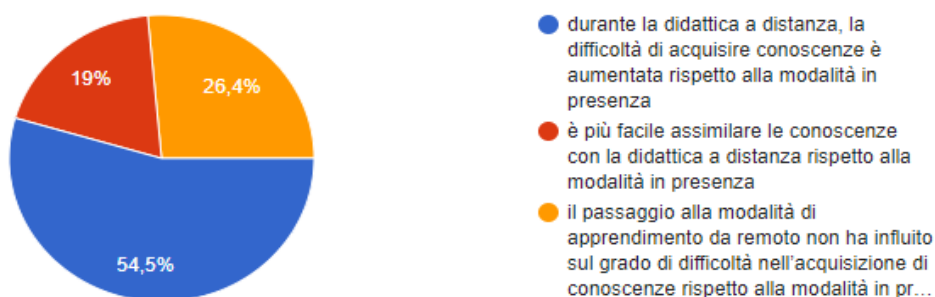


Figure 85. Students' assessment of the extent to which the transition to remote learning mode affected the

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number:2021-1-CZ01-KA220-VET-000034839



comfort and ease of learning

Source: own elaboration based on empirical research.

At the end of the survey addressed to teachers, we asked them to write their thoughts, comments, problems, or suggestions for solutions that, in their opinion, can help raise the level of distance learning and improve the comfort of teaching.

Here below listed teachers' recommendations and comments regarding distance learning and for more effective online teaching:

- Distance learning can be integrated with in-person lessons, but without replacing it
- Improve school hardware and software supports
- It takes more effort to keep students interested
- Motivate students and provide all students with the appropriate technical supports
- Greater technical support for more complete and easily accessible lessons
- Motivate students to follow the pre-established educational courses that can be shared between teachers and students.
- Using platforms that are easy to understand and quick to learn.
- Planning lessons and educational courses of significant interest in order to promote suitable and courses that can be used by and for students.
- Providing computer aids to students who do not have them.
- Work as much as possible with images, videos, games and application software while less with textbooks
- Choose and manage materials to share with students;
- I don't believe that distance learning can raise the quality of teaching
- Distance learning offers a lot for learning purposes but eliminates physical contact and interaction with social group of reference and not only that
- It is a useful, versatile resource that keeps up with the rapid evolution of times
- I don't like distance learning, it destroys human relationships
- I do not consider distance learning adequate for carrying out a productive educational exchange with young people
- It would be necessary to improve reliability of connections and IT tools for both teachers and students and have faster and more reliable technical support
- Collaboration with families is necessary so that students can actively participate in



lessons, remain concentrated, without environmental interferences.

- Distance learning must be reviewed in an innovative key and cannot be a simple transposition of frontal lesson. It is necessary to keep students' attention alive through interactive activities and workshop.
- Distance learning can never replace in-person learning, which must remain the primary and ordinary option. However, it is necessary to implement the use of the internet and telematic tools by teachers and students, also to meet exceptional needs that determine the opportunity to intervene remotely.
- Distance learning promotes student autonomy, improves the quality of technological resources and in some ways allows for a better relationship with the student but requires time from the teacher.
- Greater interaction among teachers and students.
- I believe that the distance learning is only a temporary necessity and to be used in exceptional cases.
- Lack of physical contact and direct interaction poses an obstacle to learners' real knowledge. To overcome this, it is important to promote relationships in small group during distance learning
- A direct collaboration with distribution companies
- Start courses contextually



Co-funded by
the European Union

METHODOLOGY, EXAMPLES OF GOOD PRACTICES AND RECOMMENDATIONS

"FUTURE FOR EDUCATION"

Bielsko-Biala, Poland, 2023

Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number: 2021-1-CZ01-KA220-VET-000034839



Contents

1. Research methodology	3
2. Sample structure	4
3. Survey results	4
3.1. Popular teaching methods used in distance learning	4
3.2. Degree of preparation of teachers to conduct classes conducted remotely	21
3.3. Programs / websites / internet tools used in remote classes	23
3.4. Technical devices used in the distance learning process	36
3.5. Technical and non-technical support from schools/universities during distance learning	45
3.6. The biggest challenges for teachers and students in the transition to online/distance learning.....	52
3.7. Ways to improve online classes according to students' opinions	54
4. Examples of good practices.....	62
4.1. Access to training platforms / messengers enabling remote learning, including training and technical support.....	62
4.2. Diversifying classes through the use of various forms of online learning and inclusion.....	62
4.3. "Equipment" for students and teachers.....	63
5. Recommendations	64
5.1. Training on platforms and messengers enabling online meetings	64
5.2. Development of educational platforms	65
5.3. Support for teachers / academic lecturers in terms of available resources that they could use during remote classes - "all in one place"	66
5.4. Support for the professional development of teachers / academic lecturers.....	67



1. Research methodology

The main purpose of the research is to identify good practices and recommendations in the field of education, based on the experience gained during remote teaching, which took place in connection with the SARS-CoV-2 pandemic. The research area covers the southern region of the Silesian Voivodeship.

The study was in the form of a questionnaire survey and was conducted using the CAWI (Computer-assisted web interviews) technique. The survey was prepared in Polish for two groups of respondents. The first were high school and university students who were included in remote teaching during the pandemic. The second group consisted of teachers and academic lecturers who were forced to remotely prepare and conduct classes in the conditions of the pandemic.

Online surveys were available on the Google website, and information about the study was sent by e-mail, via social media, and Ms Teams platform, with a geographic restriction to the surveyed region. In addition, information about the study was sent to a group of teachers via the Department of Education and Sport of the Municipal Office in Bielsko-Biała.

The main partners in the project were Akademia Techniczno-Humanistyczna (the University of Technology and Humanities) in Bielsko-Biała and Zespół Szkół Samochodowych i Ogólnokształcących (the Automotive and General Education School Complex) in Bielsko-Biała

The research process lasted from December 2022 to the end of February 2023. 495 students and 67 teachers and academic lecturers took part in the study. Basic information about the study is presented in Table 1.

Table 1. Basic information about the study

Test specification	
Research method	Questionnaire
Research technique	CAWI (computer-assisted online interview)
A research tool	Electronic questionnaire
Selection of samples	Sampling for convenience
Sample size	495 students, 67 teachers
Test date	December 2022 – February 2023

Source: own elaboration based on empirical research.



2. Sample structure

In the group of teachers, 49 people, ie 73% of the respondents, are teachers who taught in upper secondary schools (secondary schools). The remaining respondents in this group - 18 people, ie 27% of the sample, are academic lecturers.

In the school and university students group, 325 people, ie 66%, are high school students. The remaining 170 people are students. Among university students, 125 people, ie 74% of this group, are full-time students, and 45 people, ie 26%, are extramural students. 47% of the students, or 80 people, are undergraduate students. The remaining part, i.e. 53% - 90 people, were students of master's studies.

3. Survey results

3.1. Popular teaching methods used in distance learning

Teachers in their work very often use multimedia presentations. 49 people (73% of respondents) use them very often, and 14 people (21% of respondents) indicate frequent use - Figure 1.

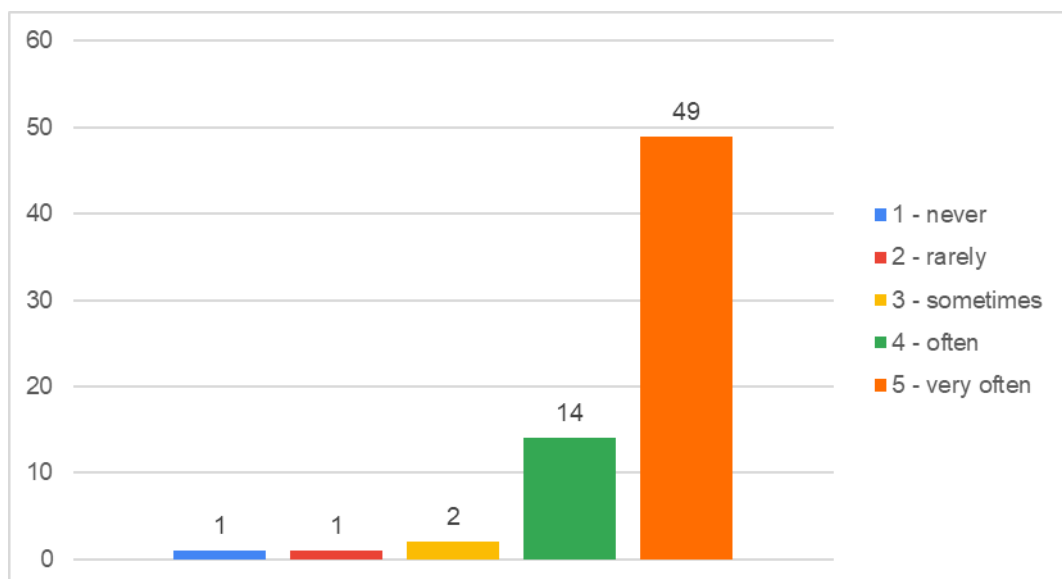




Figure 1. Declared frequency of using multimedia presentations by teachers during remote classes

Source: own elaboration based on empirical research.

Asynchronous remote classes i.e. "recorded" are definitely not included. As many as 40 people (60% of the respondents) never used this way of conducting classes, 9 people (13% of the respondents) indicated that they used it rarely, and 12 people (18% of the respondents) sometimes - Figure 2.

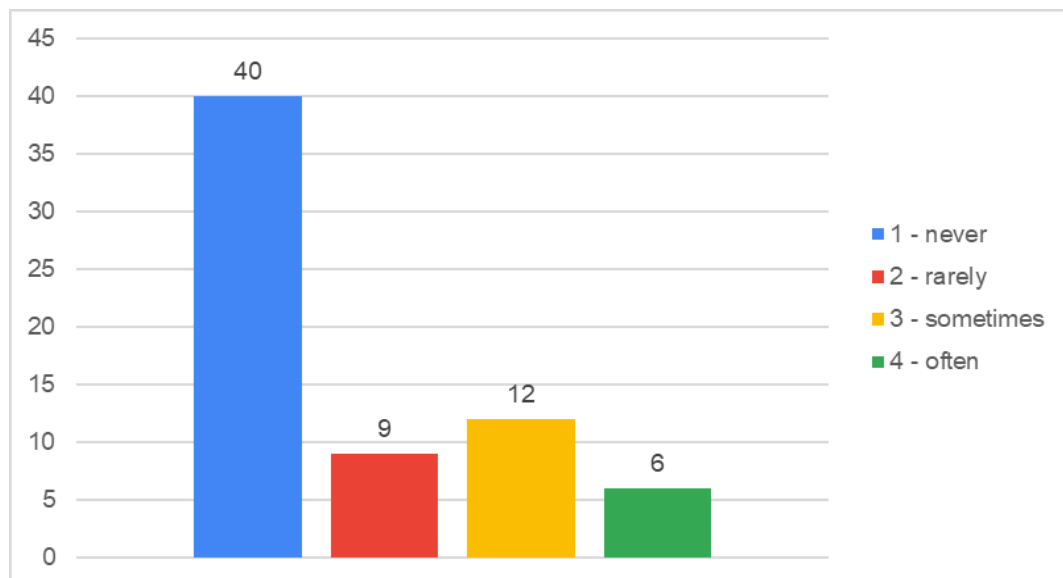


Figure 2. "Recorded" remote asynchronous classes - declared frequency of use during remote classes by teachers

Source: own elaboration based on empirical research.

Academic teachers/lecturers very often conducted live classes. As many as 45 people (67% of respondents) conducted classes in this way during the pandemic, and 9 people (13% of respondents) - often - Figure 3.

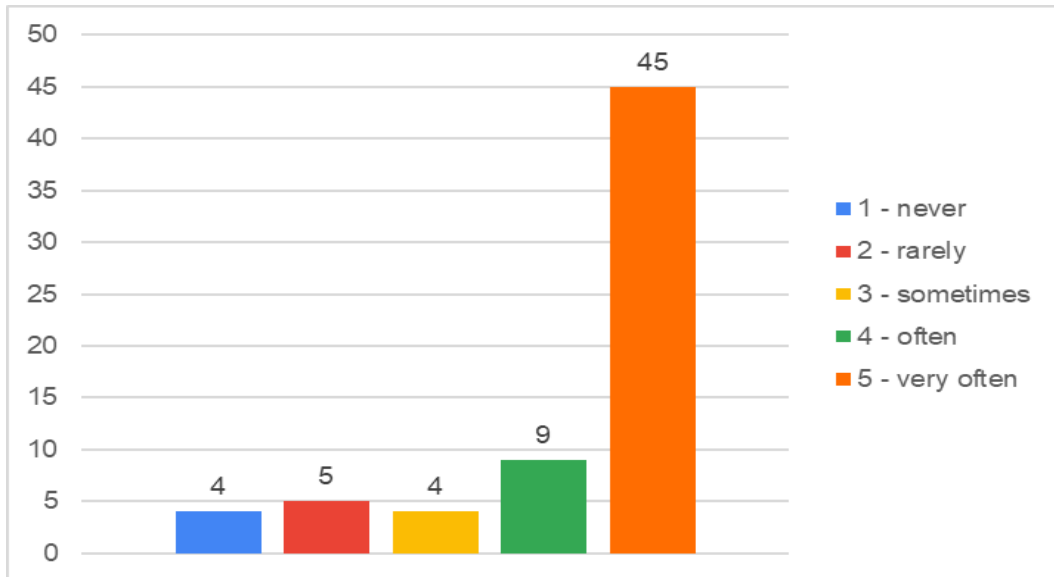


Figure 3. Synchronized remote classes "live" - declared frequency of use during remote classes by teachers

Source: own elaboration based on empirical research.

Teachers often used homework assignments. Frequent use of this method was indicated by 22 people (33% of respondents), and very frequent - 10 people (15% of respondents). A relatively large group of respondents indicated that they used this method often or rarely - 16 people each (24% of respondents) - Figure 4.

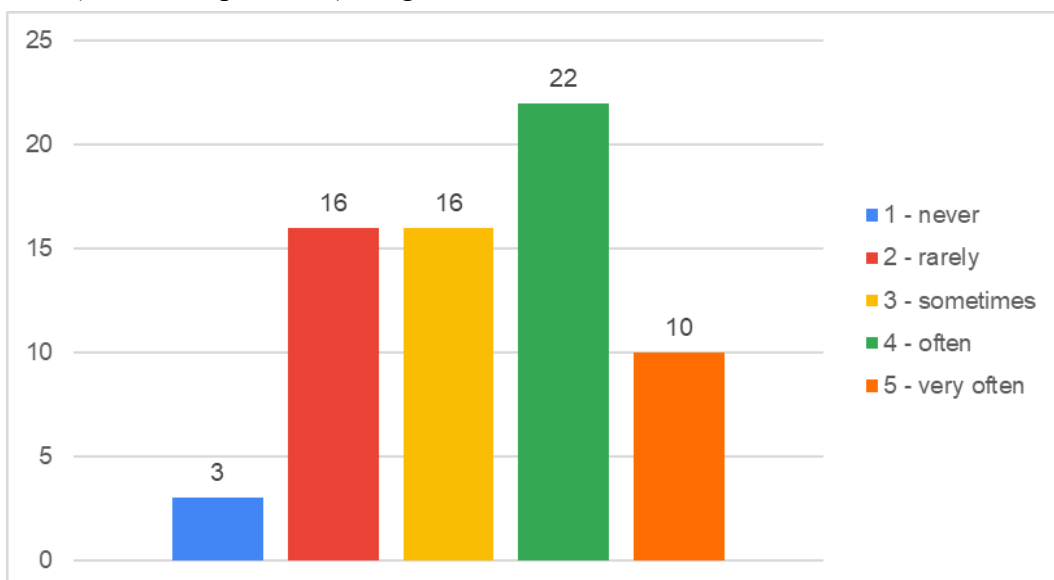




Figure 4. Declared frequency of using homework assignments by teachers during remote classes

Source: own elaboration based on empirical research.

Tasks carried out by students online, e.g. on the platform, also enjoyed great sympathy. Although 13 people (19% of respondents) indicated that they never enriched classes with this form, 14 people (21% of respondents) indicated that they used this form rarely or sometimes, 16 people (24% of respondents) that they used this form of classes often, and 10 people (15% of respondents) that very often - Figure 5. Less frequent use of this form of classes may, however, result from the lack of availability of tasks to be done online in the case of a specific subject.

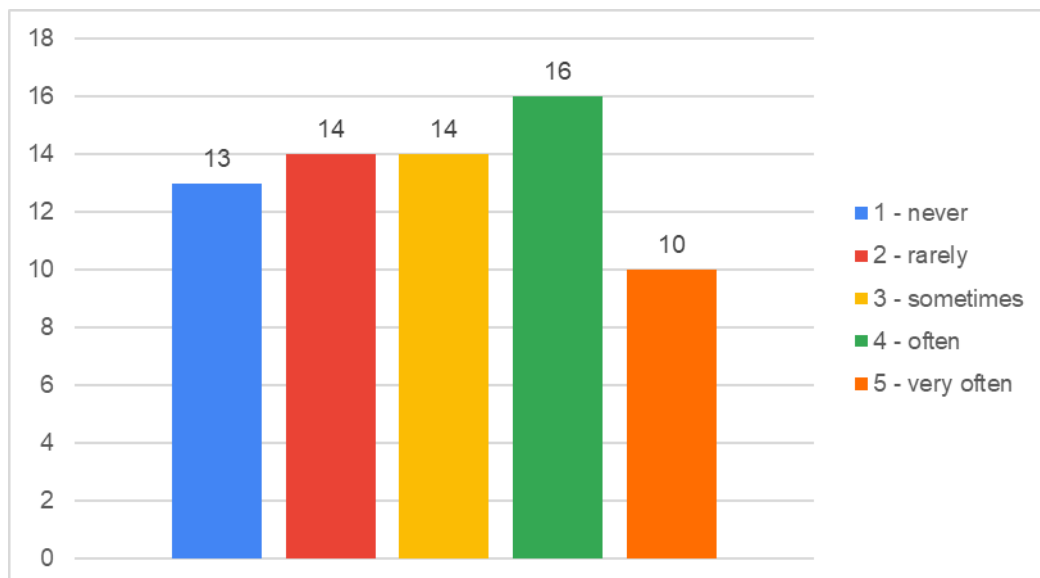


Figure 5. Declared frequency of using tasks performed by students online, e.g. on the platform, during remote classes by teachers

Source: own elaboration based on empirical research.

What is a bit surprising, teachers used e-mails in the didactic process carried out remotely. The vast majority of respondents indicated that teaching materials were sent via e-mail. As many as 19 people (28% of the respondents) indicated that they used e-mail to send teaching materials often, 18 people (27% of the respondents) sometimes. Fifteen people (22% of respondents) rarely used this medium, but 9 people (13% of respondents) used e-mail very



often to send materials. Only 6 people (9% of the respondents) indicated that they never used e-mail while conducting online classes and did not send didactic materials via e-mail - Figure 6.

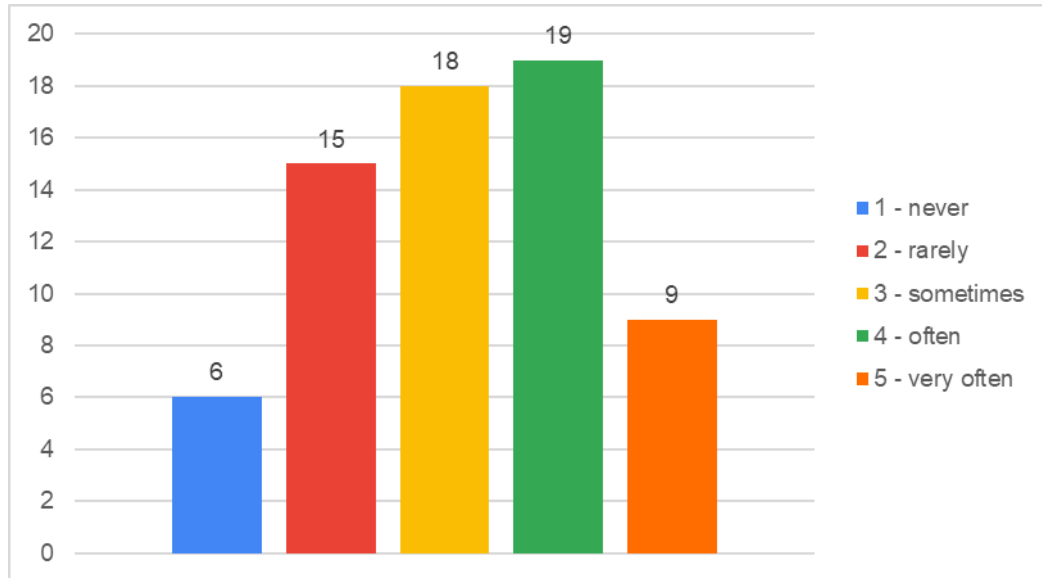


Figure 6. Declared frequency of sending teaching materials by e-mail during remote classes by teachers

Source: own research based on empirical research.

A positive surprise, however, is the fact that for many teachers, individual online consultations with students were a popular form of learning during the pandemic. Although 12 people (18% of the respondents) indicated that they used this form of activity rarely, 3 people (4% of the respondents) not at all, 21 people (31% of the respondents) used this form sometimes, 18 people (27% of the respondents) often and 13 people (19% of respondents) - very often - Figure 7.

