Research report in the project "Preventing post-COVID Social Exclusion Together"

Remote education and its effects on selected peripheral areas in the Czech Republic

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Country report author:

Vít Šťastný, Ph.D., Institute for Research and Development of Education, Pedagogical Faculty, Charles University, e-mail: vit.stastny@pedf.cuni.cz. ORCID: 0000-0001-6300-7099

General editor:

Damian Liszka, Ph.D., Institute of Philosophy and Sociology, The Pedagogical University of Krakow, e-mail: damian.liszka@up.krakow.pl. ORCID: 0000-0002-2192-1672

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1 Introduction

This document is one of four research reports (from all the V4 partner countries). It is the output of the project titled "Preventing post-COVID Social Exclusion Together" (Strategic Grant No. 22110213). The project is co-financed by the Governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund. The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe. It is implemented by a transnational Research Team composed of:

Poland:

- Dr. hab. Piotr Długosz, prof. UP, Head of the Research Team
- Dr. Damian Liszka, Project Coordinator, Researcher's Assistant in Poland
- Dr. Paweł Walawender - Reports Author, Poland

Czech Republic:

- Dr. Vít Šťastný - Reports Author, Czechia
- Dr. Lucie Šťastná - Reports Author, Czechia

Hungary:

- Dr. Karolina Eszter Kovács - Reports Author, Hungary
- Dr. Fruzsina Szabó - Reports Author, Hungary
- Krisztina Győri - Reports Author, Hungary
- Katalin Godó - Researcher's Assistant in Hungary

Slovakia:

- Dr. Lucia Šepeľáková - Reports Author, Slovakia
- Dr. Janka Ferencová - Researcher's Assistant, Slovakia

The main goal of this project is to support social integration of young people, and their families, residing in rural areas and small towns in less developed regions of Central and Eastern Europe during periods of epidemic threats. This goal is to be achieved through the development of recommendations for civil society on how to successfully create Local Support Groups - Rapid Response Teams in the local environment. This project aims to help reduce the scale of educational and social inequalities in peripheral areas where the introduction of remote education had far more negative effects than in urbanized areas and metropolises.

Each of the project partners developed a separate report based on completed student survey in the country they represent. The preparation of the documents summarizing the student survey data is a necessary stage for the development of further recommendations in this project.

This document covers the situation in the Czech Republic.

1.1 Purpose of the research and research issues

Although research has been conducted on the impact of the COVID-19 pandemic on education and social inclusion of young people, there are very few studies focusing on youth from rural areas, small towns, and less developed regions of the Visegrad Group countries.

Therefore, between June and September of 2021, as part of this project, an analysis was conducted on the effect of the pandemic on teachers, young people, and their families from different groups and backgrounds living in the four Visegrad Group countries using the desk research technique. One of the purposes of the qualitative research was to identify in each country (Poland, the Czech Republic, Slovakia, and Hungary) one administrative region that can be classified as the country's "periphery". Four regions were identified:

1) Podkarpackie voivodeship (in Polish – *województwo*), one of 16 administrative regions in Poland

2) Eastern Slovakia consisting of Prešov and Košice self-governing regions (in Slovak— kraj)

3) Ústecký region (in Czech— kraj), and

4) The Northern Great Plain region (in Hungarian - régió).

The main portion of the research was carried out in all four countries using a survey method (the technique of the auditorium survey). The study aimed to provide answers to the following research problems:

1) Has remote education (2020-2021) increased inequalities among pupils / students?

2) What problems had pupils / students from periphery areas faced?

The research results should help to answer the following questions:

1) What should be done to prevent educational and social exclusion of young students during a pandemic?

2) How to support students without IT equipment during periods of remote education?

The research provided insight into the students' experiences during the COVID-19 pandemic (in 2020 and 2021) in the areas of:

- level of technical availability of equipment during remote education,

- assessment of the quality of classes during remote education,

- positive and negative features of this form of education,

- mental health problems,

- social support,

- educational aspirations and willingness to stay in stationary school learning.

The structure of this document is determined by the questions and areas listed above.

The first chapter describes the methodology of the completed research including: the research technique used, the research tool, the sample selection, and the method of research organization.

The second chapter characterizes the studied community. This was done through the prism of socio-demographic variables such as inter alia: gender, age, place of residence, and number of siblings.

The third chapter provides information on the psychosocial condition of students. Issues such as psychological well-being, distress experienced by students during distance learning, life satisfaction and social support were taken into account.

Chapter four describes the process of educating students in a peripheral area during the COVID-19 pandemic. References are made to the technical possibilities available to students in the course of distance education, evaluation of distance education, etc. The chapter also provides information on the educational aspirations of students.

The research report ends with a summary, conclusions, and recommendations.

1.2 Methodology of the research

The research was carried out in four Visegrad countries using a survey method (the technique of an auditorium survey). It allowed for the questionnaire to be self-completed in a school room. The time of completion should have not exceeded 40 to 45 minutes (1 school lesson). In each country's "peripheral" region, smaller units of sub-regions were selected in the desk research reports as the areas for the survey research. In the Czech Republic the areas chosen for survey research consisted of sub-regions Louny, Most and Chomutov located in Ustecky Region. Next, the transnational team from all four Visegrad countries developed the questionnaire comprised of 31 items. The team also developed the common research methodology with research guidelines for the chosen research contractors (the contractors could be a person or a company in each country).