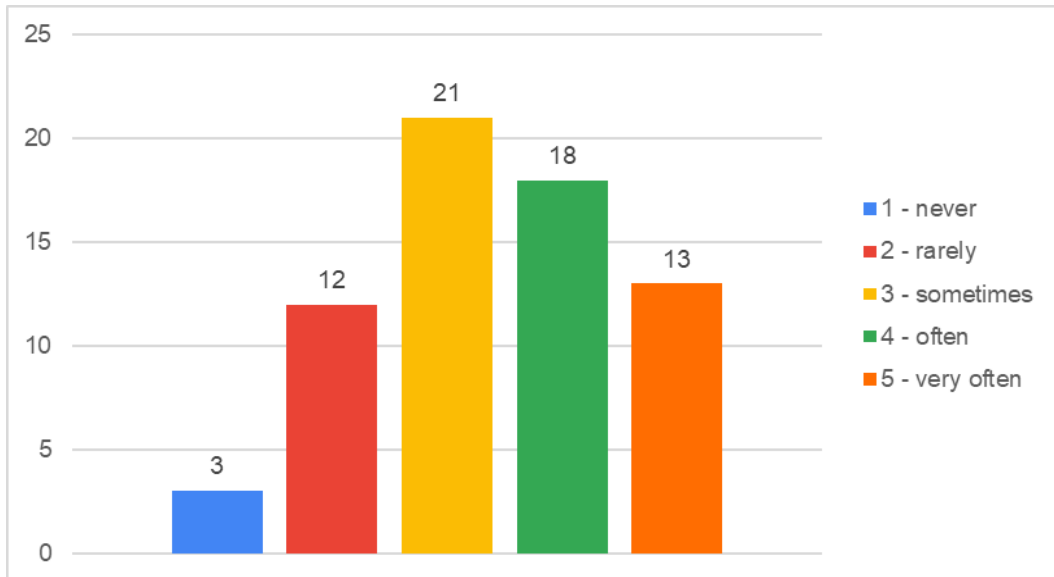


Figure 7. Declared frequency of using individual online consultations with pupils/students during remote classes by teachers

Source: own elaboration based on empirical research.

Some of the respondents used e-mail for consultations. However, 10 people (15% of the respondents) indicated frequent use of this form of organization of classes and consultations, and 8 people (12% of the respondents) indicated very frequent use of this form. As many as 21 people (31% of the respondents) indicated that they used this form sometimes, and 14 people (21% of the respondents) that they used it rarely or never - Figure 8.

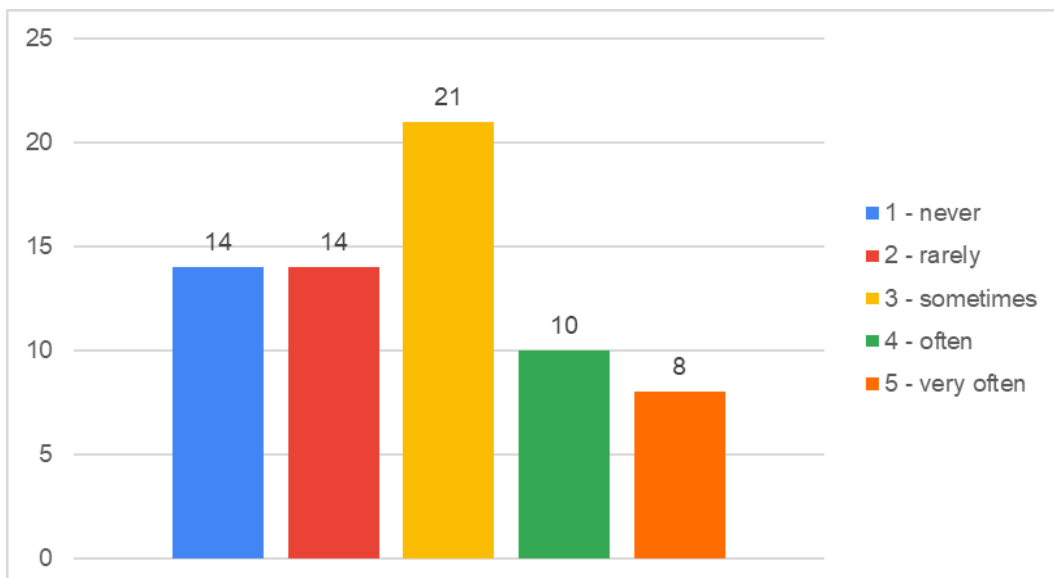




Figure 8. Declared frequency of using e-mail consultations with pupils/students by teachers during remote classes

Source: own elaboration based on empirical research.

Communicators are a popular tool for conducting consultations among teachers. Frequent use of online consultations conducted with the use of messengers, e.g. Messenger, in classes was indicated by 6 people (9% of respondents), and very frequent - 7 people (10% of respondents). 21 people (31% of the respondents) did not use instant messaging during classes, 16 people (24% of the respondents) did it rarely, and 17 people (25% of the respondents) - very rarely - Figure 9.

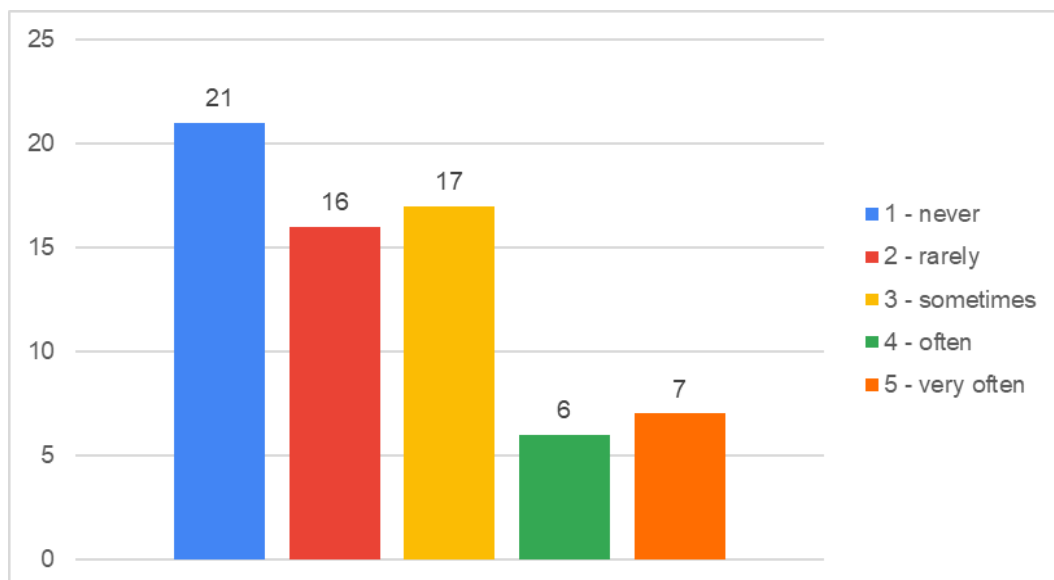


Figure 9. Declared frequency of consultations by teachers via messengers (e.g. Messenger) during remote classes

Source: own elaboration based on empirical research.

A very large group of respondents during remote classes organized work in teams. As many as 21 people (31% of the respondents) did it often, 11 people (16% of the respondents) - very often, and 17 people (25% of the respondents) - sometimes - Figure 10.

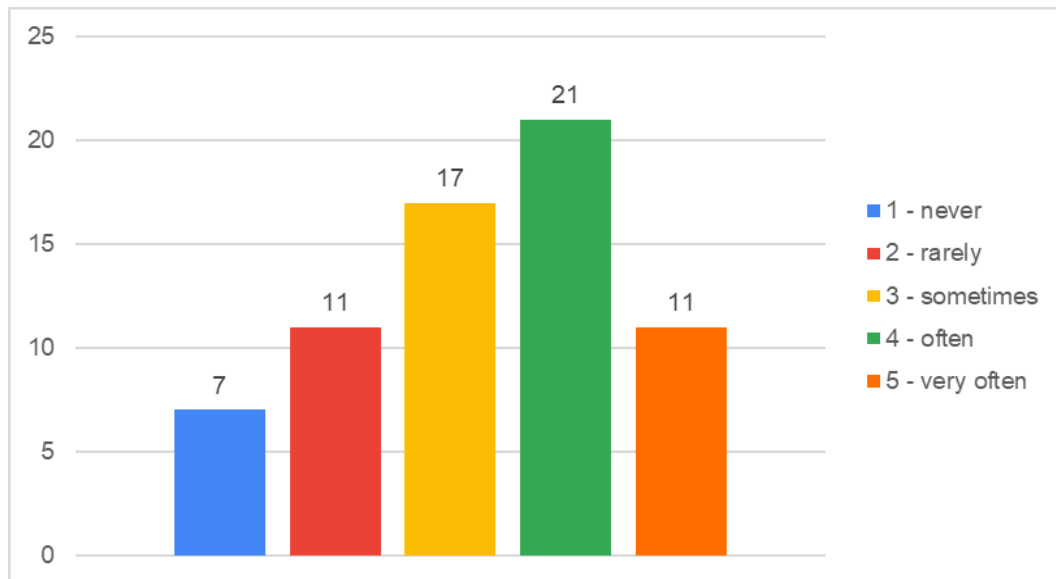


Figure 10. Declared frequency of using teamwork by teachers during remote classes

Source: own elaboration based on empirical research.

Tests, quizzes, and tasks enjoyed great popularity among teachers. As many as 23 people (34% of the respondents) indicated that they sometimes used this form during classes, 26 people (39% of the respondents) did it often, and 13 people (19% of the respondents) - very often - Figure 11.

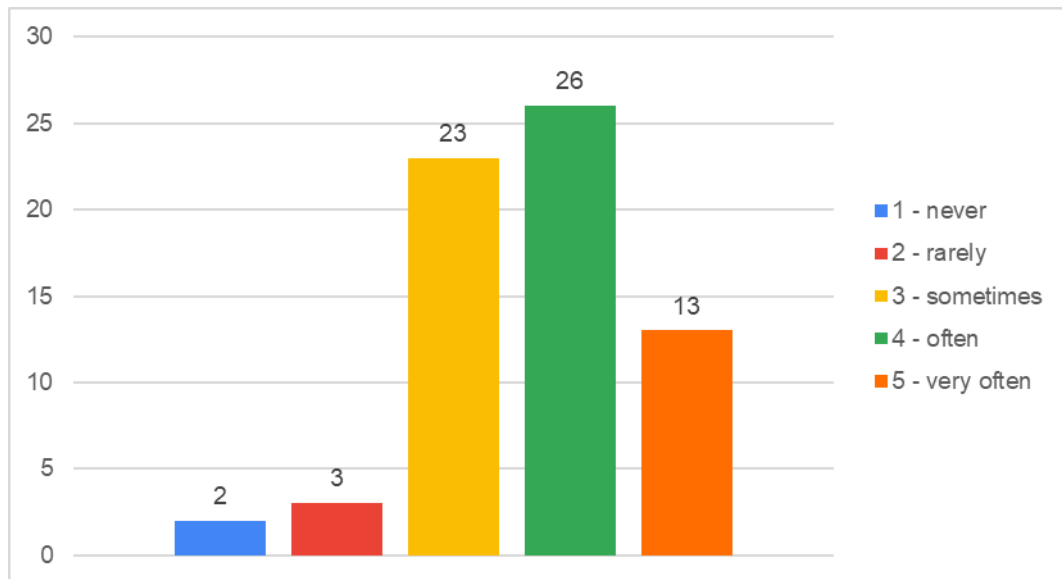


Figure 11. Declared frequency of using tests / quizzes / tasks by teachers during remote classes

Source: own elaboration based on empirical research.

Platforms or applications provided by publishers were not very popular. As many as 20 people (30% of respondents) indicated that they had never used such attractiveness of classes, and 10 people (15% of respondents) that they rarely used them during remote classes. It is comforting, however, that 17 people (25% of the respondents) used such aids sometimes, 13 people (19% of the respondents) - often, and 7 people (10% of the respondents) - very often - Figure 12.

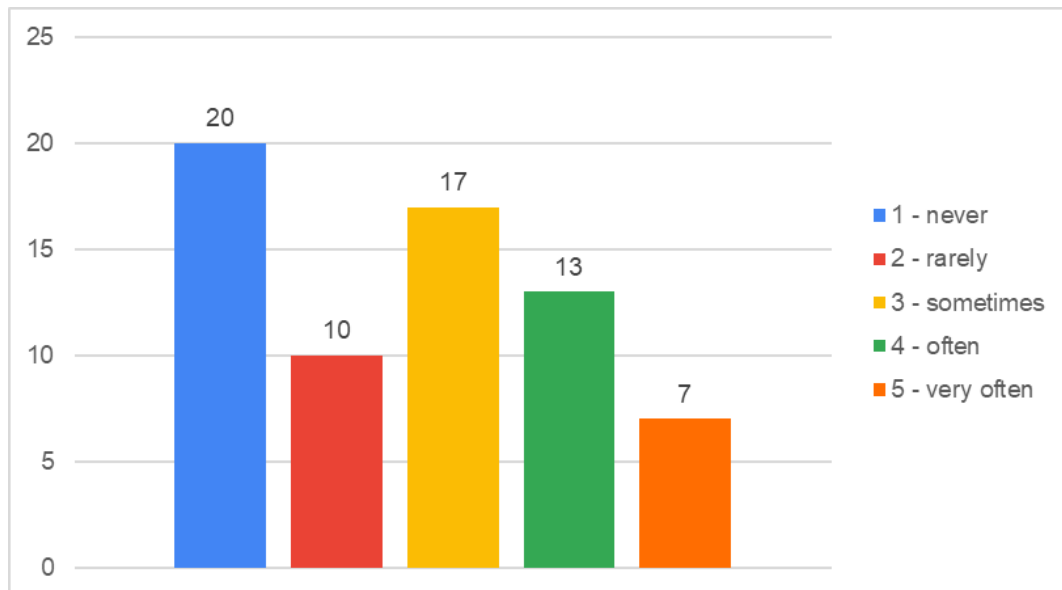


Figure 12. Declared frequency of using platforms or applications provided by publishing houses by teachers during remote classes

Source: own elaboration based on empirical research.

The vast majority of respondents did not use other forms of conducting classes. Such an answer was given by 54 people (81% of the respondents). Other teaching methods during remote classes were used by a total of 13 people (19% of the respondents) - Figure 13.

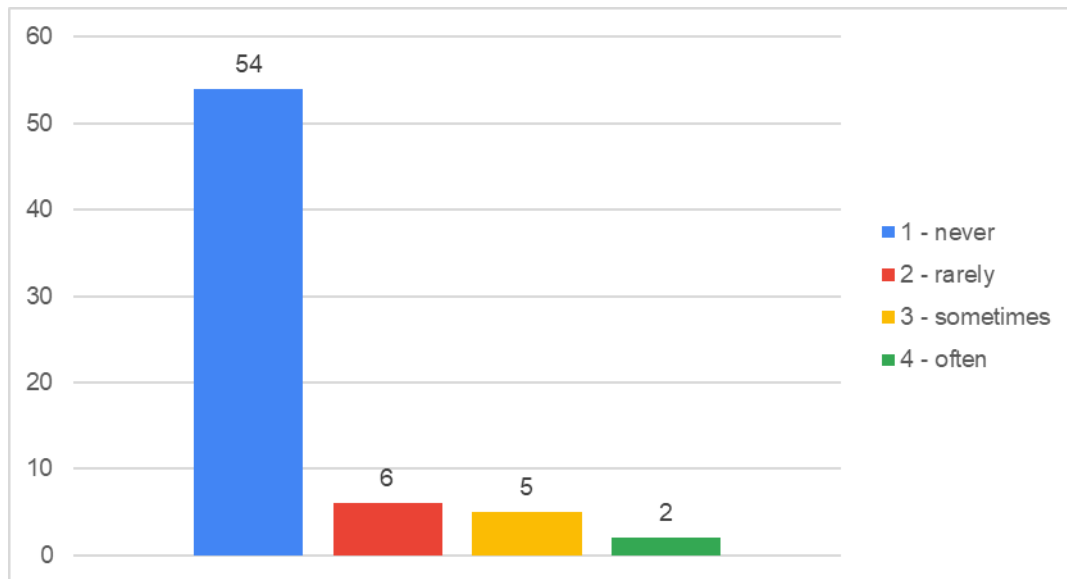


Figure 13. Declared frequency of using other teaching methods by teachers during remote classes

Source: own elaboration based on empirical research.

Other forms of distance learning that teachers and academic lecturers used during distance learning were:

- test portal,
- ministerial e-learning platform epodreczniki.pl,
- digital resources related to culture, e.g. ninatka.pl, virtual museum tours,
- presentations on YouTube.

Among the innovative methods that, according to teachers, could be appreciated in online teaching, they included:

- virtual laboratories,
- activating methods: brainstorming, expression methods, case study, forum, elements of coaching,
- techniques supporting teamwork,
- test platform.

The results obtained in the group of teachers are confirmed in the group of students. The vast majority indicated that they encountered multimedia presentations during remote classes, including 155 people (31% of respondents) - very often, 125 people (25% of respondents) -



often, and 115 people (23% of respondents) - sometimes. 32 people (6% of the respondents) did not experience this form of conducting classes, and 68 people (14% of the respondents) indicated that it was very rare - Figure 14.

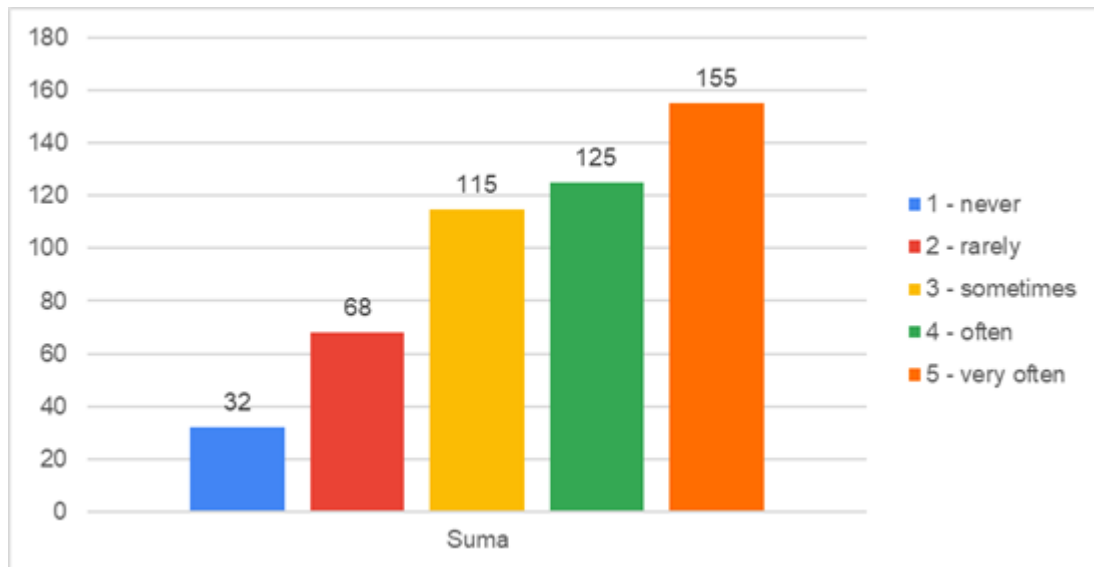


Figure 14. Multimedia presentations - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

Students did not encounter classes recorded and played back from the recording. Such an answer was given by 267 people (54% of the respondents), and 131 people (26% of the respondents) very rarely encountered this form of activity. Unfortunately, 64 people (13% of the respondents) met with this form of activity sometimes, 18 people (4% of the respondents) - often, and 15 people (3% of the respondents) - very often - Figure 15.

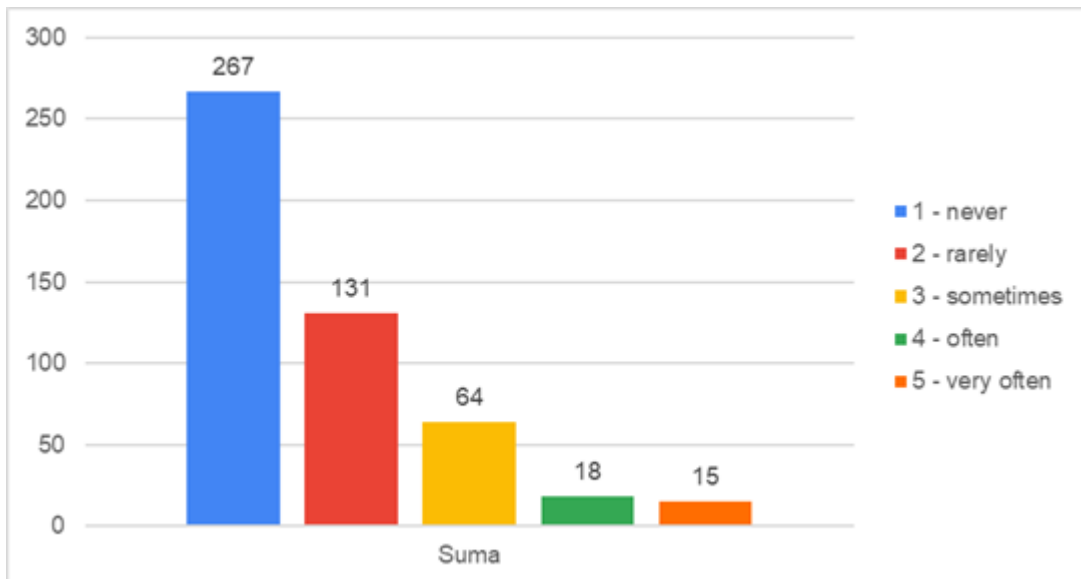


Figure 15. Remote asynchronous "recorded" classes - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

Live classes were a frequent form of class. 259 people (52% of the respondents) met with this form of activity very often, and 93 people (19% of the respondents) met it often. 38 people (8% of the respondents) did not meet such activities, 47 people (9% of the respondents) met rarely, and 58 people (12% of the respondents) met occasionally - Figure 16.

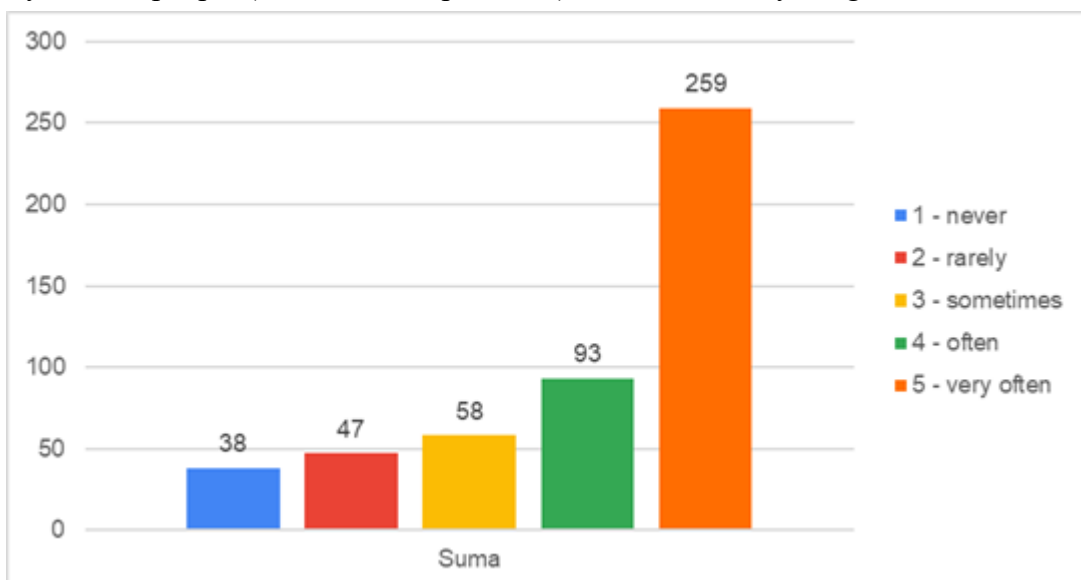




Figure 16. Synchronized "live" remote classes - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

According to pupils and students, an almost permanent element of distance learning was homework to be done on one's own. 137 people (28% of the respondents) indicated that they often encountered this form of making classes more attractive, and 142 people (29% of the respondents) indicated that they met with this form of activation often and sometimes. Only 57 respondents (12% of respondents) indicated that they had rarely been given homework and 17 people (3% of respondents) that they had never - Figure 17.

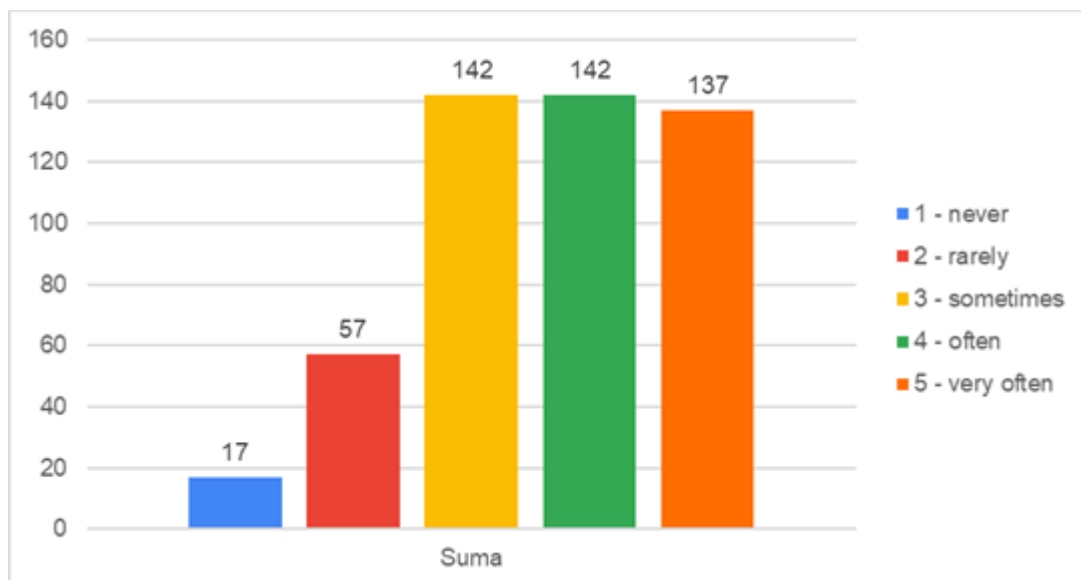


Figure 17. Homework to be done independently - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

The results obtained in the group of pupils and students confirm the high popularity of tasks carried out online, e.g. on platforms. As many as 156 people (32% of the respondents) met with this form of activity often, 120 people (24% of the respondents) - very often, and 128 people (26% of the respondents) - sometimes. Only 66 people (13% of the respondents) rarely encountered this form of activity, and 25 people (5% of the respondents) never encountered it - Figure 18.

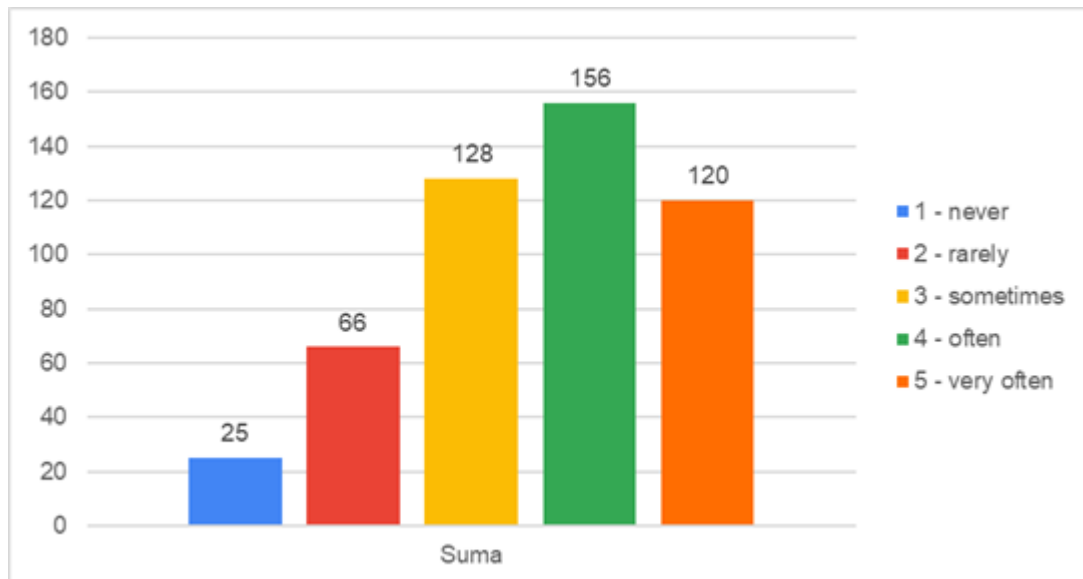


Figure 18. Tasks carried out online, e.g. on platforms - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

Many pupils and students confirmed receiving teaching materials by e-mail. As many as 128 people (26% of the respondents) indicated that they received didactic materials in this way often, and 84 people (17% of the respondents) - very often. 122 people (25% of the respondents) indicated that they sometimes received didactic materials by e-mail, 100 people (20% of the respondents) - rarely. And only 61 people (12% of the respondents) never received teaching materials in this way - Figure 19.

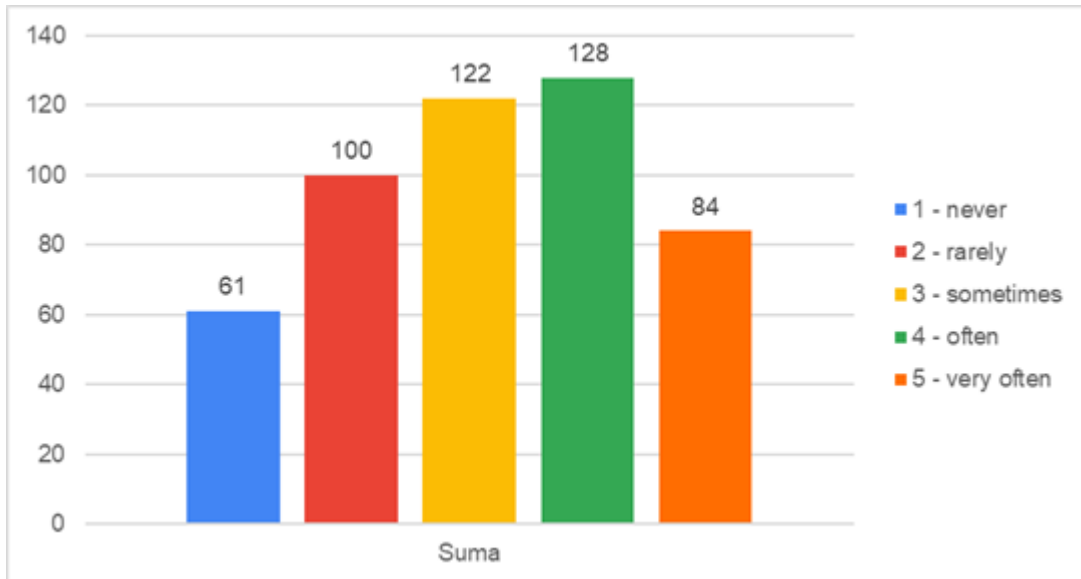


Figure 19. Didactic materials delivered by e-mail - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

However, very few pupils and students confirmed that they were offered individual online consultations with the teacher during remote classes. As many as 155 people (31% of respondents) have never encountered such a form of classes during remote classes, 160 people (32% of respondents) indicated that they met rarely, and 105 people (21% of respondents) that they met sometimes. Only 29 people (6% of the respondents) indicated that they encountered this form of classes very often, out of 46 people (9% of the respondents) that they encountered this form often - Figure 20.

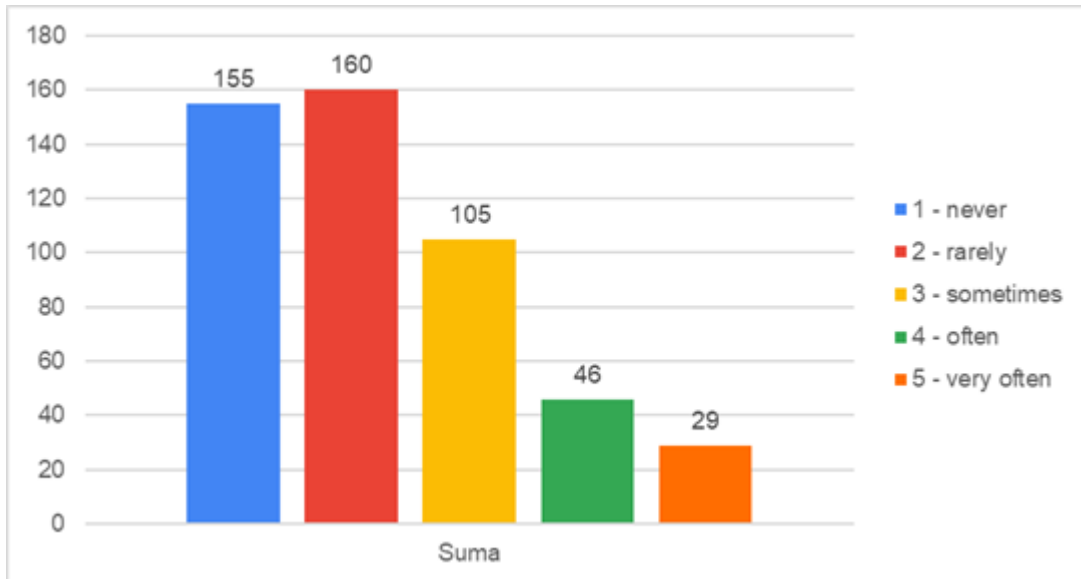


Figure 20. Individual online consultations with a teacher - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

Students also do not confirm consultations with the teacher via e-mail. As many as 129 people indicated that they had never encountered such an action, 119 people (24% of respondents) indicated that they had, but rarely. A large group of respondents, 106 people (21% of the respondents) also indicated that they had encountered this form of conducting classes, but sometimes. Only 51 people (10% of respondents) indicated that they encountered such consultations very often, and 90 people (18% of respondents) indicated that they encountered such consultations often - Figure 21.

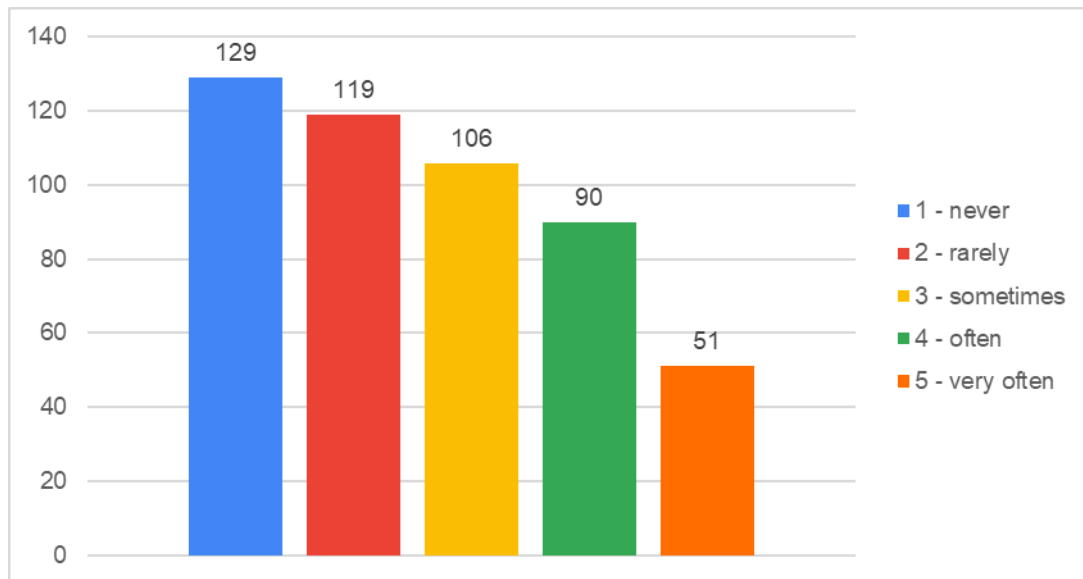


Figure 21. E-mail consultation with a teacher - frequency of use during classes in the opinion of students

Source: own elaboration based on empirical research.

3.2. Degree of preparation of teachers to conduct classes conducted remotely

The vast majority of teachers describe their preparation for conducting classes remotely as average. 23 people (34% of respondents) answered yes. 13 people (19% of the respondents) believe that they were poorly prepared, and 3 people (4% of the respondents) that they were very poorly prepared. Although the transition to remote teaching was unplanned and sudden (forced by the pandemic and the desire to protect teachers and students from the virus), as many as 16 people (24% of respondents) said that they were well prepared, and 12 people (18% of respondents) very good - figure 22.

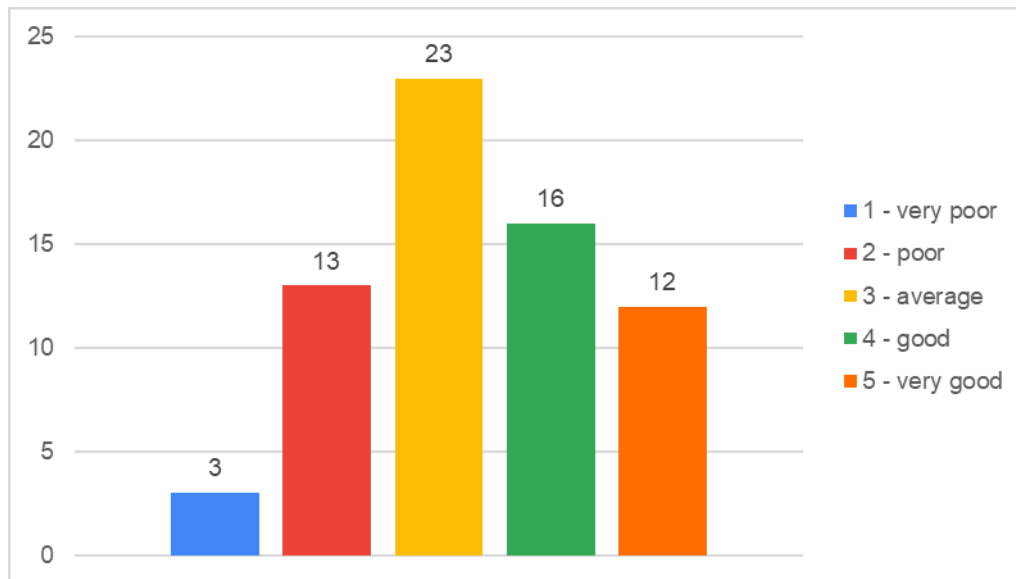


Figure 22. The degree of preparation of teachers to conduct classes conducted remotely before the start of classes

Source: own elaboration based on empirical research.

However, these skills have significantly increased as a result of practice, i.e. conducting remote classes. None of the responding teachers indicated that their preparation for conducting classes remotely after the period of remote teaching is very poor. Only 1 person indicated that their preparation is still poor, and 2 people (3% of the respondents) that their preparation is at an average level. The vast majority of respondents answered that their preparation for distance learning after the time of distance learning was at a good or very good level. 24 and 40 people (36% and 60% of the respondents) answered yes, respectively - Figure 23.

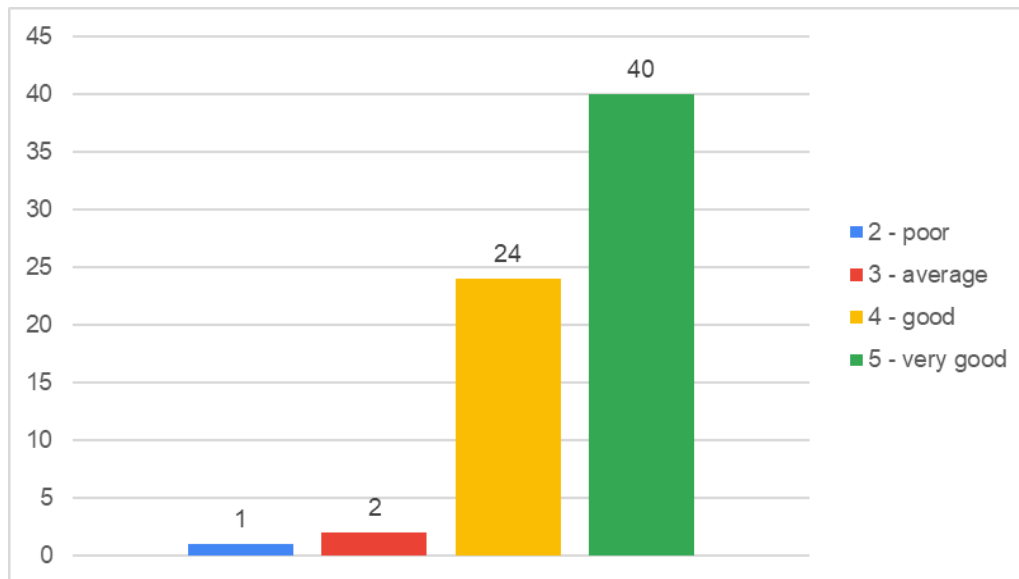


Figure 23. The current degree of preparation for conducting remote classes

Source: own elaboration based on empirical research.

3.3. Programs / websites / internet tools used in remote classes

Teachers declared the use of many programs and websites during remote teaching. However, these tools are not Skype, as many as 49 people (73% of respondents) indicated that they had never used this communicator during remote classes, and only 1 person indicated that they used it often - Figure 24. Only a few people used Discord software, i.e. a free internet service based on the cloud, for voice calls and communication via text messages with the possibility of placing photos and videos. Only 6 people (9% of respondents) indicated that they used this software often, 4 people (6% of respondents) that they used it sometimes. The vast majority, as many as 44 people (66% of respondents) have never used this software during remote classes - Figure 25. Respondents also did not use messengers such as Messenger or WhatsApp, which are very popular in everyday life, or the popular Facebook. 36 people (54% of the respondents) declared that they had never used such a means of communication with pupils/students. 12 people (18% of respondents) answered that they used this form of communication rarely or sometimes. However, only 3 people (4% of the respondents) used the indicated messengers and/or Facebook often, and 4 people (6% of the respondents) - very often - Figure 26. TeamSpeak3 - an instant messenger using VoIP technology for voice and text



communication was the least popular among multiple users of a given server. As many as 60 people (90% of the respondents) indicated that they had never used this tool to communicate with pupils/students - Figure 27.

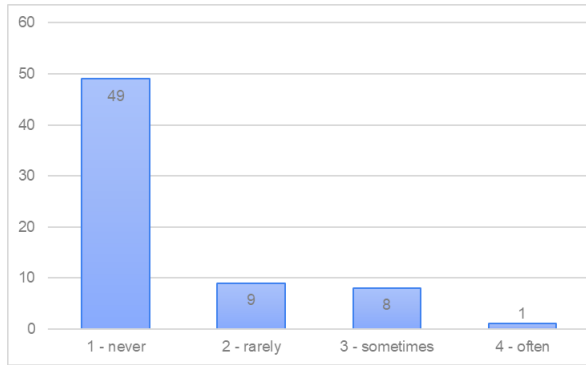


Figure 24. Frequency of using Skype by teachers during remote classes

Source: own elaboration based on empirical research.