The research sample were students (ISCED'97 Level 2) of public schools (in the Czech Republic, academic track schools and other special schools were not a part of the sampling frame) located in the chosen periphery sub-regions (no less than N = 300 in each country). Other criteria were students' grade and their place of residence: in rural areas / settlements of up to 5,000 inhabitants (min. N = 150) and urban areas / more than 5,000, but less than 20,000 inhabitants (min. N = 150).

Before the research begun, a positive opinion of the Ethics Committees was obtained. In the Czech Republic, it was an ethics committee of the Faculty of Education, Charles University issued on 8 November 2021 under the reg. n. UKPedF/467304/2021.

Purposeful selection of the sample and data collection was realized by the research contractor. In the Czech Republic, the contractor was the report author Dr. Vít Šťastný. The schools were chosen on basis of a sampling frame obtained from the Ministry of Education, Youth and Sports database and contacted by Dr. Vít Šťastný.

2 Characteristics of the sample

This section summarizes the sociodemographic characteristics of the sample in the Czech Republic, such as gender composition, age, number of siblings, parental education and occupation, etc.

2.1 Gender

The proportion of boys and girls in the sample was equal, i.e., 50,0% boys (n = 168) and 50,0% girls (n = 168), one respondent's answer was missing (Figure 1).
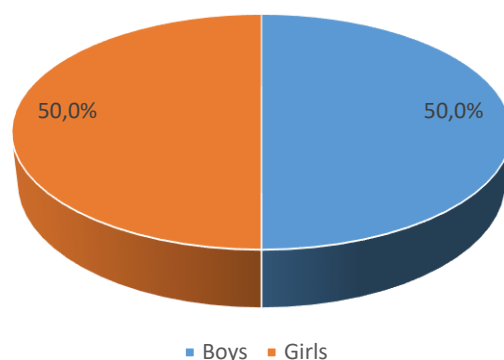

Figure 1. Gender of the respondents. (Source: field research)

2.2 Age

The average age of our respondents was 14, which corresponds with the typical age in 8th (13 or 14 years) or 9th (14 or 15 years) grade (Table 1).

Table 1. Basic descriptive statistics on the age of the respondents

	Number	Mean	Median	Minimum	Maximum	Standard deviation[1]	Coefficient of var.[2]
Age	335	14,03	14	13	16	0,79	0,06

Source: field research.

2.3 Number of siblings

Students in the Czech sample reported having (on average) 1,8 siblings and only 5,6% were the only children (Figure 2). Most often, respondents reported having one sibling (44,5%) (Figure 3).

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[1] Standard deviation (σ) is a measure of the dispersion in a set of data from its mean. The more dispersed or spread apart the data, the higher the deviation. Conversely, a low standard deviation indicates that the data points tend to be close to the mean. Standard deviation is calculated as the square root of the variance (variance is the average of the squared differences from the mean). Unlike variance, standard deviation is expressed in the same unit as the data (European commission, 2022a).

[2] The coefficient of variation (CV) is the ratio of the standard deviation to the mean and shows the extent of variability in relation to the mean of the population. The higher the CV, the greater the dispersion (European commission, 2022b).
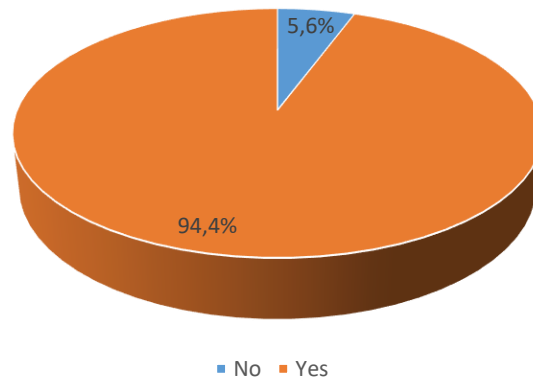
Figure 2. Siblings. (Source: field research)
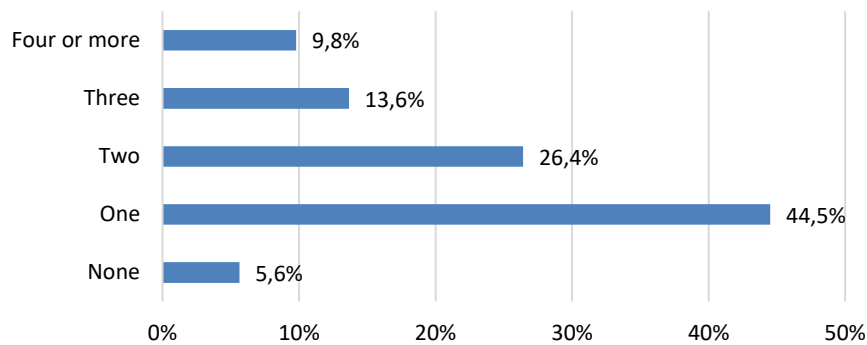
Figure 3. Number of siblings. (Source: field research)