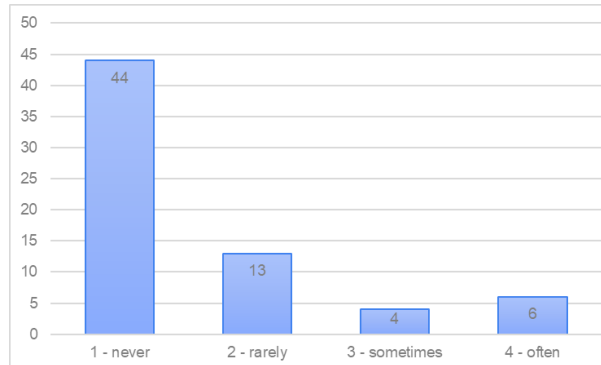


Figure 25. Frequency of using Discord by teachers during remote classes

Source: own elaboration based on empirical research.

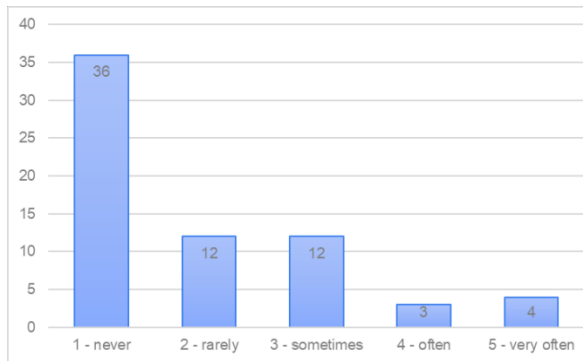


Figure 26. Frequency of using Facebook / Messenger / WhatsApp by teachers during remote classes

Source: own elaboration based on empirical research.

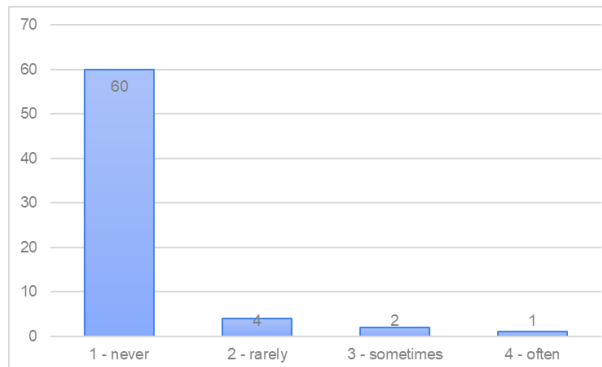


Figure 27. Frequency of using TeamSpeak3 by teachers during remote classes

Source: own elaboration based on empirical research.

Such instant messengers as Microsoft Teams and Zoom, i.e. applications designed to conduct online meetings both at homes, schools, and companies, enjoyed great popularity. Very frequent use of Ms Teams was indicated by 24 people (36% of respondents), frequent use by 9 people (13% of respondents). The same number of respondents also indicated that they used Ms Teams rarely - 9 people (13% of the respondents) and never - 24 people (36% of the respondents) - Figure 28. However, such a distribution of answers may mean that people indicate that they do not use Ms Teams used just other messengers. As confirmed by the obtained results, some people used the Zoom platform to conduct classes. This platform was used very often by 9 people (13% of the respondents), often 13 people (19% of the respondents), sometimes 16 people (24% of the respondents). 22 people (33% of respondents) never used the Zoom platform and rarely 7 people (10% of respondents) - Figure 29. These results seem to confirm the media reports on the popularity of Microsoft Teams and Zoom, which dominated the market during the coronavirus (COVID) pandemic -19) caused by the SARS-CoV-2 virus. Indeed, these applications in a very short time won the recognition of enterprises, private users, state administration bodies, public institutions, but also educational institutions.

Many of the respondents also used the possibilities offered by Google, i.e. Google Classroom and Google Meet. Google Classroom is a free online service for schools developed by Google to simplify the process of creating, distributing, and grading assignments electronically. The primary goal of Google Classroom is to streamline the file-sharing process



between teachers and students. As many as 40 people (60% of the respondents) pointed to the very frequent use of this service. 19 people (28% of respondents) have never used these tools - Figure 30.

Less popular was the e-learning platform Moodle (Modular Object-Oriented Dynamic Learning Environment), i.e. a distance learning environment available through a web browser using ICT networks. As many as 44 people (66% of respondents) never used this platform, 9 people (13% of respondents) used it very rarely, and 11 people (16% of respondents) sometimes. Only 3 people (4% of respondents) indicated that they used this tool often - Figure 31.

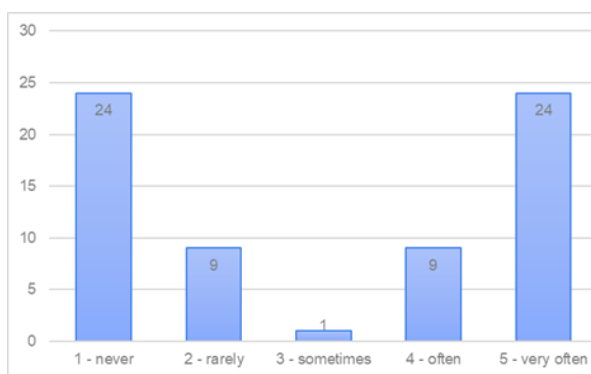


Figure 28. Frequency of using Microsoft Teams by teachers during remote classes

Source: own elaboration based on empirical research.

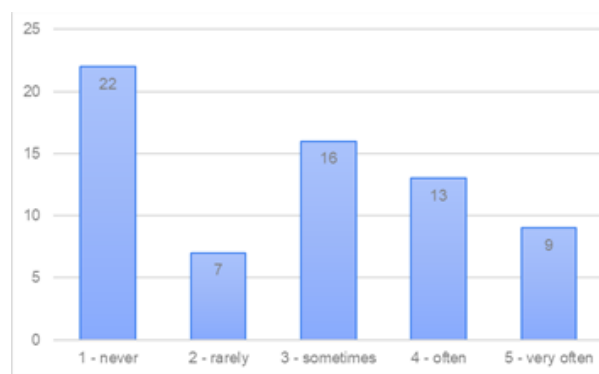


Figure 29. How often teachers use Zoom during remote classes

Source: own elaboration based on empirical research.

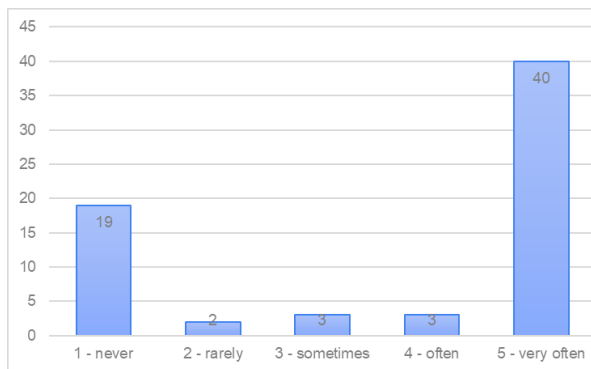


Figure 30. The frequency of using Google Classroom / Google Meet by teachers during remote classes

Source: own elaboration based on empirical research.

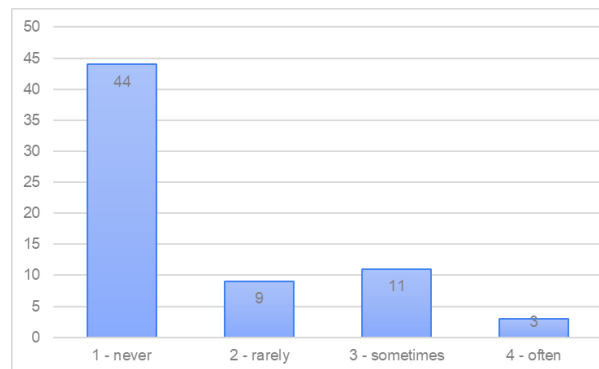


Figure 31. Frequency of using Moodle by teachers during remote classes

Source: own elaboration based on empirical research.



The surveyed teachers rather did not use other communicators than those mentioned earlier. This answer was given by 34 people (51% of the respondents). Very rarely, other messengers were used by 14 people (21% of the respondents), sometimes - 11 people (16% of the respondents), often - 7 people (10% of the respondents), and very often only 1 person - Figure 32. The tool used during remote classes, however, was YouTube. 14 people (21% of the respondents) indicated that the website was used very often, 16 people (24% of the respondents) used it frequently, and it was used sometimes by 15 people (22% of the respondents). 7 people (10% of respondents) rarely used YouTube during classes, and 15 people (22% of respondents) declared that they had never used this service during remote classes - Figure 33.

The respondents did not see the need to use virtual disks. As many as 48 people (72% of respondents) indicated that they had never used Onedrive. Frequent and very frequent use of OneDrive was indicated by 3 people (4% of respondents each) - Figure 34. Google Drive was used slightly more often. Very frequent use of this form of storing and sharing files was indicated by 14 people (21% of respondents), frequent - 12 people (18% of respondents), sometimes Google Drive was used during remote classes by 9 people (13% of respondents). However, 22 people (33% of respondents) never used this disk - Figure 35.

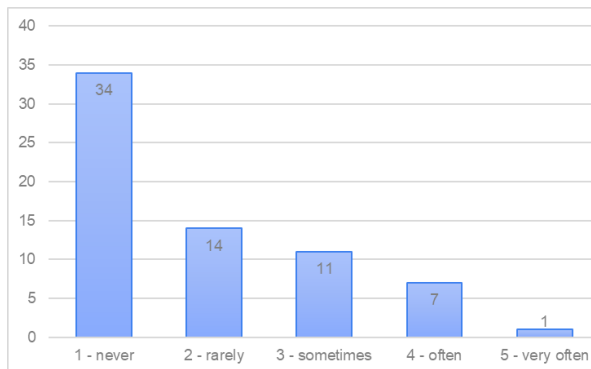


Figure 32. Frequency of using instant messengers by teachers during remote classes
Source: own elaboration based on empirical research.

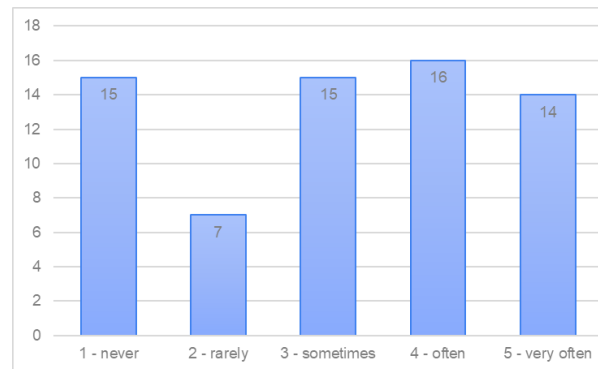


Figure 33. The frequency of using YouTube by teachers during remote classes
Source: own elaboration based on empirical research.

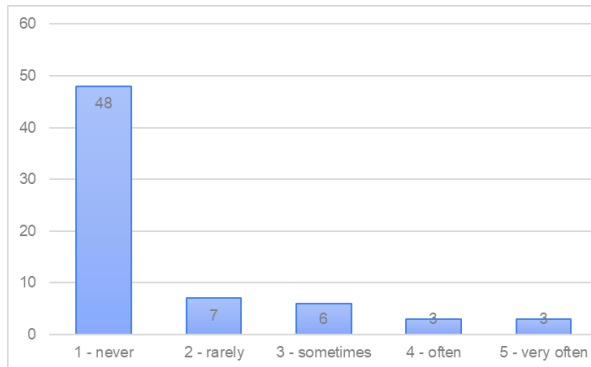


Figure 34. Frequency of using Onedrive by teachers during remote classes

Source: own elaboration based on empirical research.

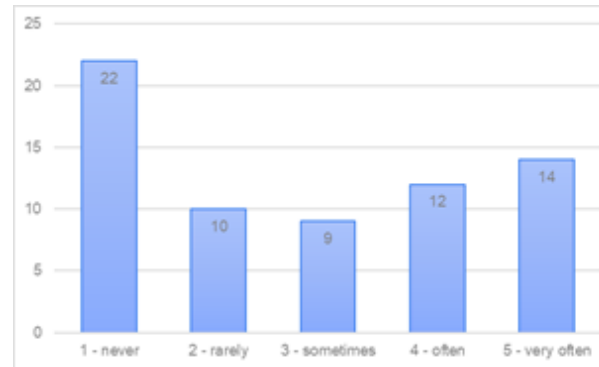


Figure 35. How often teachers use Google Drive during remote classes

Source: own elaboration based on empirical research.

The lack of need or need to store files on virtual drives is also confirmed by the answers about the use of Dropbox. As many as 54 people (81% of respondents) have never used such a possibility on the indicated disk, 12 people (18% of respondents) indicated that they did it very rarely, and 1 person - that sometimes - Figure 36.

A relatively large group of teachers used e-journals in the didactic process during remote classes. Very frequent use of this tool was confirmed by 39 people (58% of respondents). However, 17 people (25% of the respondents) indicated that they had never used an e-dziennik - Figure 37. However, it is a tool used in Poland in primary, middle, and high schools, but not in higher education. Therefore, some of the respondents could naturally have never encountered this tool and had no access to it.

Few people used the Cisco Webex package to conduct remote classes. As many as 59 people (88% of respondents) indicated that they never used this tool, and 7 people (10% of respondents) indicated that they rarely used it - Figure 38. A similar distribution of answers is in the case of ClickMeeting. This platform allows you to conduct webinars (product presentations, training, online courses), business meetings, and video conferences, operating using a web browser. However, as many as 55 people (82% of respondents) indicated that they had never used it during online classes. 9 people (13% of respondents) indicated that they used this platform, but rarely, 2 people – sometimes, and only 1 person - often - Figure 39.

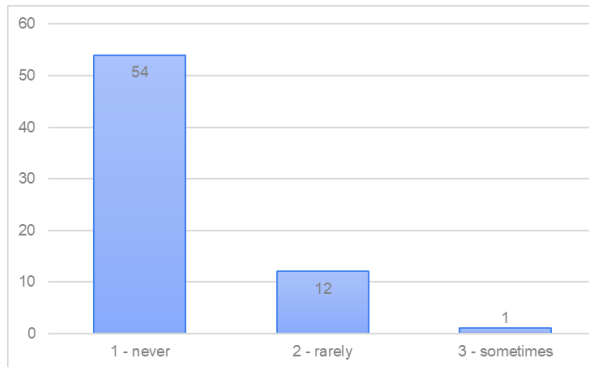


Figure 36. How often teachers use Dropbox during remote classes

Source: own elaboration based on empirical research.

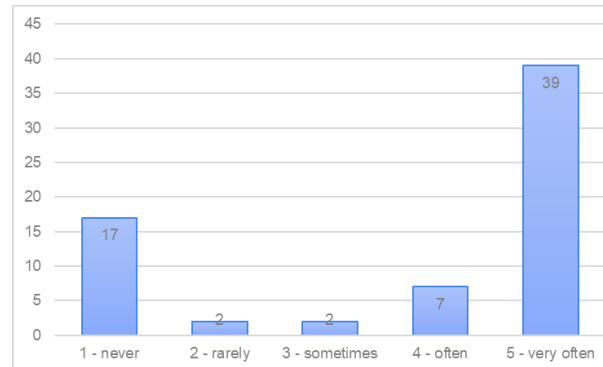


Figure 37. Frequency of using the e-dziennik by teachers during remote classes

Source: own elaboration based on empirical research.

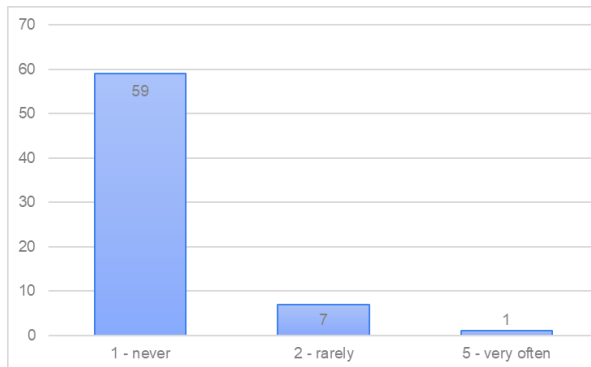


Figure 38. Frequency of using Cisco Webex by teachers during remote classes

Source: own elaboration based on empirical research.

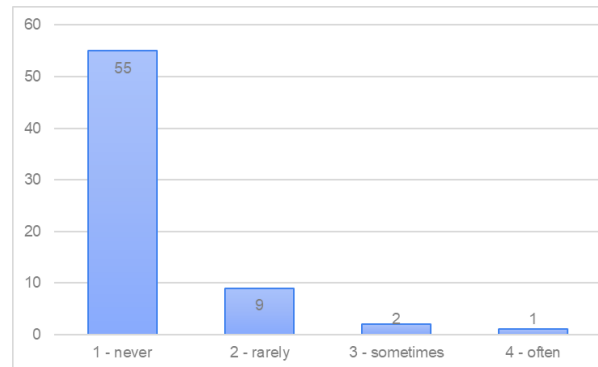


Figure 39. The frequency of using ClickMeeting by teachers during remote classes

Source: own elaboration based on empirical research.

The respondents added the website ninateka.pl to the tools used by teachers / academic lecturers that were not listed in the questionnaire. And in response to the question: "Would they like to supplement lessons with new technologies and digital platforms, and if so, which ones?" others structure in the form of a tree (sections, lessons, surveys, tests, etc.), calendar, internal messages (communication module in general), discussion forum, an ergonomic and clear module for creating an online course for both the student and the teacher, and for the need for short videos with scenes and dialogues.

The results obtained in the group of teachers and academic lecturers are confirmed by the answers of pupils and students. 416 people (84% of respondents) have never met or used Skype during remote classes. 41 people (8% of respondents) used it, but rarely. 25 people (5% of respondents) sometimes used Skype during distance learning - Figure 40. Discord was used slightly more often. Very frequent use of this software was indicated by 60 people (12% of respondents), and 18 people (4% of respondents) used it often. However, as many as 260 people (53% of respondents) have never used this tool during remote classes - Figure 41.

According to pupils and students, messengers such as Messenger, WhatsApp, and Facebook were used more often. It was used very often and often by 52 people (11% of respondents each). Sometimes they were used by 79 people (16% of the respondents), and rarely - 77 people (16% of the respondents). 235 people (47% of respondents) never used this form of communication - Figure 42. The TeamSpeak3 communicator was hardly used during remote classes. As many as 444 people (90% of respondents) never used this tool during remote



learning, only 13 people (3% of respondents) used this messenger rarely, and 24 people (5% of respondents) - sometimes - Figure 43.

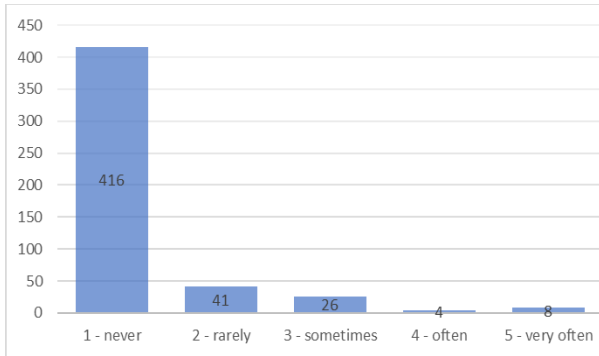


Figure 40. Frequency of using Skype by pupils / students during remote classes

Source: own elaboration based on empirical research.

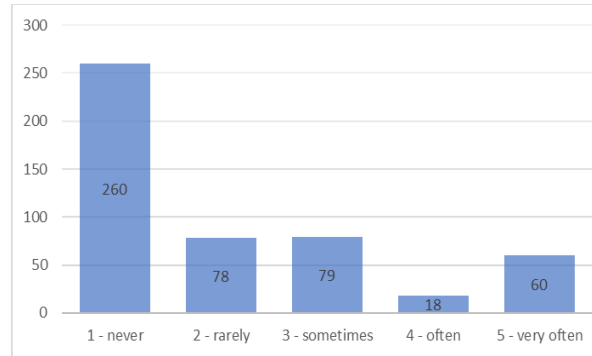


Figure 41. Frequency of using Discord by pupils / students during remote classes

Source: own elaboration based on empirical research.

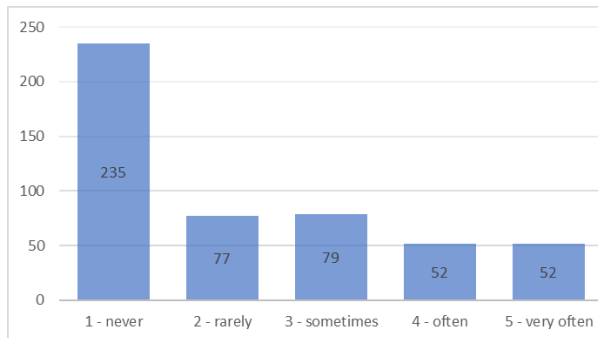


Figure 42. Frequency of using Facebook / Messenger / WhatsApp by students during remote classes

Source: own elaboration based on empirical research.

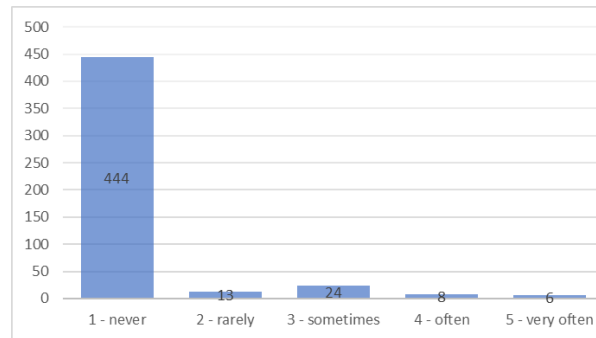


Figure 43. Frequency of using TeamSpeak3 by pupils / students during remote classes

Source: own elaboration based on empirical research.

Ms Teams was very popular among pupils and students. Very frequent use of this communicator was indicated by 249 people (50% of the respondents), and 26 people (5% of the respondents) used Ms Teams frequently during remote classes. It was not a mandatory tool for the surveyed group, because as many as 152 people (31% of the respondents) never used this messenger, 23 people (5% of the respondents) used it rarely, and 45 people (9% of the respondents) - sometimes - Figure 44 .

However, Zoom was used a little less frequently. Only 74 people (15% of respondents) indicated that they used it very often during remote classes, and 64 people (13% of respondents) - often. A large group used this communicator sometimes, as many as 107 people (22% of respondents). However, as many as 185 people (37% of the respondents) never used this tool, and 65 people (13% of the respondents) rarely used it - Figure 45.

Tools offered by Google, such as Google Classroom and Google Meet, enjoyed relatively high popularity, which is consistent with the responses of teachers and academic lecturers. As many as 180 people (36% of respondents) indicated that they used them very often, and 37 people (7% of respondents) - often. However, a similar group of respondents never used these tools - 187 people (38% of respondents) - Figure 46. The Moodle e-learning platform was rarely used. As many as 382 people (77% of respondents) never used it during remote classes, 35 people (7% of respondents) used it, but rarely, and 48 people (10% of respondents) used it sometimes - Figure 47.

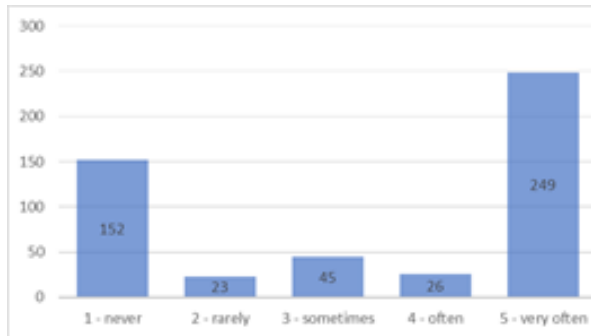


Figure 44. Frequency of using Microsoft Teams by students during remote classes

Source: own elaboration based on empirical research.

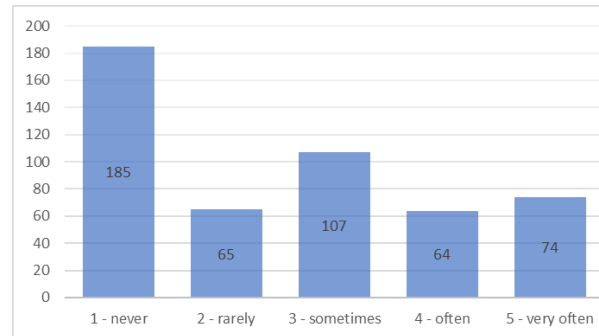


Figure 45. Frequency of using Zoom by pupils / students during remote classes

Source: own elaboration based on empirical research.

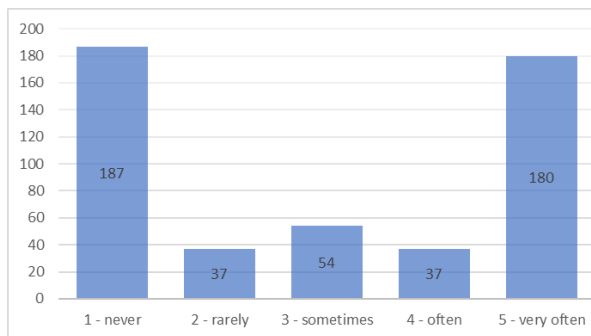


Figure 46. The frequency of using Google Classroom / Google Meet by pupils / students during remote classes

Source: own elaboration based on empirical research.

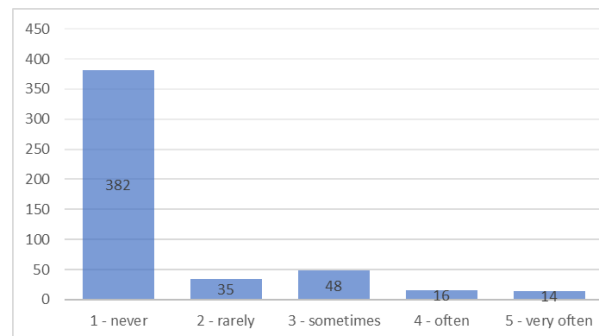


Figure 47. Frequency of using Moodle by students during remote classes

Source: own elaboration based on empirical research.

Few pupils and students used YouTube during remote classes. As many as 212 people (43% of respondents) have never used it during online classes, 78 people (16% of respondents) rarely used it, and 95 people (19% of respondents) - sometimes. 53 people (11% of the respondents) indicated very frequent use of this website, and 57 people (12% of the respondents) indicated frequent use of this website – Figure 48.

Students and pupils - just like teachers - confirm little interest in storing files on virtual drives. 343 people (69% of respondents) never used OneDrive during remote classes, and 45 people (9% of respondents) rarely used it. Only 17 people (3% of respondents) used the possibilities offered by OneDrive very often, and 33 people (7% of respondents) - often - Figure 49. Similarly, Google Drive was rarely used. As many as 220 people (44% of respondents) have never used the space offered by Google Drive, and 64 people (13% of respondents) rarely used



it. Only 53 people (11% of respondents) used this service very often, and 68 people (14% of respondents) - often - Figure 50. DropBox is the least popular. As many as 450 people (91% of respondents) have never used this drive to store files - Figure 51.

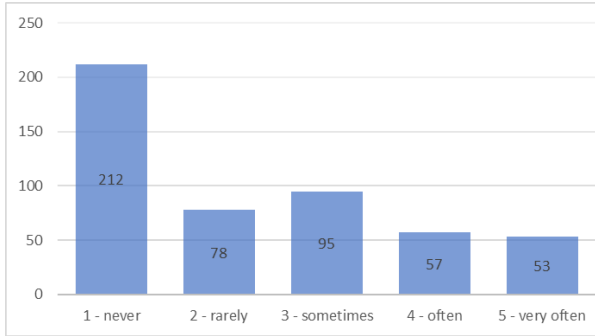


Figure 48. Frequency of using YouTube by pupils / students during remote classes

Source: own elaboration based on empirical research.

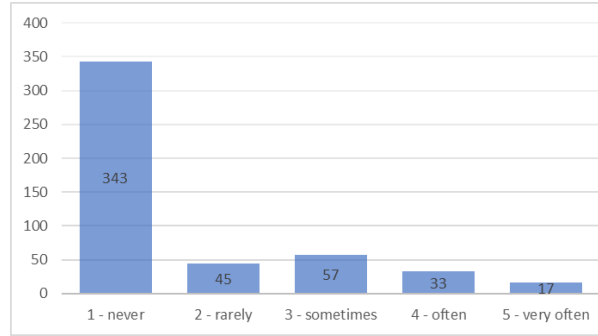


Figure 49. Frequency of using OneDrive by pupils / students during remote classes

Source: own elaboration based on empirical research.

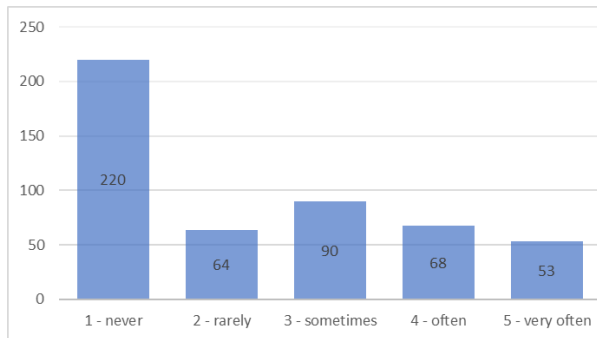


Figure 50. The frequency of using Google Drive by pupils / students during remote classes

Source: own elaboration based on empirical research.

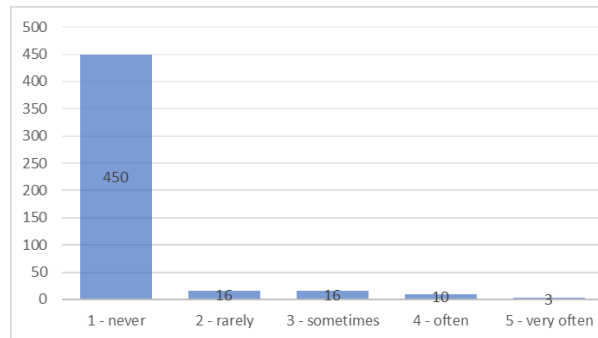


Figure 51. The frequency of using DropBox by pupils / students during remote classes

Source: own elaboration based on empirical research.

Some respondents indicated the use of an e-dziennik. Very frequent use of this tool during remote learning was indicated by 159 people (32% of the respondents), and the e-journal was often used by 69 people (14% of the respondents). 83 people (16% of respondents) used this tool sometimes, 40 people (8% of respondents) - rarely, and 144 people (29% of respondents) never used the e-journal during remote classes - Figure 52.

The vast majority have never used Cisco Webex. This answer was given by 451 people (91% of the respondents) - Figure 53. Similarly, the ClickMeeting platform was rarely used. As many as 456 people (92% of respondents) have never used it during remote classes - Figure 54. Few people also indicated that they used other communication tools. 381 people (77% of respondents) indicated that they did not use other tools apart from those already mentioned - Figure 55.

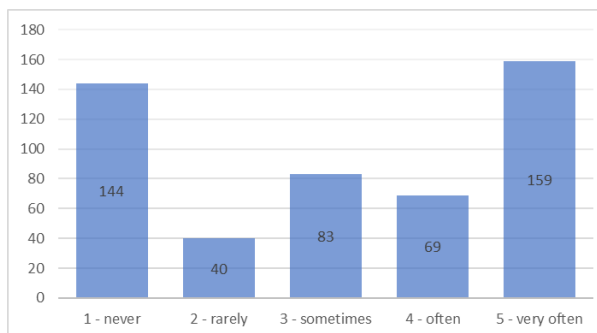


Figure 52. Frequency of using the e-journal by pupils / students during remote classes

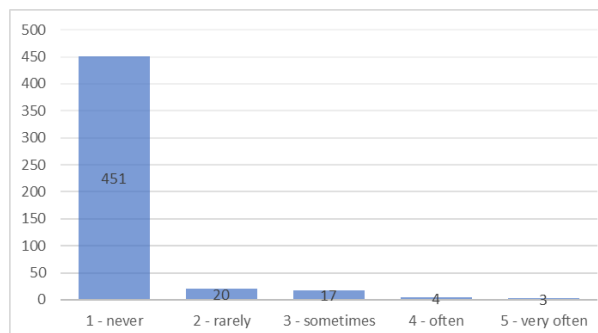


Figure 53. Frequency of using Cisco Webex by students during remote classes



Source: own elaboration based on empirical research.

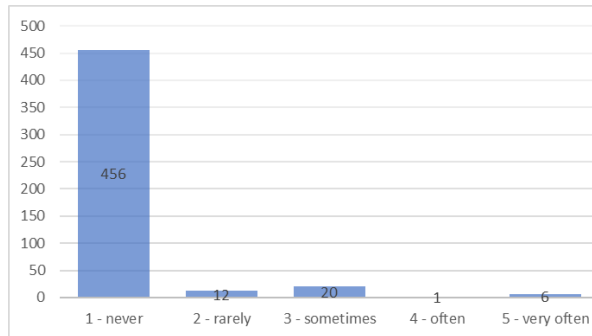


Figure 54. Frequency of using ClickMeeting by students during remote classes

Source: own elaboration based on empirical research.

Source: own elaboration based on empirical research.

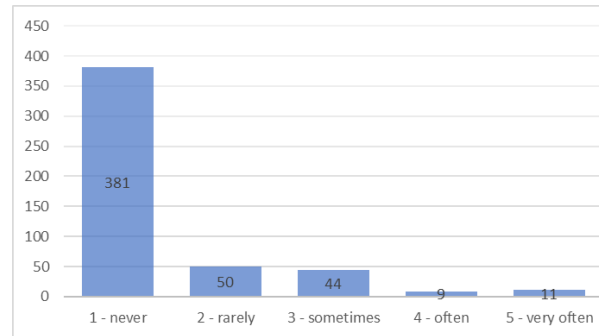


Figure 55. Frequency of using other communicators by pupils / students during remote classes

Source: own elaboration based on empirical research.

3.4. Technical devices used in the distance learning process

In the remote education process, some teachers and academic lecturers used a desktop computer. Continuous use of a desktop computer was indicated by 17 people (25% of respondents), and frequent use by 14 people (21% of respondents). 8 people (12% of respondents) used a desktop computer during remote classes sometimes, and 4 people (6% of respondents) rarely. 24 people (36% of respondents) never used a desktop computer during remote classes - Figure 56.

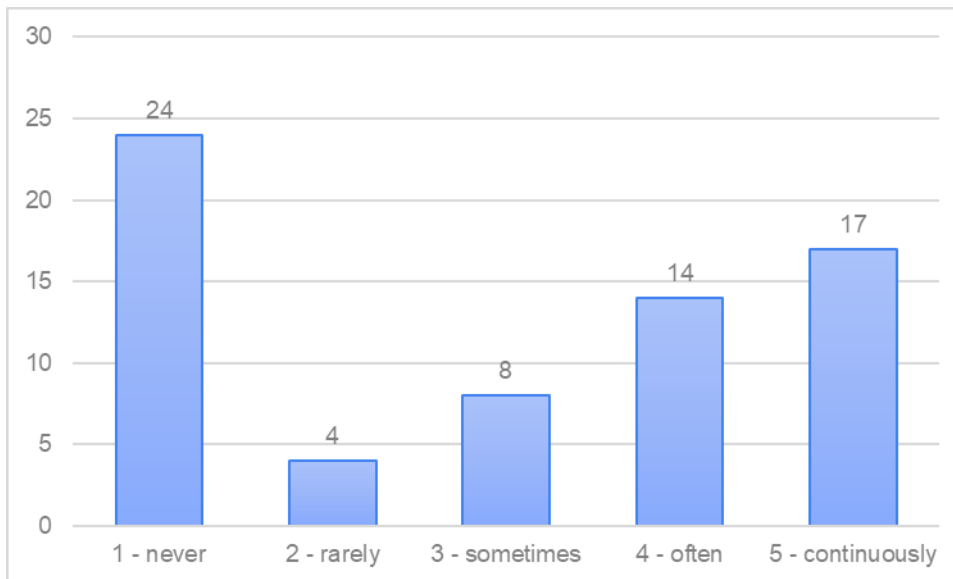


Figure 56. Frequency of using a desktop computer by teachers during remote classes
Source: own elaboration based on empirical research.

A definitely larger number of teachers and academic lecturers used a laptop during remote classes. The continuous use of a laptop was indicated by 49 people (73% of the respondents), and 8 people (12% of the respondents) indicated that they used the laptop often during remote classes. Only 2 people (3% of respondents) never used a laptop during remote classes, rarely - 1 person, and sometimes 7 people (10% of respondents) - Figure 57.

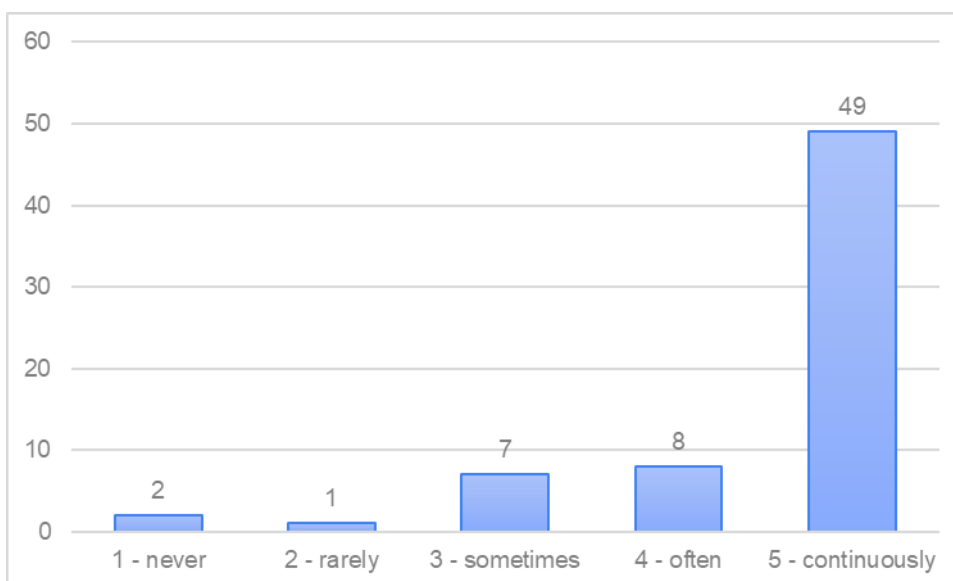




Figure 57. Frequency of using laptops by teachers during remote classes

Source: own elaboration based on empirical research.

Relatively few people, compared to previous answers, used a smartphone during remote classes. Only 8 people (12% of respondents) pointed to the continuous use of a smartphone in the didactic process carried out remotely, and 14 people (21% of respondents) used a smartphone often. For a significant part of the respondents, however, it was only an additional tool. 20 people (30% of the respondents) used the smartphone as a tool for remote classes sometimes, 9 people (13% of the respondents) used it rarely, and 16 people (24% of the respondents) did not use it at all - Figure 58.

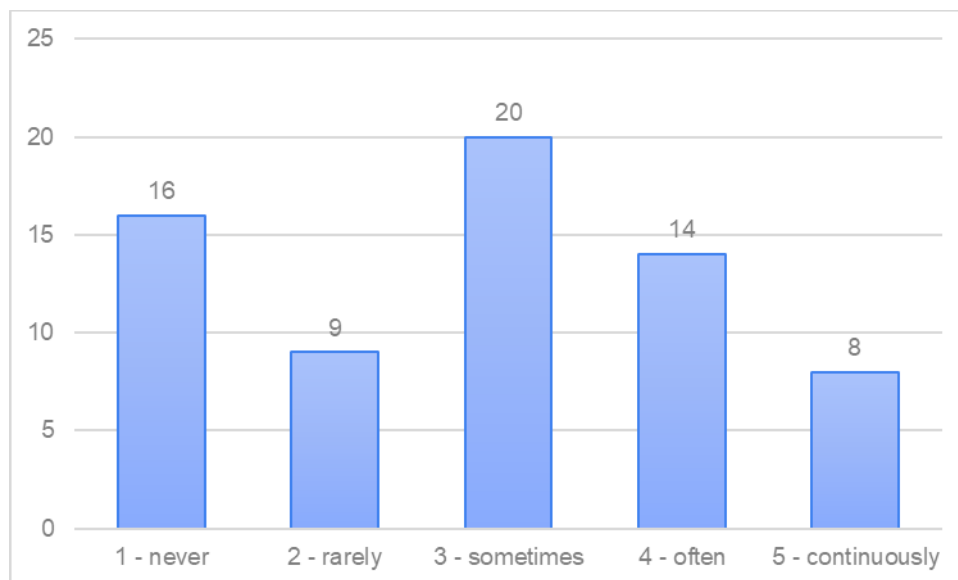


Figure 58. Frequency of using smartphones by teachers during remote classes

Source: own elaboration based on empirical research.

A definitely unpopular tool when it comes to using it in the remote learning process is the tablet. As many as 39 people (58% of respondents) have never used a tablet during remote lessons, 6 people (9% of respondents) rarely used a tablet, 11 people (16% of respondents) - sometimes. However, 7 people indicated that they used the tablet very often, and 4 people (6% of the respondents) - often - Figure 59.

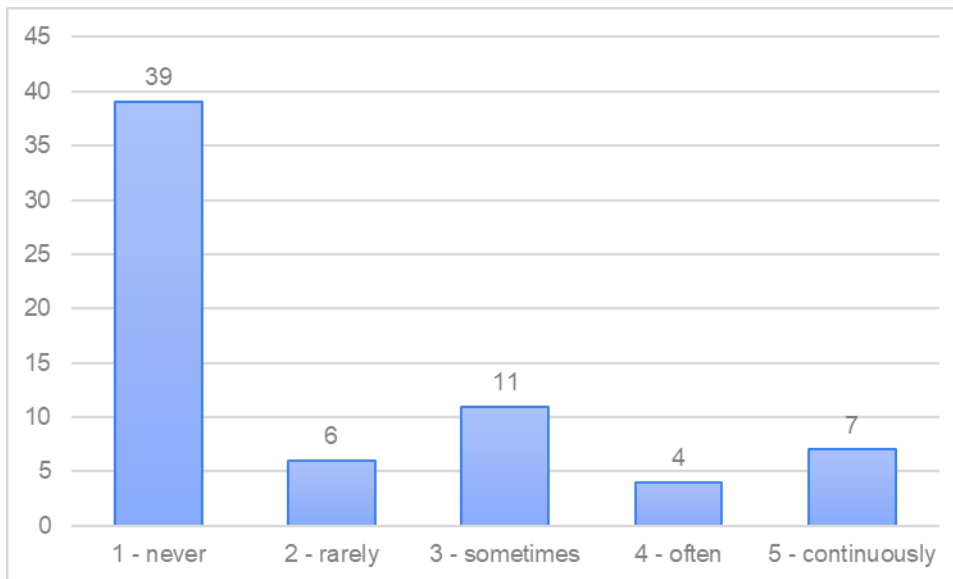


Figure 59. The frequency of teachers using a tablet during remote classes

Source: own elaboration based on empirical research.

Teachers and academic lecturers, as in traditional education, used other devices during remote classes, such as a printer or scanner. The continuous use of such devices was indicated by 16 people (24% of respondents) and the same number indicated that they used such devices often. Sometimes additional devices were used by 10 people (15% of respondents), and rarely - 5 people (7% of respondents). 20 people (30% of respondents) have never used additional devices - Figure 60.