2.4 Place of residence

The proportion of students in the sample with regard to their place of residence (see Figure 4) was slightly skewed in favor of those living in villages (56,2%, n = 186) compared to those living in larger towns or cities (44,8%, n = 145).
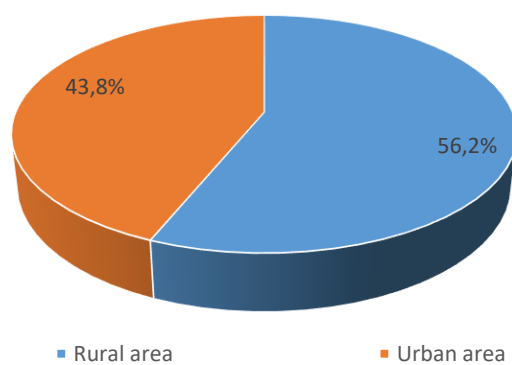
Figure 4. Place of residence. (Source: field research)

2.5 Socio-economic status (parental education, professional status)

Figure 5 summarizes the educational attainment of sampled students' parents (mothers and fathers). Most of the parents did not attain secondary education, or obtained an apprenticeship certificate (ISCED 3C). In the sample, this educational status was true for 54,2% of fathers (n = 148) and 45,5% of mothers (n = 133). Students who reported that their

parents attained higher than upper secondary education were a minority (12,5% fathers, n = 34, and 14,0% of mothers, n = 41).
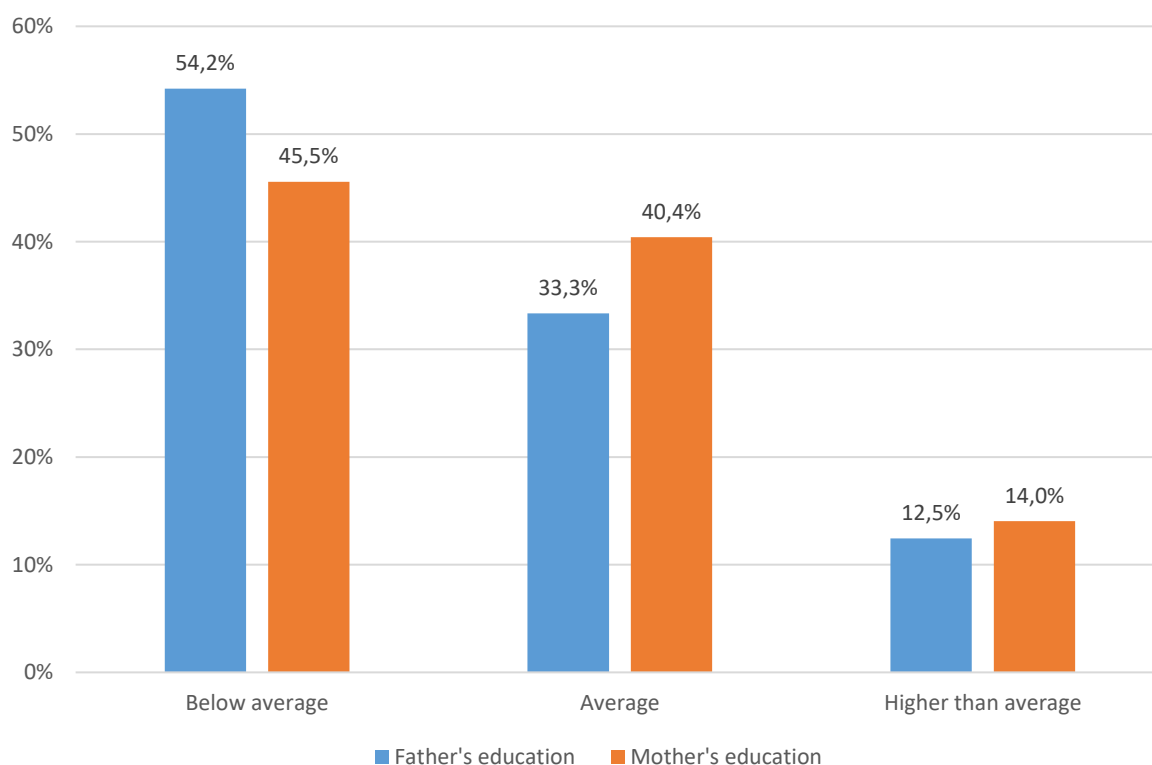
Figure 5. Characteristics of respondents' parents' education attainments (below average: below ISCED 3 level and ISCED 3C; average: ISCED 3A; above average: above ISCED 3). (Source: field research)

The sample composition with regard to parental occupation is displayed in Table 2. The most common occupation among parents or guardians of sampled students was that of skilled worker among fathers (28,5%, n = 96), and that of trade or service workers among mothers (19,3%, n = 65). It is notable that this question seems very tough for the students to answer, as about a quarter of responses are missing or were "Hard to say / I don't know".