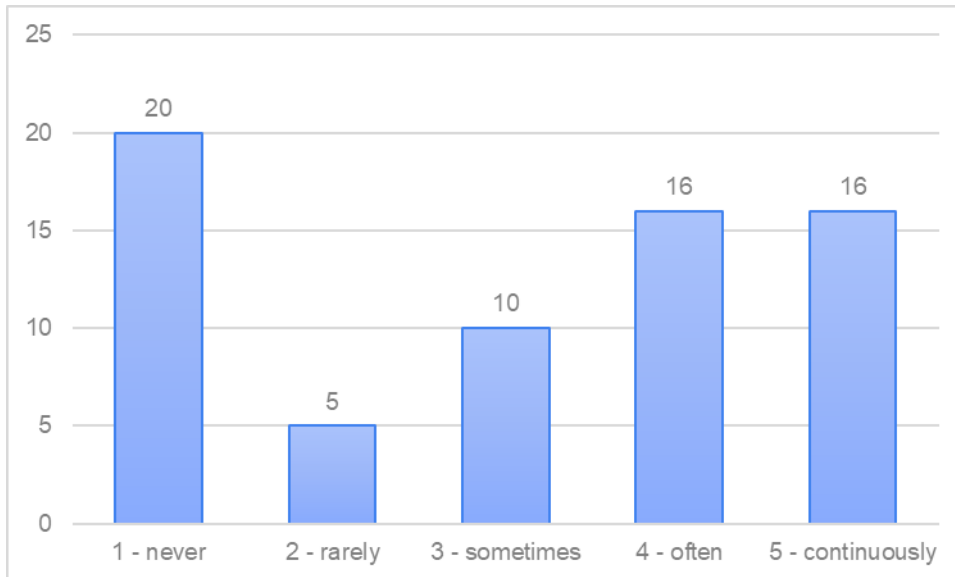


Figure 60. Frequency of using other devices (e.g. printer, scanner) by teachers during remote classes

Source: own elaboration based on empirical research.

Similarly, students and schoolchildren used technical devices in the remote education process. A relatively large group of 185 people (37% of the respondents) used a desktop computer very often in online lessons, but almost the same group of 188 people (38% of the respondents) indicated that they never used a desktop computer during remote classes - Figure 61.

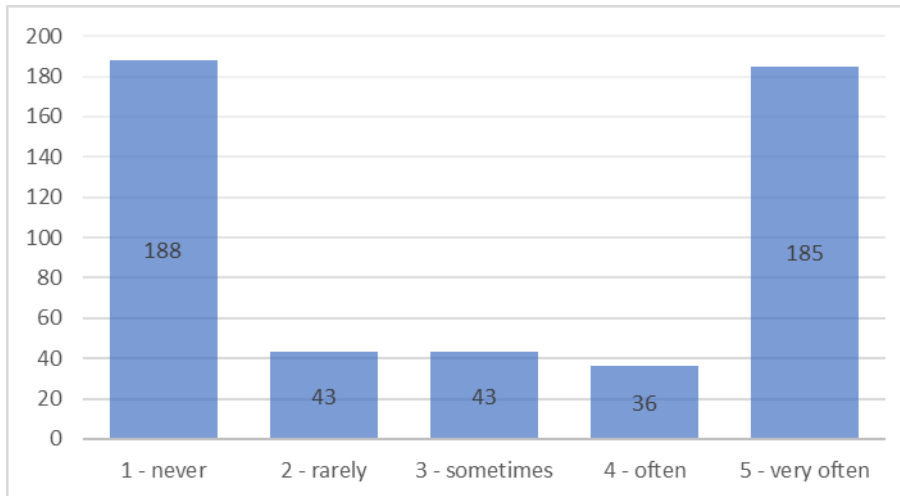


Figure 61. Frequency of using a desktop computer by students during distance learning
Source: own elaboration based on empirical research.

The laptop was a bit more popular. As many as 225 people (45% of respondents) used it in remote education very often, and 61 people (12% of respondents) - often. Sometimes the laptop was used by 54 people (11% of the respondents) and rarely - 41 people (8% of the respondents). 114 people (23% of respondents) never used a laptop during remote classes - Figure 62.

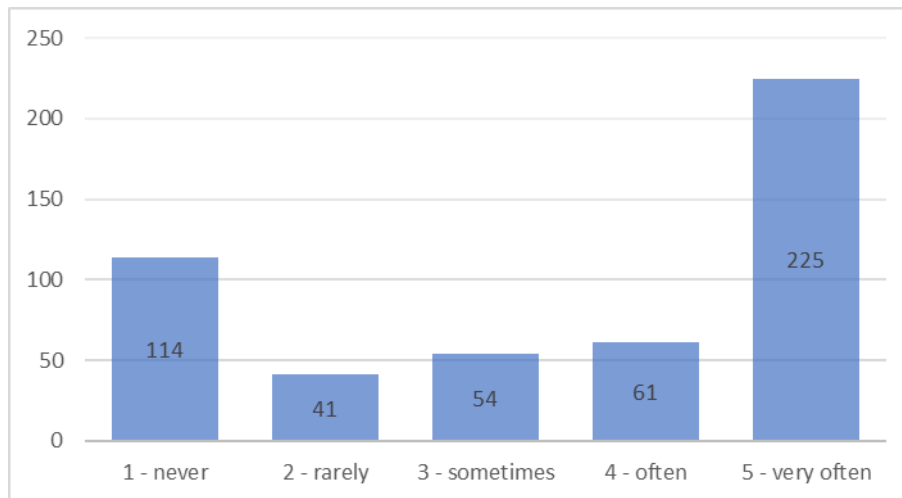


Figure 62. Frequency of using a laptop computer by students during distance learning
Source: own elaboration based on empirical research.

A large part of the respondents in this group indicated the use of a smartphone during remote lessons. 209 people (42% of the respondents) used the smartphone very often, and 96 people (19% of the respondents) often used it. As many as 115 people (23% of respondents) indicated that they used a smartphone sometimes. Only 30 people (6% of the respondents) have never used a smartphone - Figure 63.

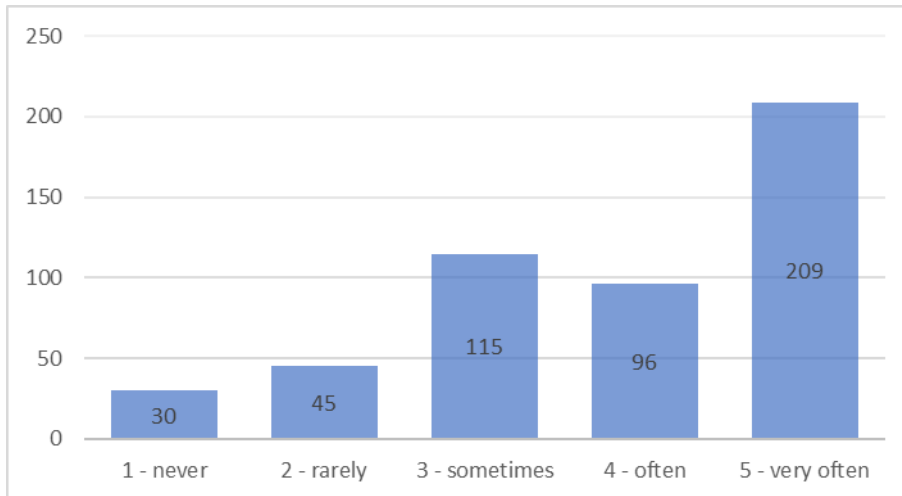


Figure 63. Frequency of using a smartphone by students during distance learning

Source: own elaboration based on empirical research.

The surveyed students and pupils, similarly to teachers, did not use a tablet during remote classes. As many as 389 people (79% of respondents) have never used a tablet during remote classes, rarely - 35 people (7% of respondents), and sometimes 38 people (8% of respondents). Only 15 people (3% of the respondents) used the tablet continuously, and often only 18 people (4% of the respondents) - Figure 64.

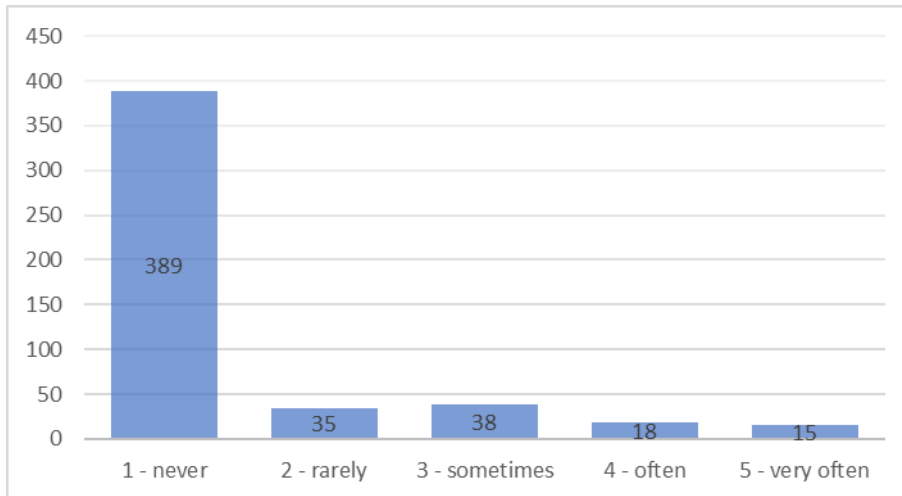


Figure 64. The frequency of using a tablet by students during distance learning

Source: own elaboration based on empirical research.

However, they used other devices, such as a printer or scanner, much less often. 174 pupils and students (35% of students) have never used such devices during online classes. Such devices were rarely used by 62 people (13% of respondents), and sometimes 119 people (24% of respondents). 70 people (14% of respondents each) indicated very frequent and frequent use of the indicated devices - Figure 65.

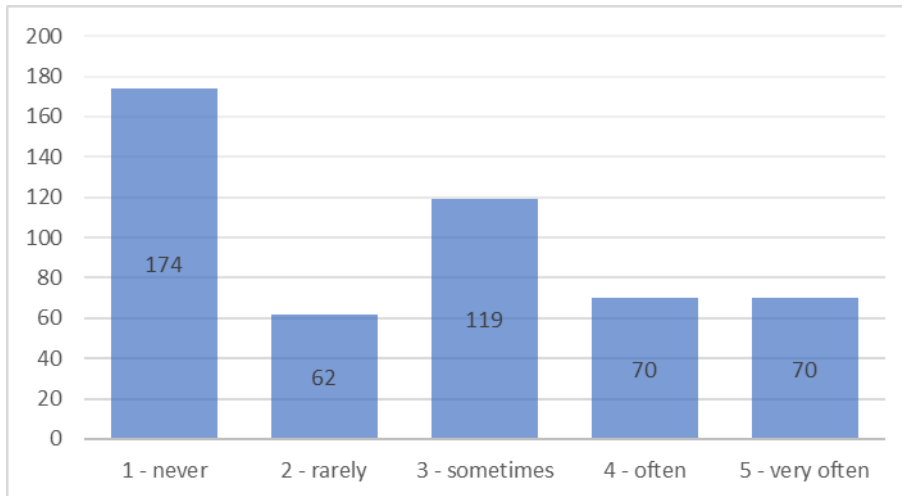


Figure 65. Frequency of using other devices (e.g. printer/scanner) by students during distance learning

Source: own elaboration based on empirical research.

3.5. Technical and non-technical support from schools/universities during distance learning

The vast majority of teachers have never used technical equipment owned by schools/universities. As many as 24 people (36% of respondents) have never used such equipment, rarely - 12 people (18% of respondents), and sometimes - 14 people (21% of respondents). Only 10 people (15% of the respondents) indicated the continuous use of the equipment provided by the school/university, and 7 people (10% of the respondents) indicated that they used the equipment of the school/university often - Figure 66.

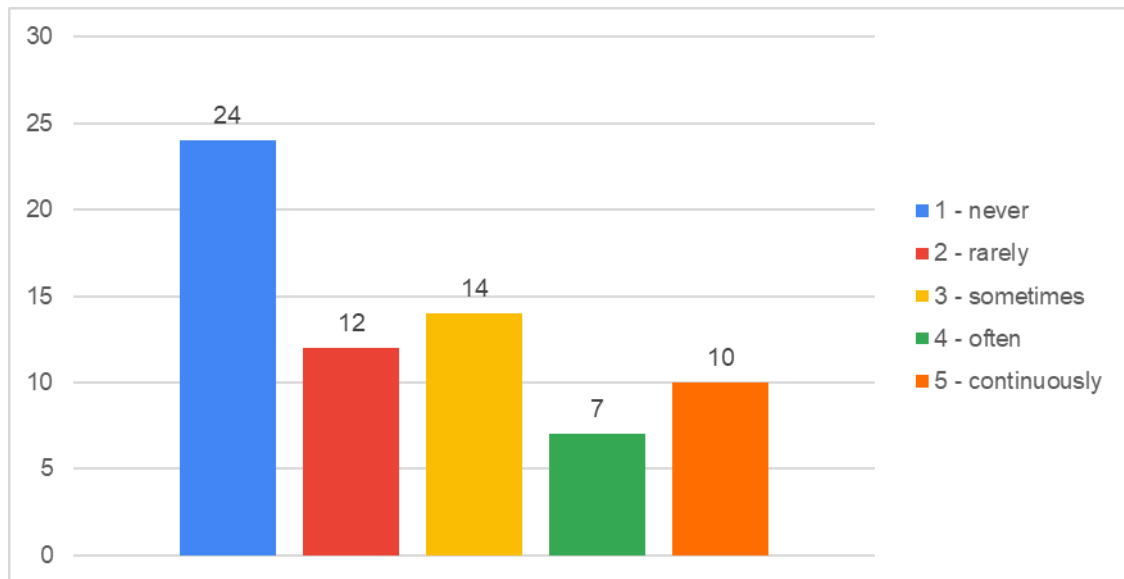


Figure 66. Frequency of using school technical devices by teachers during distance learning

Source: own elaboration based on empirical research.

The vast majority of responding teachers/academic lecturers used their own equipment. The continuous use of private devices during remote learning was indicated by 53 people (79% of respondents). Often private devices were used by 10 people (15% of respondents). However, in the surveyed group some people indicated that they used private equipment sometimes - 3 people (4% of the respondents) or rarely - 1 person. None of the respondents indicated that they had never used private equipment during distance learning - Figure 67.

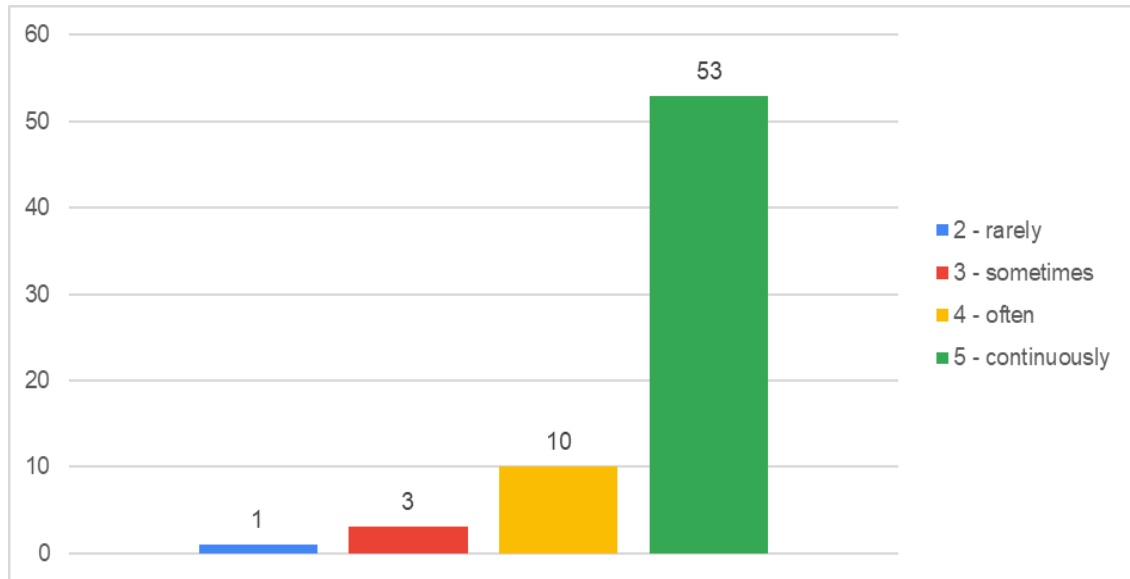


Figure 67. Frequency of using private technical devices by teachers during distance learning

Source: own elaboration based on empirical research.

The vast majority of the surveyed teachers/academic lecturers positively assess the available equipment. As many as 30 people (45% of respondents) answered that the condition of technical devices was very good, and 26 people (39% of respondents) that it was good. Only 9 people (13% of respondents) indicated that the technical equipment they used during remote classes was average, and 2 people (3% of respondents) indicated that its condition was below average - Figure 68.

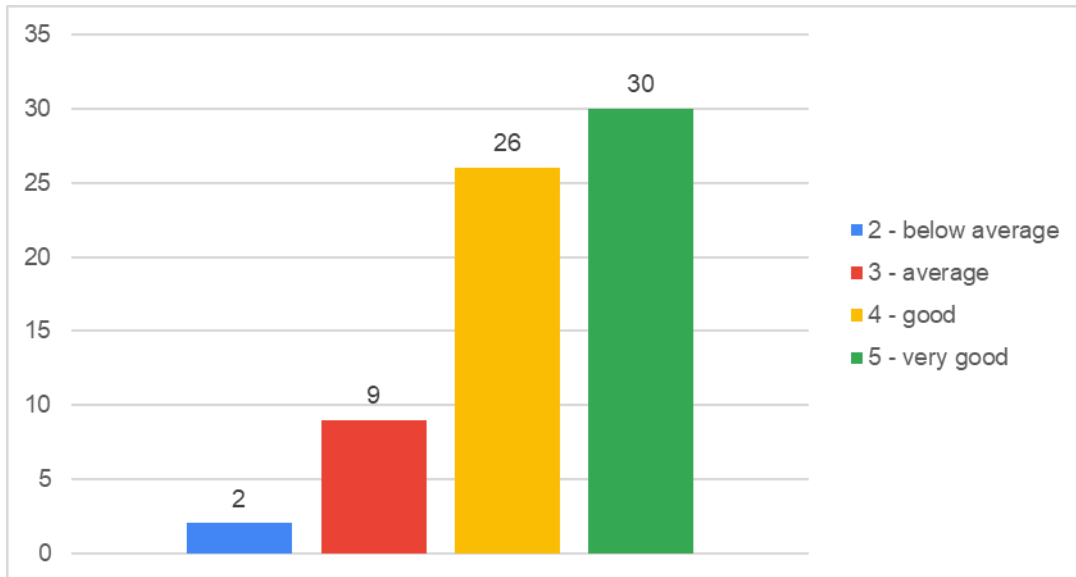


Figure 68. Teachers' assessment of available technical equipment (computer, laptop, tablet, smartphone)

Source: own elaboration based on empirical research.

The surveyed teachers/academic lecturers rated the speed of the Internet connection slightly worse. Only 20 people (30% of the respondents) rated it as very good, and the majority - 33 people (49% of the respondents) indicated that it was simply good. For 11 people (16% of the respondents) it was average, for 2 people (3% of the respondents) below average, and for 1 person - insufficient - Figure 69.

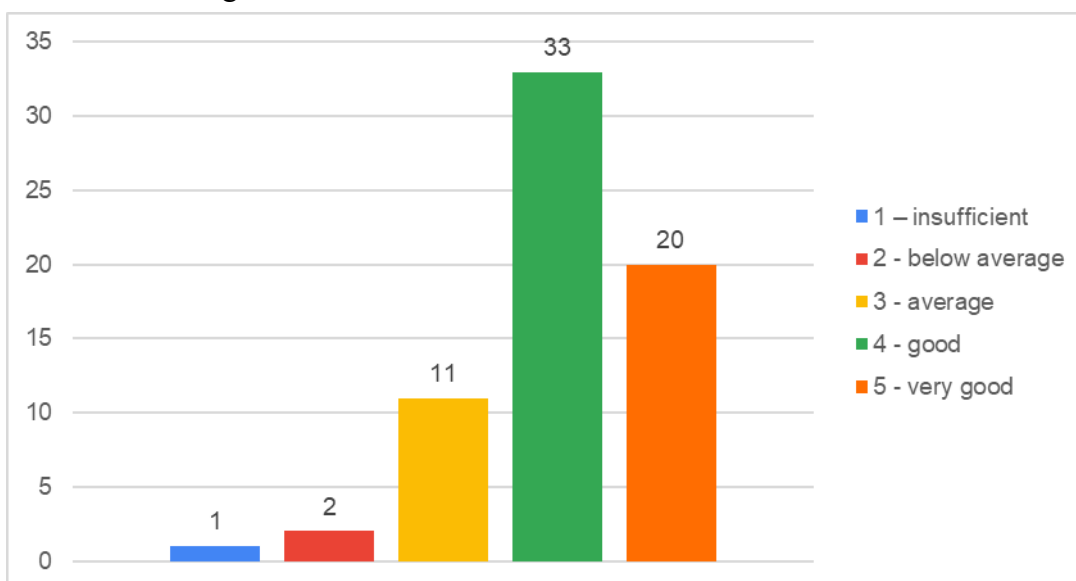




Figure 69. Teachers' assessment of the available Internet connection speed

Source: own elaboration based on empirical research.

Similarly, the stability of the Internet connection was assessed. 20 people (30% of respondents) had a very stable Internet connection. The majority of respondents in this group - 33 people (49% of respondents) indicated that it was simply good, i.e. stable. For 12 people (18% of the respondents), the stability of the Internet connection was only average and 1 person indicated that it was below average or insufficient - Figure 70.

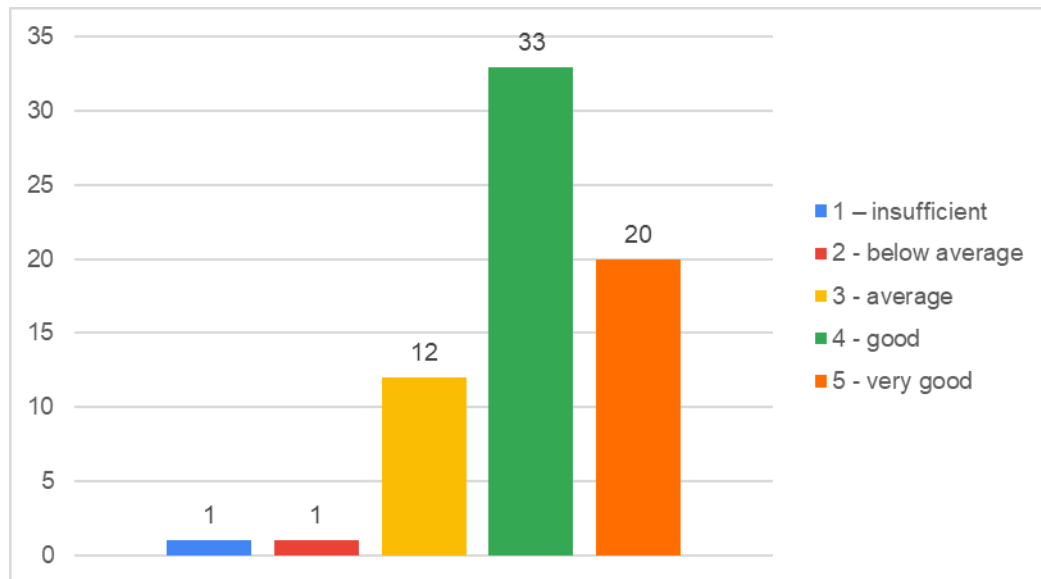


Figure 70. Teachers' assessment of the stability of the available Internet connection

Source: own elaboration based on empirical research.

The surveyed teachers/academic lecturers rated their hardware and software skills relatively highly. As many as 24 people (36% of respondents) believe that they are very good, and 36 people (54% of respondents) that they are good. Only 7 people (10% of the respondents) believe that they are at an average level - Figure 71. None of the respondents assessed their hardware and software skills as lower than average or insufficient.

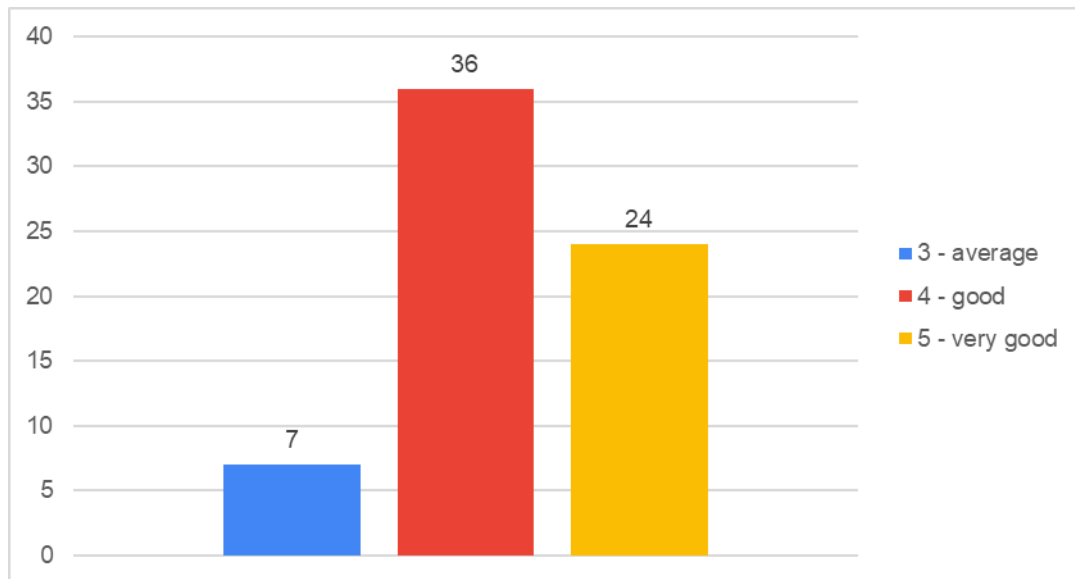


Figure 71. Teachers' assessment of their hardware and software skills

Source: own elaboration based on empirical research.

As for the expected support from schools/universities, formulated by teachers and academic lecturers, according to the respondents, the best support for teachers in online teaching would be websites with useful resources - such an answer was given by 47 people (70% of respondents), more free resources and tools from companies dealing with educational technology - such a suggestion was made by 45 people (67% of respondents), the possibility of quick cooperation with technical support (IT specialist) - this answer was indicated by 29 people (43% of respondents) and webinars and TechMeets for teachers to share ideas and challenges - such support was indicated by 26 people (39% of respondents). The surveyed group also pointed to fast online learning courses, i.e. support for their professional development - such an opinion was shared by 24 people (36% of the respondents) and video recordings - the answer indicated by 23 people (34% of the respondents) - Figure 72.

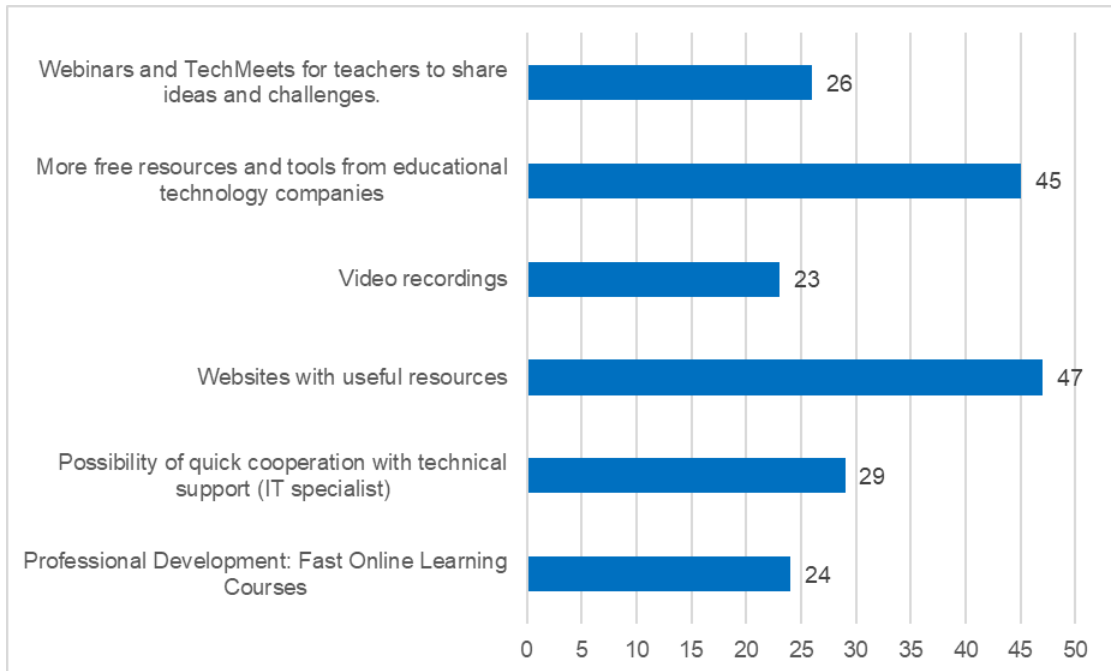


Figure 72. The best support for lecturers in the online learning process indicated by teachers

Source: own elaboration based on empirical research.

The assessment of the support offered by schools/universities for pupils and students is slightly worse. Only 166 people (34% of the respondents) answered that their school/university offered the possibility of renting IT equipment for online classes. In the case of 53 people (11% of the respondents), such support was offered, but in the opinion of the respondents, to an insufficient extent. 42 people (9% of the respondents) unequivocally answered that such support was not offered by the school/university, and 234 people (47% of the respondents) had no knowledge of this subject - Figure 73.

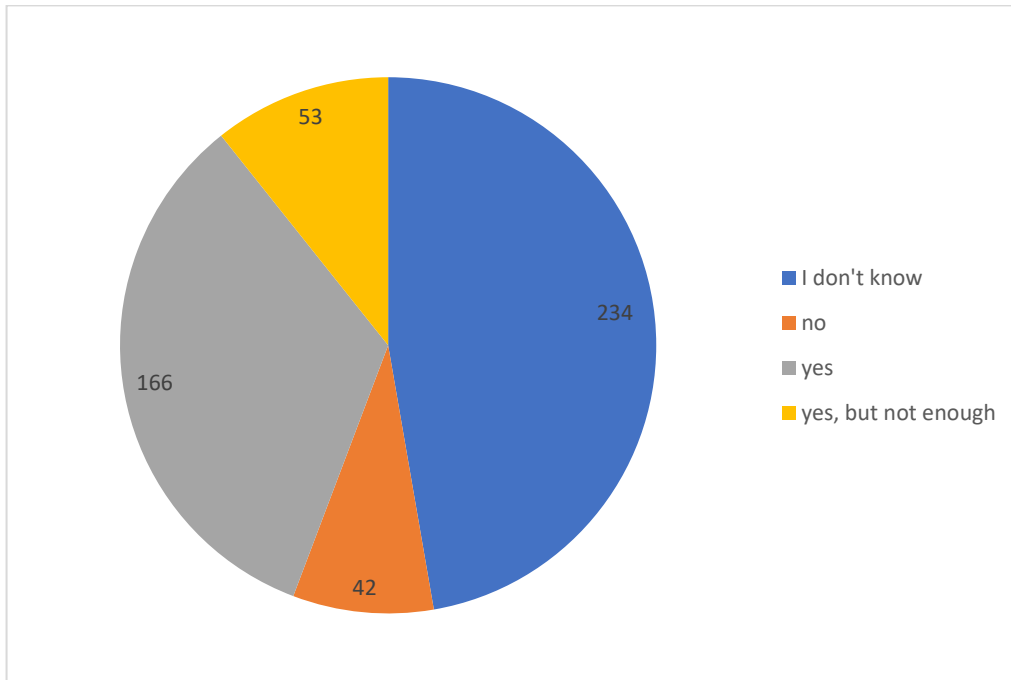


Figure 73. Pupils' and students' answers to the question "Does your school offer the possibility of renting IT equipment for online classes?"

Source: own elaboration based on empirical research.

3.6. The biggest challenges for teachers and students in the transition to online/distance learning

According to teachers and academics, the biggest challenge with the transition to distance learning was keeping students motivated and focused. This opinion was shared by as many as 56 people (84% of respondents). The following places in this group were occupied by: students' access to technology - this answer was indicated by 41 people (61% of respondents), transforming classes and content for online learning - this answer was indicated by 36 people (54% of respondents), teachers' access to technology (computers software, stable internet connection, etc.) - this problem was indicated by 34 people (51% of the respondents) and more work and stress related to working from home - this problem was also indicated by 34 people (51% of the respondents). Fewer responses were given to answers such as: time management and organization - this problem was indicated by 19 people (28% of the respondents) and the lack of pedagogical competence of teachers/lecturers in online teaching - this problem was



indicated by 15 people (22% of the respondents) - Figure 74. This group did not indicate any other problems related to the transition to distance learning.

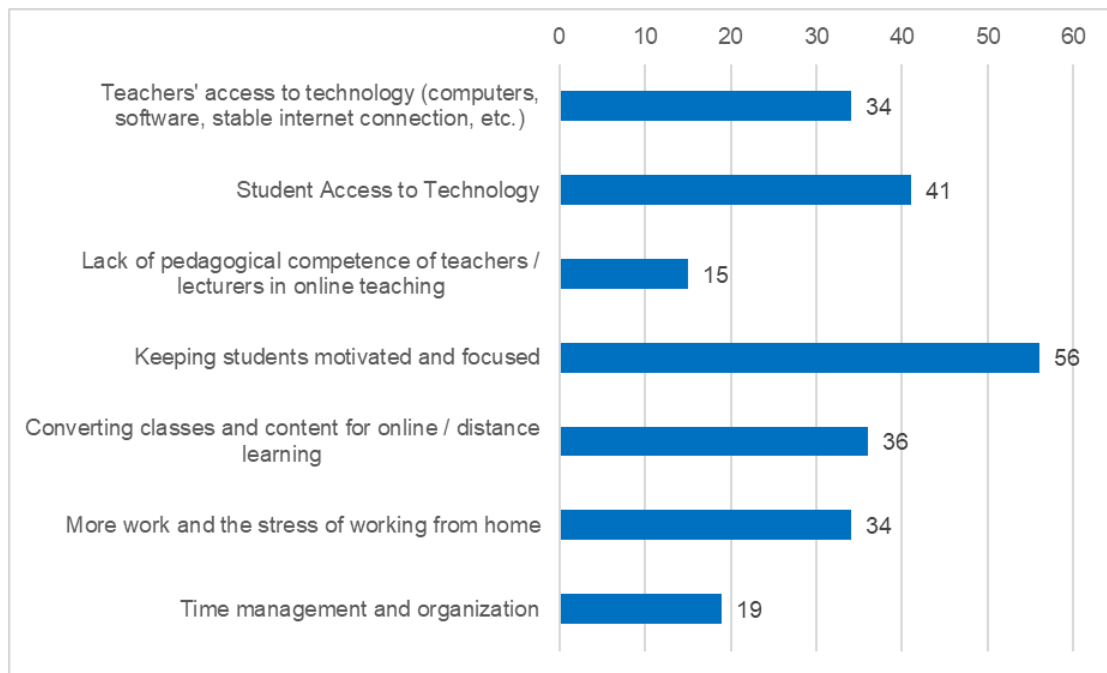


Figure 74. The biggest challenges and problems related to the transition to distance learning according to teachers

Source: own elaboration based on empirical research.

The answers obtained in the group of pupils and students are very similar. Surprisingly, this group also identified maintaining the motivation and attention of students during remote learning as the biggest problem related to the transition to remote learning - 329 people (66% of respondents) answered this question. In the next places, according to this group, were: the ability of teachers to effectively use the equipment and software used in distance learning - this is how the situation was assessed by 301 people (61% of respondents), the lack of direct interaction with other students in the class/group - this problem was indicated by 214 people (43% of respondents), teachers' access to technology (computers, software, stable Internet connection, etc.) - this problem was indicated by 212 people (43% of respondents), more work to be done independently without the help of teachers - this problem was noticed by 209 people (42% of respondents) % of respondents) and students' access to technology (computers, software, stable internet connection, etc.) - this answer was indicated by 205 people (41% of



respondents). Slightly fewer responses were given to such problems as the lack of possibility to meet/consult directly with the teacher/lecturer - this problem was indicated by 194 people (39% of respondents), transforming classes and didactic content for the purposes of distance learning - this problem was indicated by 153 people (31% of respondents)) and effective time management and organization of distance learning by the student - this was a problem for 148 people (30% of the respondents) - Figure 75.

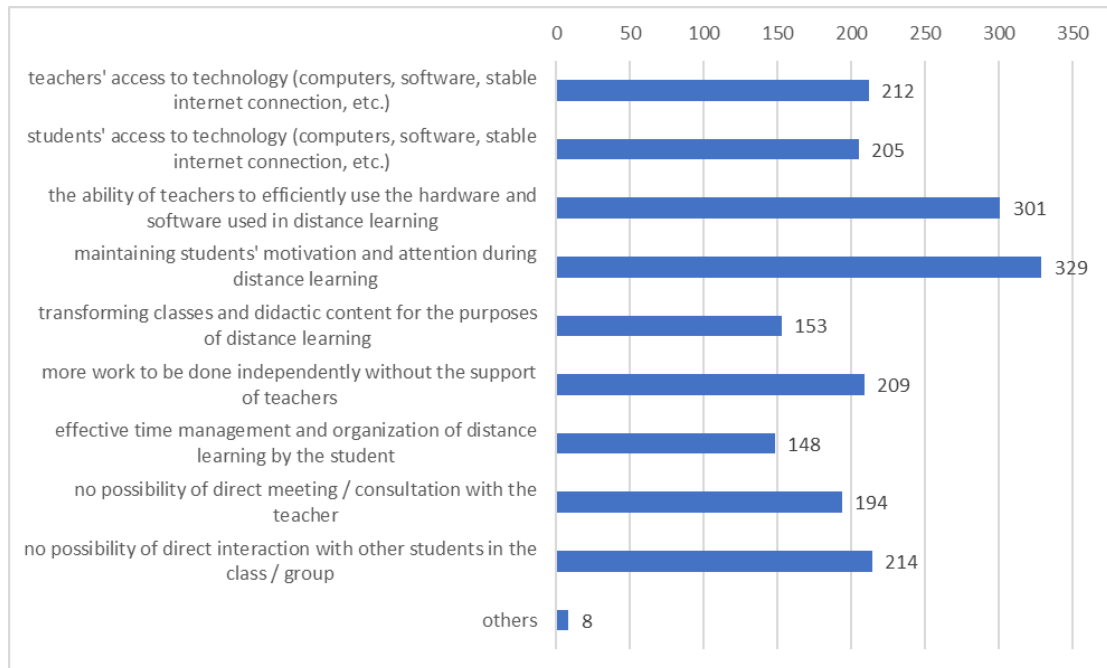


Figure 75. The biggest challenges and problems related to the transition to distance learning, according to pupils and students

Source: own elaboration based on empirical research.

In the "other" category, the respondents indicated such answers as: problems with using a computer by younger students, maintaining a constant Internet connection, problems with using computer programs by teachers, and poorly organized classes. Some respondents also indicated that there were no problems.

3.7. Ways to improve online classes according to students' opinions

Pupils and students assess the distance learning they experienced during the SARS-CoV-2 pandemic rather well. However, only 101 people (20% of respondents) rated online



classes very well, and 190 people (38% of respondents) rated them very well. 155 people (31% of respondents) assigned an average rating to online classes. Unfortunately, as many as 30 people (6% of the respondents) assessed the remote classes they were given as below average, and 19 people (4% of the respondents) assigned them the lowest rating, which would indicate an unsatisfactory level - Figure 76.

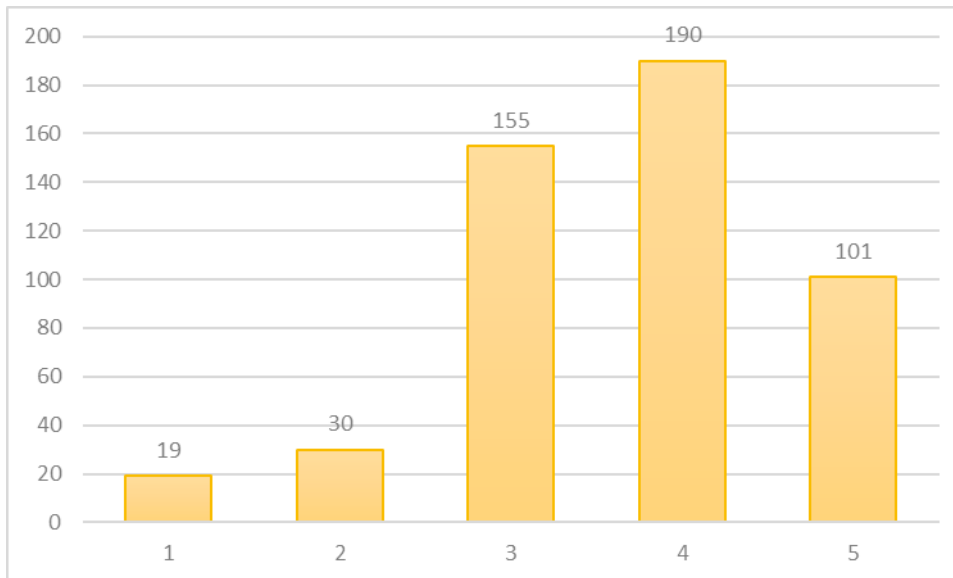


Figure 76. Evaluation of pupils and students of the distance learning level

Source: own elaboration based on empirical research.

However, respondents when asked if they know of other innovative methods that would be welcome in online teaching, most of them indicated that they did not know of such methods. Such an answer was given by 455 respondents (92% of respondents). Only 40 people (8% of the respondents) indicated that they knew additional, innovative methods that could be used during online classes - Figure 77.

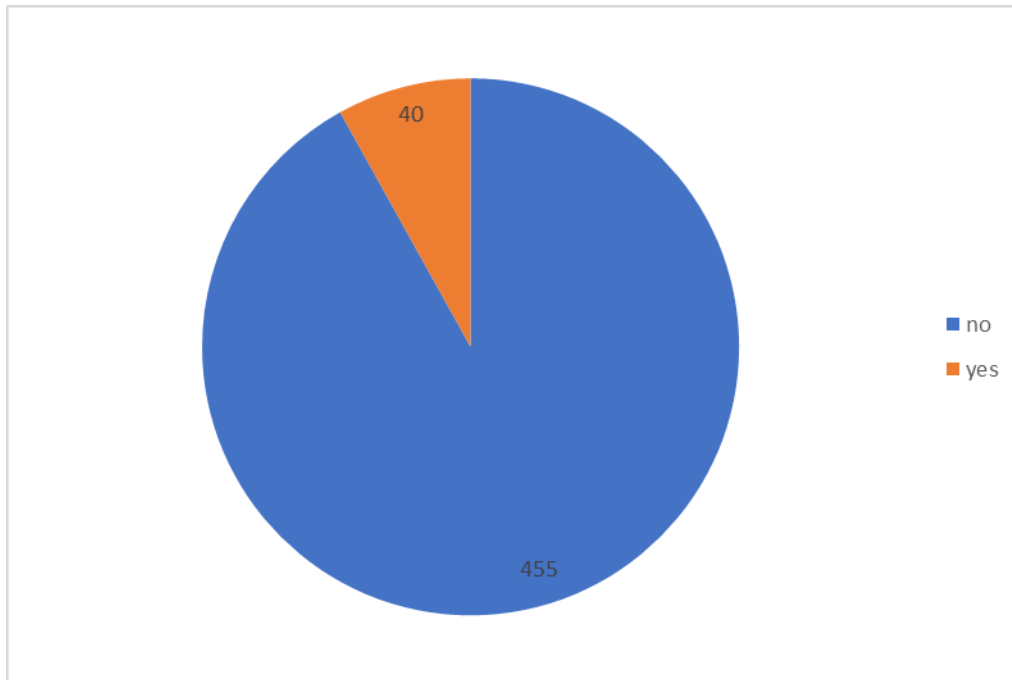


Figure 77. Students' knowledge of other innovative methods which, in their opinion, would be welcome in online teaching

Source: own elaboration based on empirical research.