Table 2. Parents' or guardians' jobs[3]

	Father		Mother	
	Number	Percent	Number	Percent
Director or the president of the company or a senior government official or parliamentarian	17	5,0%	8	2,4%
A specialist with higher education or a freelance profession (for example researcher, lecturer, teacher, doctor, lawyer, writer)	15	4,5%	41	12,2%
Technician and specialized administrative and office worker, White collar worker	31	9,2%	8	2,4%
Low-level white-collar worker (for example secretary, cashier, clerk, telephone operator)	5	1,5%	55	16,3%
Private company owner	19	5,6%	6	1,8%
Trade and service worker	45	13,4%	65	19,3%
Skilled worker	96	28,5%	21	6,2%
Unskilled worker	13	3,9%	20	5,9%
Farmer	4	1,2%	5	1,5%
Unemployed	3	0,9%	26	7,7%
Pensioner (on rent or retirement benefits)	4	1,2%	6	1,8%
It's hard to say/ I don't know (or missing)	85	25,1%	76	22,5%

Source: field research.

2.6 Property status

There were several items in the questionnaire that inquired about the economic situation of the student's family (Figure 6). Students were asked to tick all the statements that are valid for their own situation. The vast majority of students in the sample stated that "There is a car in my family" (86,6%, though no further distinction of what brand or age of the car could be made) and that "There is a computer or a laptop in my family" (85,5%, with no further distinction about the performance and age of the equipment) and "I have at least two pairs of appropriate size shoes (including a pair for winter)" (82,8%).

On the other hand, only 38,6% of students reported that they receive pocket money every week, 42,1% reported that their family can afford one week of vacation a year (away from home), and 52,5% regularly participates in recreational activities (such as sports, cinema or concerts).

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[3] In case the student marked two or more options, the higher ISCO level was taken into account.
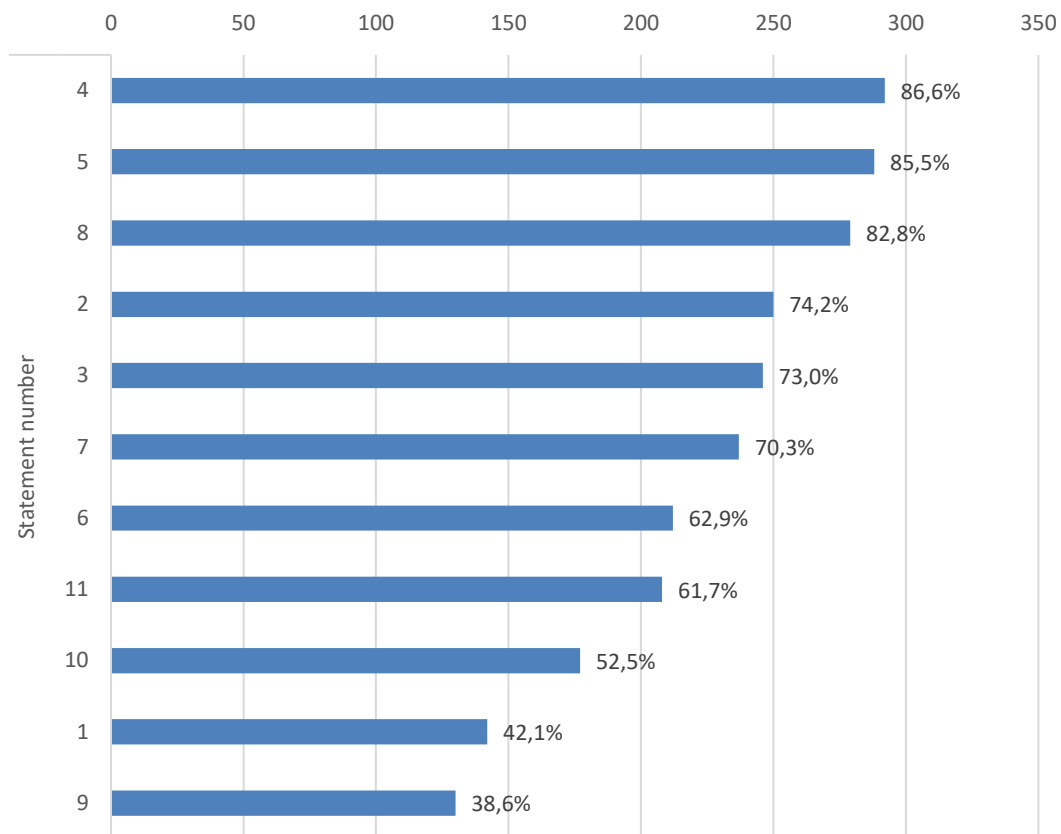
Figure 6. Economic situation of the student's family.[4] (Source: field research)

Yet another indicator of a household's economic standing is provided in Table 3. Most respondents rated their household as living well and having enough money for them not to have to save too much (59,3%), about a quarter of student perceive their standard of living as average with having enough money every day, but also having to save for larger purchases (25,2%).

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[4] Statement numbers are:
    1)   My family can afford one week of vacation a year (away from home).
    2)   My family can afford to eat meat, chicken or fish every other day.
    3)   My family has no heating problems.
    4)   There is a car in my family.
    5)   There is a computer or a laptop in my family.
    6)   Used furniture can be replaced with new one.
    7)   We can replace used clothes with new ones.
    8)   I have at least two pairs of appropriate size shoes (including a pair for winter).
    9)   I receive pocket money every week.
    10)   I regularly participate in recreational activities (such as sports, cinema or concert).
    11)   My family meets friends or relatives at least once a month (for a drink or a meal).

Table 3. Which of the following statements do you think best describes the way money is managed in your home?

	Number	Percent
We live very modestly, with not even enough money for our basic needs	0	0,0%
We live modestly, we have to be very economical on a daily basis	23	7,0%
We live averagely, we have enough money every day, but we have to save for larger purchases	83	25,2%
We live well, with enough money for us not to have to save much	195	59,3%
We live very well, compared to others, we can afford luxury	28	8,5%
Overall	329	100,0%

Source: field research.

Further, students were asked about which items or devices from a list are present in their homes. As shown in Figure 7, at least nine out of ten students reported that they have a study desk, smartphone, or permanent access to the internet. Also, more than four out of five students have a laptop or notebook at home, and three fourths of students have their own study room. Only one out of four students has a scanner at home.
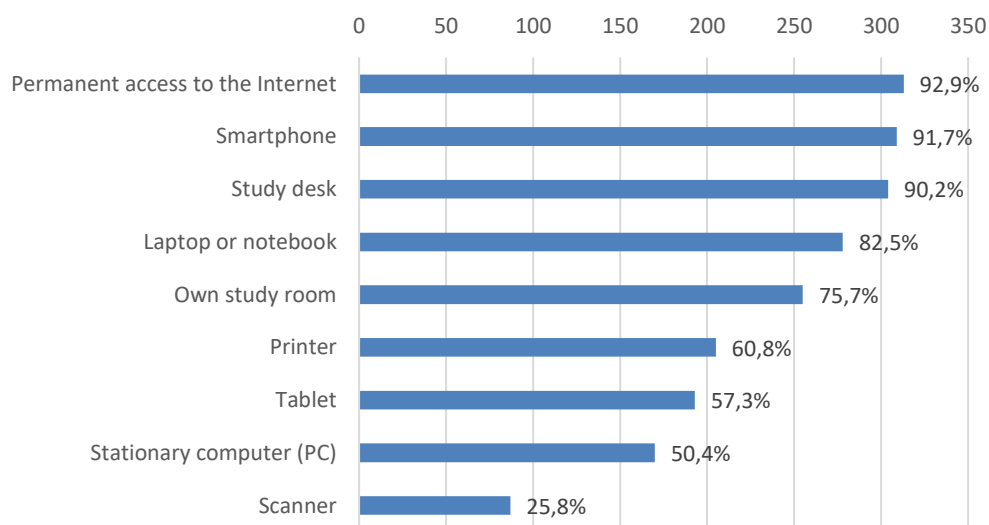
Figure 7 Items or devices present in students' homes (Source: field research)

2.7 School achievements

Students also provided a self-evaluation of their school achievement by estimating their relative standing among their classroom peers (Figure 8). Almost half of the students rated themselves as average. The other two tails of the distribution are slightly skewed towards the better perception of school achievements (37,8% above average or in lead of the class vs. 13,8% perceived as poor or below average).
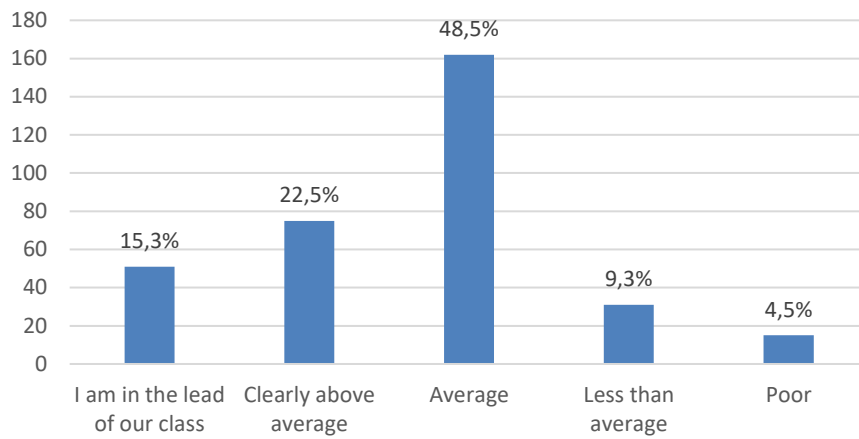
Figure 8. Students' perceptions of their school achievements. (Source: field research)

2.8 Number of books

Further, the questionnaire inquired about cultural capital, and as a proxy indicator, the number of books at home was chosen. Figure 9 reflects a relatively low cultural capital of respondents in the sample, because 4 out of 5 students live in homes with low numbers of books (below 100 books). According to the students' estimates, only 20,0% live in homes with more than 100 books (Figure 9).
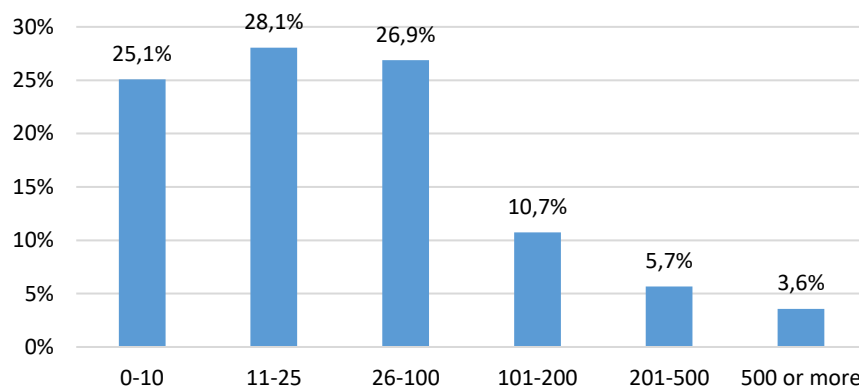
Figure 9. Estimated number of books. (Source: field research)