Among these methods, pupils and students included:

- a) platforms for tests consolidating content from completed classes,
- b) lesson recording to be watched at any time,
- c) learning through play,
- d) class differentiation thanks to technology, applications, the Internet,
- e) other platforms, i.e. Quizlet, Kahoot! e.t.c.
- f) interactive presentations in Canva,
- g) educational games,
- h) use of an interactive board,
- i) the gboard program,
- j) e-simulators or programs where everyone could approach the subject from their perspective and understand and interpret something in their own way.

However, few students would like to supplement their classes with new technologies and digital platforms. Only 58 people (12% of respondents) gave such an answer. The rest -



437 people (88% of the respondents) clearly indicated that they would not like to do it - Figure 78.

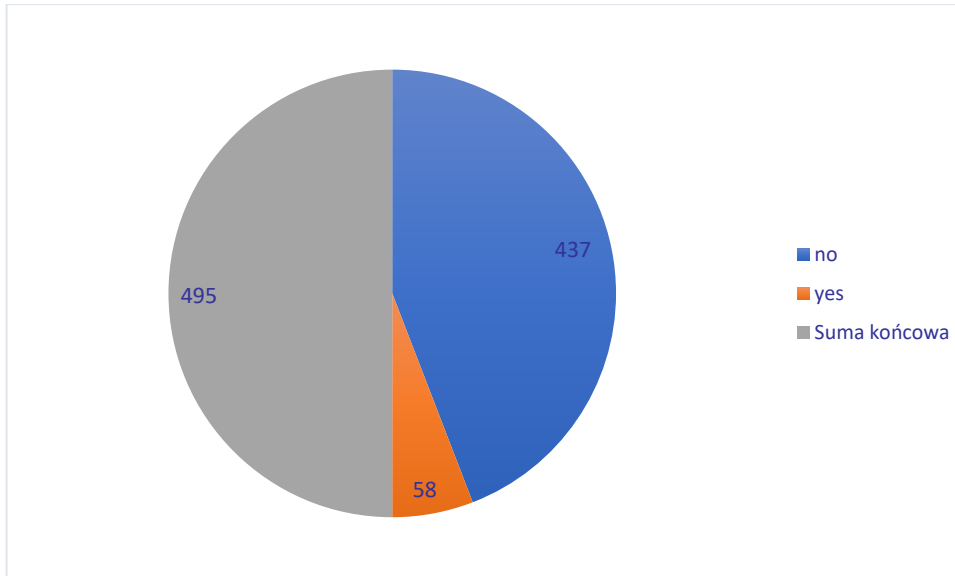


Figure 78. Pupils' and students' willingness to supplement classes with new technologies and digital platforms

Source: own elaboration based on empirical research.

People who would like changes in remote classes, new technologies and digital platforms that they would like to be used in online teaching include, for example:

- a) e-learning platforms,
- b) training platforms,
- c) applications, and websites that can enrich students / students with new skills, e.g. canvas,
- d) study apps such as Quizlet, Kahoot! E.t.c.
- e) multimedia presentations in Canva,
- f) Discord,
- g) 3D technique in technical drawing,
- i) Photomath.

Pupils and students, however, would very much like to participate in the creation of content, e.g. by using platforms for co-creation during online classes - this option is interesting for 406 people (82% of respondents). Many people also found the possibility of using more



interactive e-learning platforms (films, animations, quizzes, games, etc.) attractive - 172 people (35% of respondents) had this opinion - Figure 79.

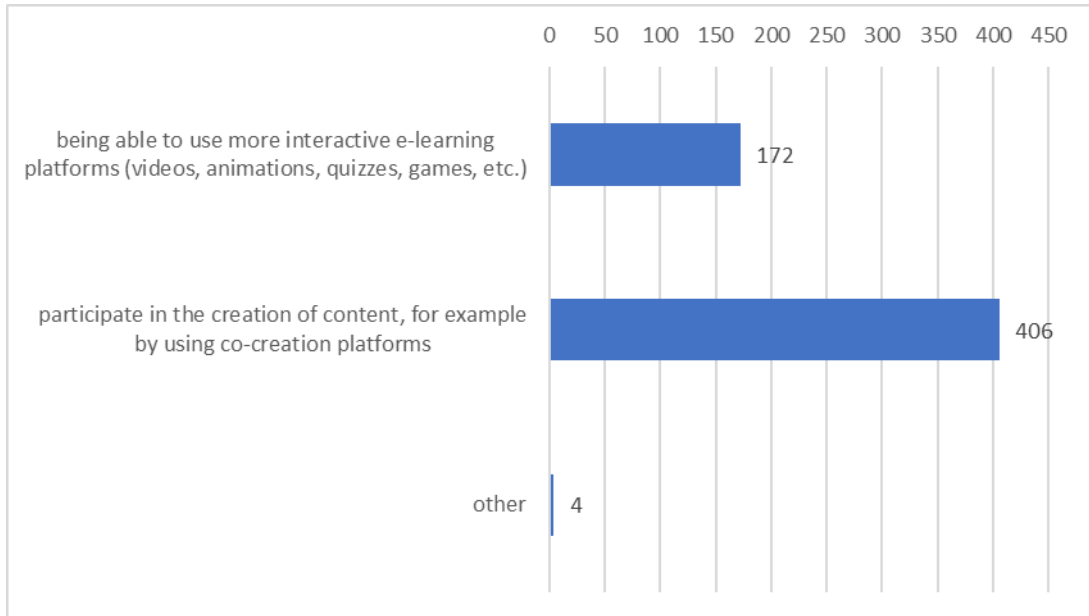


Figure 79. The method of enriching online lessons preferred by pupils and students

Source: own elaboration based on empirical research.

The elements that were missing during remote classes, pupils and students included:

- a) motivation
- b) direct contact with the teacher,
- c) Internet,
- d) understanding the teacher in relation to the use of the webcam,
- e) help from teachers,
- f) direct contact with peers,
- g) teacher's joy,
- h) greater involvement of students,
- i) greater competencies of teachers (in their opinion, some teachers could not operate educational platforms fluently, and lessons were very monotonous),
- j) consistency in the organization of classes,
- k) the possibility of active participation in classes,
- l) movement,



**Co-funded by
the European Union**

m) understanding that sometimes equipment broke down and could not be repaired on short notice.

Many people replied that they lacked nothing.

The vast majority of respondents indicated that their knowledge acquired as a result of distance learning in relation to the standard form of teaching at school has not changed - such an answer was given by 223 people (45% of respondents). 115 people assessed the knowledge acquired in online learning as lower than that which they could obtain in traditional face-to-face education - such answers were given by 115 people (23% of respondents). However, a similar number of pupils and students, i.e. 91 people (18% of the respondents) indicated that they gained more knowledge in online teaching. 36 people (7% of respondents) even believe that this knowledge has improved significantly. A different opinion is held by 30 people (6% of the respondents), who believe that the knowledge obtained in remote learning is much lower - Figure 80.

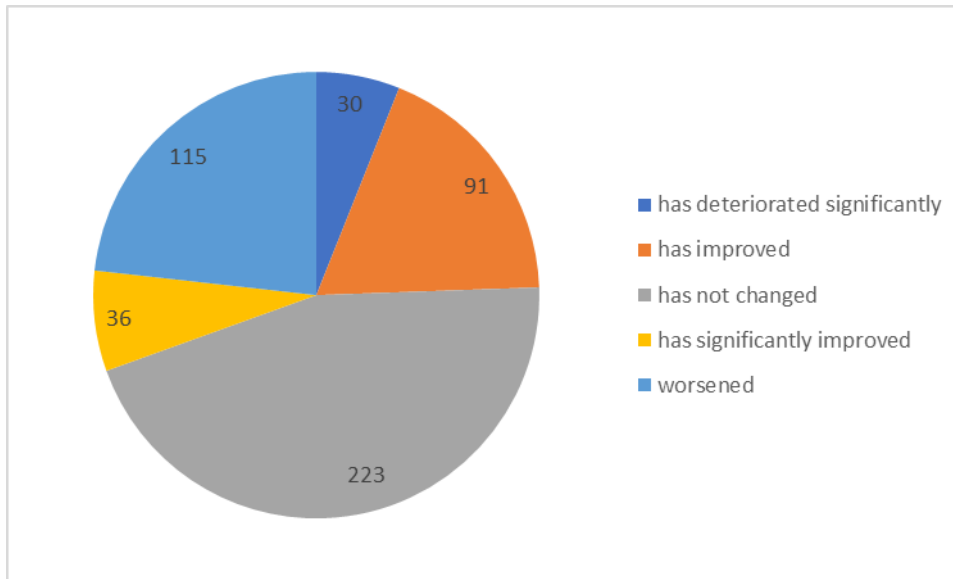


Figure 80. Pupils' and students' assessment of how much their knowledge has changed as a result of distance learning compared to the standard form of teaching at school

Source: own elaboration based on empirical research.

Answers to the question: "To what extent did the transition to remote learning mode affect the comfort and ease of learning?" received a comparable number of responses. A large group, because 153 people (31%) believe that the transition to remote learning mode did not affect the degree of difficulty in acquiring knowledge in relation to stationary learning, 175 people (35%) believe that during distance learning the difficulty of acquiring knowledge increased compared to face-to-face learning, and 167 people (34%) believe that it is easier to acquire knowledge during distance learning compared to face-to-face learning - Figure 81. Therefore, there is no clear answer in this area.

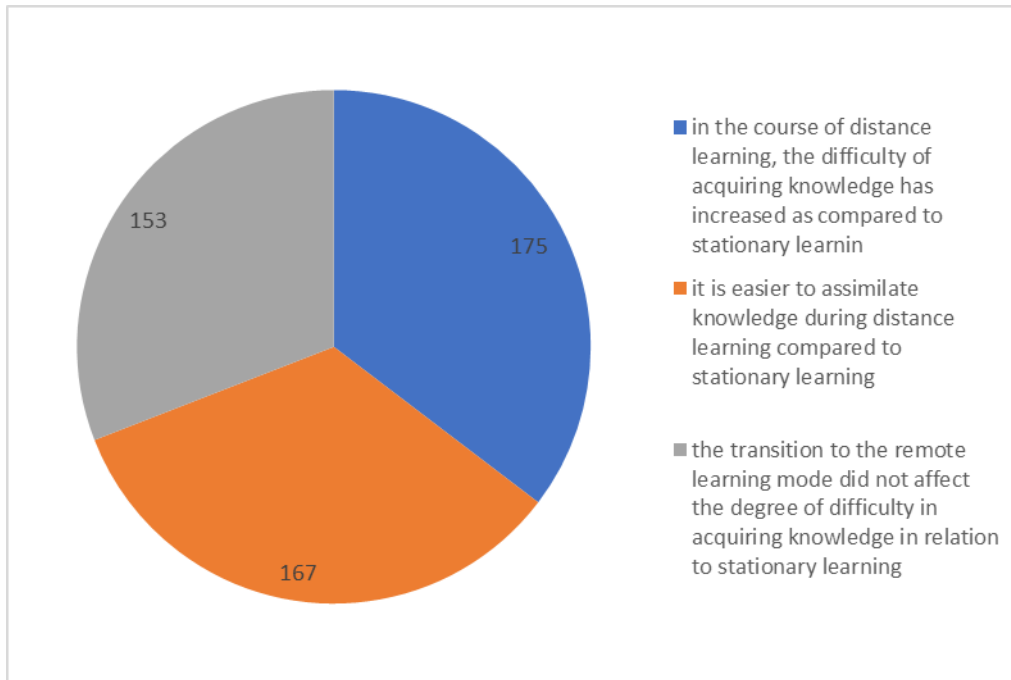


Figure 81. Pupils' and students' assessment of the extent to which the transition to remote learning mode affected the comfort and ease of learning

Source: own elaboration based on empirical research.



4. Examples of good practices

4.1. Access to training platforms / messengers enabling remote learning, including training and technical support

Identified problem

Teachers and academic lecturers used many programs, websites, and tools in the online education process. However, a popular tool was Microsoft Teams, which is also confirmed by students. However, the responses in the conducted survey suggest that some teachers could not fluently operate the tools / platforms they used. The support they desired, which they indicated during the research, is the possibility of quick cooperation with technical support (IT specialist).

An example of good practice

Messengers such as Microsoft Teams and Zoom dominated the market during the coronavirus (COVID-19) pandemic caused by the SARS-CoV-2 virus. However, these tools enable teamwork and online meetings. What's more, their purchase also allows you to obtain technical support and training in the service offered as part of the service they offer - functions. Many universities and schools, including high schools, have purchased access to these tools, along with an IT support package and a training package on the possibilities and technical solutions used on the purchased platforms. Thus, access for both academic teachers and lecturers, as well as pupils and students, was free (as part of the purchased package), and teachers and academic lecturers had guaranteed technical support, which allowed for quick solving of technical problems or problems related to the use of these messengers.

4.2. Diversifying classes through the use of various forms of online learning and inclusion

Identified problem

An important problem that has arisen in connection with the transition to remote learning is maintaining the motivation and attention of students while learning. This



problem was pointed out by both teachers and academic lecturers, as well as students. The teachers took advantage of assigning homework to be done on their own at home, and the methods that, in their opinion, could be appreciated in online teaching are virtual laboratories, activating methods, such as e.g. brainstorming, expression methods, case study, forum, elements of coaching and techniques supporting teamwork. Meanwhile, innovative methods of online teaching include, among others, learning through play, and educational games. Therefore, there is a need to make classes more attractive, so that they are interesting for pupils and students, and thus focus their attention.

An example of good practice

Teachers and academic lecturers used many programs, websites, and tools in the online education process and used them. During remote classes, they used, among others, teamwork, tests, quizzes, and tasks performed online during classes and platforms or applications provided by publishing houses. The level of making the classes more attractive - according to the research results - was not the highest, but most pupils and students assessed the distance learning they experienced during the SARS-CoV-2 pandemic rather well. What's more, when asked if they know of other innovative methods that would be welcome in online teaching, most of them indicated that they did not know such methods. Therefore, teachers used at least an average number of online teaching methods and forms of making them more attractive, which in the case of the conditions in which remote teaching was switched to - a quick transition to remote education without additional preparation of teachers and academic lecturers should be considered as good practice.

4.3. "Equipment" for students and teachers

Identified problem

The problems identified by pupils and students are problems with technical equipment, which is necessary for remote learning. Pupils and students pointed to the problem with access to good quality computer equipment and appropriate accessories, including in particular a webcam. Access to a good quality Internet connection was also a problem for many. The vast



Co-funded by
the European Union

majority, including teachers and academic lecturers, used private computer equipment during online classes. Students could not rent equipment for online classes.

An example of good practice



From April 1, 2020, local governments could apply for funds for the purchase of distance learning equipment for both students and teachers under the "Remote School" project and later - "Remote School +".

The "Remote School" project was designed to provide schools and students with the necessary equipment to continue learning remotely due to the COVID-19 epidemic. The competition was a grant competition, and communes could apply for co-financing. With the funds received, it was possible to purchase computer equipment, such as laptops or tablets, necessary accessories (e.g. mice, headphones), and access to the Internet.

The "Remote School+" project was a continuation of the previous program. Its purpose was to provide students from large families and teachers with the equipment necessary to continue learning remotely, due to the COVID-19 epidemic. The competition was also a grant competition, and communes could also apply for co-financing. As in the case of the previous project, it was possible to purchase computer equipment, such as laptops or tablets, necessary accessories (e.g. mice, headphones), and access to the Internet.

Under the "Remote School" project, the government allocated over PLN 187 million for support. Under the "Remote School+" project, PLN 180 million was allocated for support.

5. Recommendations

5.1. Training on platforms and messengers enabling online meetings

Identified problem

Teachers and academic lecturers use many programs, websites, and tools in the online education process, but their answers in the survey suggest that they do not have extensive knowledge about the possibilities in this area, including various applications designed to

Program: Erasmus+

Strategic Partnership for Vocational Education and Training

Key action: Cooperation for innovation and exchange of good practices

Action: Strategic Partnership Project

Project title: FUTURE FOR EDUCATION

Reference number: 2021-1-CZ01-KA220-VET-000034839



Co-funded by
the European Union

conduct online meetings, do not use cloud solutions, but are interested in access to free messengers and tools that they could use during remote classes, including, for example, in hybrid teaching (many of the respondents used Google Classroom, Messenger, e-mail during remote teaching).

Recommendation

Planning trainings presenting various possibilities for conducting remote classes, including available platforms / messengers enabling online meetings, taking into account tools available from a web browser and free tools. Presentation of various educational platforms. Presentation of the possibilities and principles of using cloud services.

5.2. Development of educational platforms

Identified problem

Teachers and academic lecturers use many programs, websites, and tools in the online education process, but they indicate the need for access to educational platforms. They report e.g. the need for more free resources and tools from educational technology companies. They also indicate the need for educational platforms in which it is possible to combine several functions at the same time in order to activate students, e.g. structure in the form of a tree (sections, lessons, surveys, tests, etc.), calendar, internal messages (generally communication module), discussion forum, etc. This need is also indicated by pupils and students who would like to make classes more attractive, e.g. through the possibility of using more interactive e-learning platforms (films, animations, quizzes, games, etc.).

Recommendation

It is recommended to develop educational platforms in Polish, in which it is possible to combine several functions at the same time and which will have unique functions, such as video and audio messages, animations, and quizzes, including educational platforms that will offer opportunities to improve competences (courses) free of charge. An important element of education is also the possibility of confirming the acquired skills, therefore the possibility of



obtaining certificates confirming the completion of completed courses would be an additional advantage of the above-mentioned platforms.

5.3. Support for teachers / academic lecturers in terms of available resources that they could use during remote classes - "all in one place"

Identified problem

According to teachers and academic lecturers, the best support for teachers in online teaching would be websites with useful resources. They also point to the need to organize webinars or meetings where they could share ideas and challenges. Needs defined in this way indicate the dispersion of knowledge about materials, including interactive ones, which are available and could be used during classes conducted remotely (not limited to lesson plans and curricula). For the need to diversify classes, i.e. to include other platforms, e.g. Quizlet, Kahoot! etc. are also indicated by pupils and students.

Other studies also point to this need. A study by the University of Warsaw shows that during online lessons, teachers mainly used tools for webinars and online communication, e.g. MS Teams, Zoom, Google Hangouts, Skype, Messenger (31% of respondents), and e-materials sent to students for self-implementation (27%). Only every fifth (21%) teacher used "films", i.e. video learning. Educational applications (8%), online educational games (7%), or dedicated e-learning platforms (3% of respondents) were definitely less popular among teachers.

Recommendation

Creation of websites dedicated to online learning, which will indicate materials (videos, courses, educational platforms, etc.) that could be used in specific subjects during remote classes. These pages can be available globally and apply to all areas of education or be dedicated to specific subjects. Such support may also be offered at the local level by a local government unit which is the governing body of a school or educational institution (municipality, district, province) or within a given teaching unit (school, university), as internal support for the didactic process carried out by the unit.



Co-funded by
the European Union

5.4. Support for the professional development of teachers / academic lecturers

Identified problem

Despite the relatively high self-assessment of the competencies necessary to conduct online classes, teachers and academic lecturers point to the lack of pedagogical competencies necessary in online teaching. The group also identified the need for fast online learning courses. This need is confirmed in the group of pupils and students who reported a problem with maintaining attention during classes and the need to make classes more attractive.

Recommendation

Cyclic training in the field of effective and efficient online teaching, e.g. on online learning methods.



Co-funded by
the European Union

Conclusion

Based on the processed outputs from the questionnaire survey and the creation of partial documents methodology of examples of good practice, it is clear that the situation regarding distance education during the COVID pandemic was very similar in all partner countries. Developed methodology of examples of good practice in online education represents a comprehensive and systematic approach to gaining a deeper understanding of successful practices in this dynamic industry.

At the same time, it was found that the knowledge of digital competences of teachers is approximately similar in all project countries, with only minor exceptions. The majority of teachers in the partner countries agreed on the need for further education in the field of new digital technologies, which students and teachers perceive as an integral part of modern learning. The importance of defining specific study goals is emphasized here, particularly in the area of pedagogical approaches, technology integration, student involvement, and assessment methods.

We gained a broad view of effective practices in online education. The analysis of these examples allowed us to identify key success factors, common features and innovative approaches that can serve as inspiration for further development.

An indisputable part of this methodology was also the recognition of challenges and limitations associated with online education. Awareness of these challenges allows for the design of realistic and feasible recommendations that can address barriers and support the sustainable development of online learning initiatives.

Overall, this methodology has the potential to provide valuable tools for improving online education and fostering innovation in this ever-evolving industry. With its use, we can expect progress in effective and inclusive online educational practices, benefiting students, educators, and educational institutions.

Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.