2.9 Summary of the section

The sample characteristics are aligned with general features of the region from which the schools were sampled, and confirm a socioeconomic disadvantage of the sampled students. Most parents attained at maximum an apprenticeship certificate, which corresponds with most parents' occupations (skilled workers, or working in trade or service sector). An indicator of low cultural capital is the low number of books students reported having in their homes.

3 Psychosocial condition and Imponderabilia

3.1 Psychological well-being

The World Health Organization- Five Well-Being Index (WHO-5) is a short self-reported measure of current mental wellbeing. The instrument measures wellbeing through five items where respondents have to evaluate the statements on a Likert scale from 0 to 5. While scales measuring health-related quality of life are conventionally translated to a percentage scale from 0 (absent) to 100 (maximum), it is recommended to multiply the raw score by 4 (Topp et al., 2015, p. 168). The instrument can be used for screening depression too: following the WHO-5 recommendation, the cut-off score is ≤ 50. Therefore, reaching 50 points or less may indicate depression.[5]

Table 4. Basic descriptive statistics on the well-being of the respondents

	Number	Mean	Median	Minimum	Maximum	Dev. std	Coefficient of var.
Well-being	337	46,7	44	0	100	23,7	0,5

Source: field research.

As Table 4 shows, the value of well-being varies between 0 and 100. The average well-being score is 46,7 points, which is slightly below the cut-off point. When creating groups based on the cut-off point, we can see that approximately three fifths of the sampled students belong to those reaching fewer points than the cut-off value. This means that three in five pupils have depressive symptoms (Figure 10).
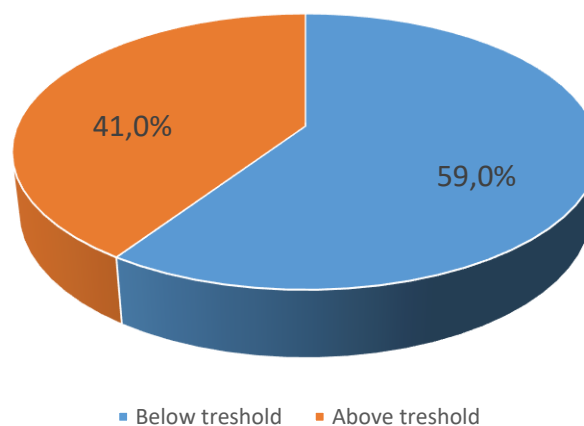
Figure 10. The proportion of students above and below the cut-off score. (Source: field research)

3.2 Perceived stress

The Perceived Stress Scale (PSS) was used to determine how the participant "perceived" stress. The original survey asks 14 questions about stressful situations and helps determine

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[5] Students responded on a likert scale 5- All of the time to 0 – At no time to the following statements:
I have felt cheerful in good spirits; I have felt calm and relaxed; I have felt active and vigorous; I woke up feeling fresh and rested; My daily life has been filled with things that interest me.

what stress the participants experience and how stressful they feel their life to be. Higher scores indicate higher levels of stress. In our study, we used eight questions, of which three are reversed items. Therefore, we posed the following questions:

1) How often did you feel rushed or hurried?
2) How often did you have enough time to do what you wanted? (Reversed)
3) How often did you feel worried about being too busy?
4) How often did you feel nervous?
5) How often did you feel angry?
6) How often did you feel happy? (Reversed)
7) How often did you get enough sleep? (Reversed)
8) How often did you have fights with friends?

The modified questionnaire is proved to be reliable based on the value of the Cronbach's alpha (0,714) which falls into an acceptable range.[6] Table 5 shows the item-total statistics of the perceived stress scale for the Czech sample.

Table 5. Item-total statistics of the modified perceived stress scale (N = 336)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
How often did you feel rushed or hurried?	12,35	21,60	0,46	0,67
How often did you have enough time to do what you wanted?	13,25	22,29	0,39	0,69
How often did you feel worried about being too busy?	12,90	21,35	0,45	0,67
How often did you feel nervous?	12,44	20,27	0,48	0,66
How often did you feel angry?	12,55	20,29	0,46	0,67
How often did you feel happy?	13,18	21,76	0,39	0,69
How often did you get enough sleep?	12,96	21,28	0,37	0,69
How often did you have fights with friends?	13,60	23,04	0,24	0,72

Source: field research.

Based on the original questionnaire, we created categories based on peer evaluation, which have resulted in three dimensions: time-related stress (items 1, 2 and 3), mental health (items 4, 5 and 6) and physical health (items 7 and 8). The characteristics of these dimensions are presented in Table 6.

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[6] Questionnaire scales are considered reliable if the value of Cronbach's alpha is above 0,6.

Table 6. Basic descriptive statistics on the dimensions of perceived stress of the respondents

	N	Mean	Median	Minimum	Maximum	Dev. std	Coefficient of var.
Time-related stress	336	5,67	6	0	12	2,28	0,40
Mental health	336	6,03	6	0	12	2,57	0,43
Physical health	336	2,94	3	0	8	1,76	0,60
Overall stress	336	14,64	15	2	28	5,18	0,35

Source: field research.

The average level of time-related stress is the exact midpoint of the subscale. Therefore, it indicates an average level of time-related burden shouldered by the pupils. The mean value of the mental health subscale is lightly below the midpoint of this subscale. This is true for the physical health dimension, suggesting that mental and physical health is below the desired level. The total score of the questionnaire also presents an average level of stress.

Also, based on the overall stress level, we created categories for the level of stress, including the following:

- Low Stress (scores 0 - 10)
- Moderate Stress (scores 11 - 21)
- High Stress (scores 22 - 32)

The distribution of the groups can be seen in Figure 11. Almost two-thirds of the pupils express a moderate stress level. The proportion of students reporting a low stress level is relatively high (22,6%); however, 12,8% of pupils in the sample report a high level of stress which may be related to the decreased level of well-being.
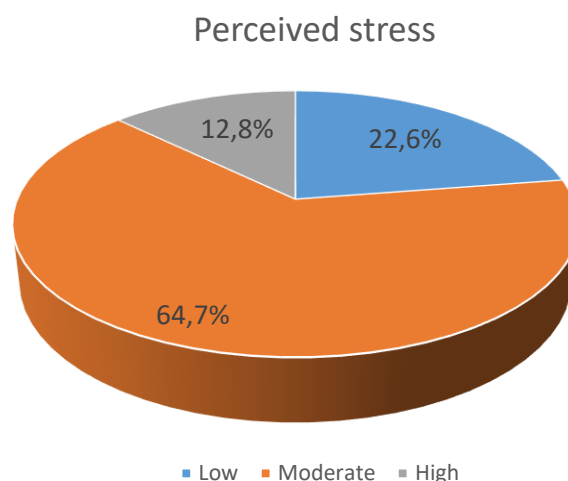

Perceived stress

12,8% 22,6% 64,7%

■ Low ■ Moderate ■ High

Figure 11. The proportion of pupils in the three groups of stress level. (Source: field research)

3.3 Life satisfaction

To measure the life satisfaction of pupils, we asked them to evaluate their life so far, whether they are rather satisfied or dissatisfied with their life overall. Pupils had to choose one statement out of five (definitely dissatisfied / rather dissatisfied / rather pleased / definitely pleased, / I don't know, it's hard to judge).
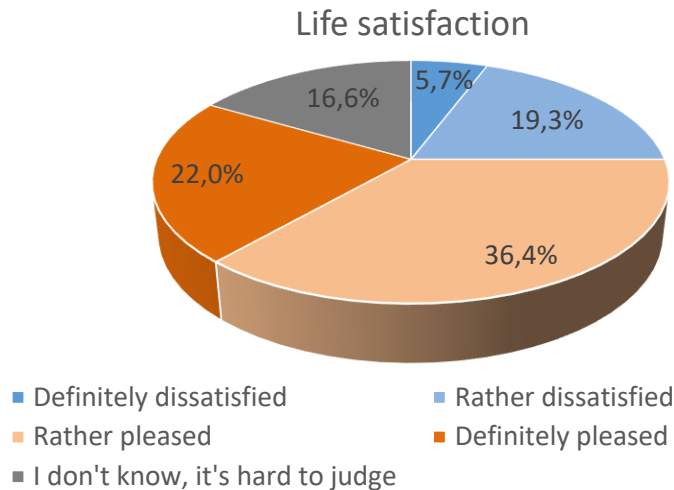
Figure 12. The proportion of pupils according to life satisfaction. (Source: field research)

Figure 12 shows that most pupils (58,4%) are definitely pleased or rather pleased with their lives while 25,0% are definitely dissatisfied or rather dissatisfied. However, 16,6% of the pupils reported that they could not evaluate their level of satisfaction with their lives.

3.4 Social support

First, we used the Short scale of Youth's social support assessment to measure social support. SSYSS is an 18-item questionnaire to measure the impact of parental (5 items), peer (8 items), and teacher (5 items) support on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The maximum total score is 25 points for the parental and teacher subscales and 40 points for the peer subscale. The instrument covers the most important environments where a young person might live. The questionnaire is a widely accepted, accurate, and valid measure for investigating youth social support (Pluta et al., 2020).

The reliability of the scale was appropriate in our study too (parental support: Cronbach's alpha = 0,817; peer support: Cronbach's alpha = 0,831; teacher support: Cronbach's alpha = 0,850; overall questionnaire: Cronbach's alpha = 0,861). The results of the subscales are introduced in the Table 7.

Table 7. Social support of students

Support	N	Mean	Median	Minimum	Maximum	Dev. std	Coefficient of var.
Parental	336	18,6	19,0	4,0	25,0	3,6	0,20
Peer	336	26,6	27,0	4,0	40,0	6,7	0,25
Teacher	336	17,7	18,0	5,0	25,0	4,0	0,23
Overall support	336	61,9	62,0	30,0	83,0	10,3	0,17

Source: field research.

The results indicate a moderate amount of social support in all three domains. The level of parental and teacher support is around 18 out of 25 maximum points. In case of peer support, the score of 27 out of 40 points maximum also indicates a moderate amount of perceived support received from peers, indicating a moderate level of collaboration with classmates and counterparts.

We also asked the pupils to mark who helped them with problems during distance education. Figure 13 shows that most support was received from the parents and classmates. Also, a significant proportion of pupils noted that siblings supported them and/or they used Internet as a problem-solving technique. Teachers of individual subjects and classmates can be found in the fifth and sixth places (about one third of pupils reported their support), respectively. Pupils may have a closer relationship with their parents, siblings and classmates, and it was easier to ask them for help. Receiving support from other family members was reported by 17,9% of pupils. The support received from tutors and school psychologists was quite low, maybe due to the fact that tutors are not available for everyone and school psychologists are usually not so close to general schoolwork. We also must note that 10,4% of pupils reported not experiencing any problems, and approximately 9,0% reported not having any help even if needed.

Who helped you with your remote learning problems?

Parents	76,7%
Classmates	53,0%
I used the Internet with ready-made solutions	35,5%
Teachers of individual subjects	33,7%
Siblings	31,9%
Class teacher (supervising teacher)	30,5%
Other family members (e.g. grandparent)	17,9%
I did not have such problems	10,4%
Nobody helped me, although sometimes I needed help	9,0%
Someone else	7,5%
Tutors	3,9%
School psychologist	0,7%
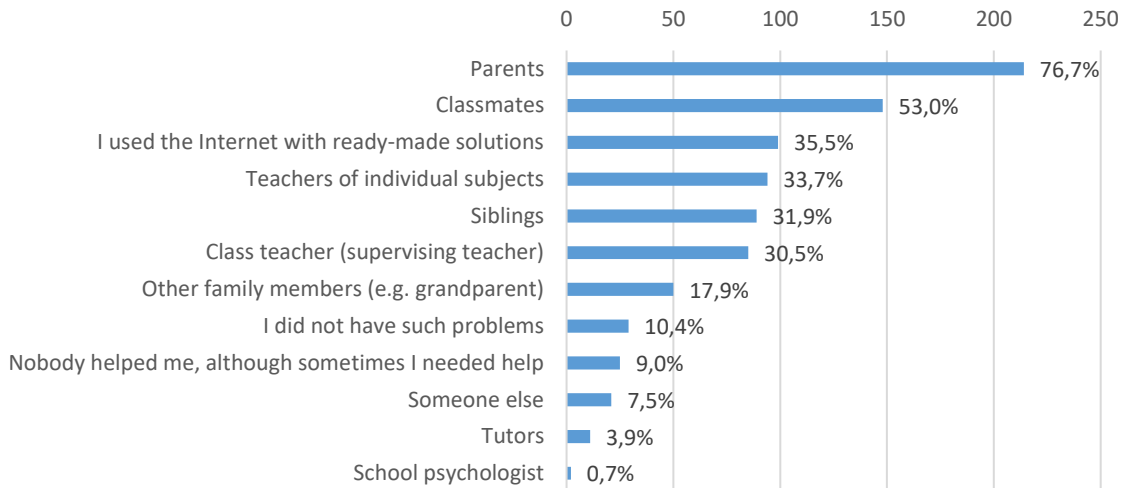
Figure 13. People and tools supporting pupils in dealing with problems during distance education. (Source: field research)

3.5 Summary of the section

Our results show that the overall well-being of the sampled children is below the desired level as almost three out of five pupils have depressive symptoms (based on the data of the WBI). The level of perceived stress seems to be average; however, the level of mental and physical health is slightly below the desired level. This can also be seen in the relatively high proportion of students perceiving stress at high or moderate level. The results concerning life satisfaction are somehow controversial as most students are at least rather satisfied with their lives. Concerning social support, we can conclude that the results of SSYSS indicate that pupils generally perceived a high level of support from their parents, teachers and classmates. When measuring the support received from the different actors during distance education, we can see that the most important ones who helped the pupils came from the pupils' close environment, such as their parents, classmates, and siblings.

4 Students from peripheral areas in the course of distance education

This section focuses of the various aspects of distance education, including the technical conditions of students for online education, the students' perceptions of its quality and advantages and disadvantages, their level of involvement in online classes, or preferences about how they would prefer to learn in the future.

4.1 Technical conditions for online education

Technical equipment is a necessary, but not sufficient prerequisite of successful remote education. Figure 14 shows that the vast majority of students reported that the technical equipment in their homes was not a barrier to their participation in online lessons. Only about 4,2% of students reported that the technical equipment in their homes did not allow them to fully participate in remote learning. Thus, the participation in remote learning does not seem to be hindered to a large extent by insufficient technical equipment.

Considering the technical equipment of your home or apartment, did it allow you to fully participate in online lessons

1,2%   0,6%   3,6%

29,4%

65,3%

- Definitely not
- Rather not
- Rather yes
- Definitely yes
- I don't know
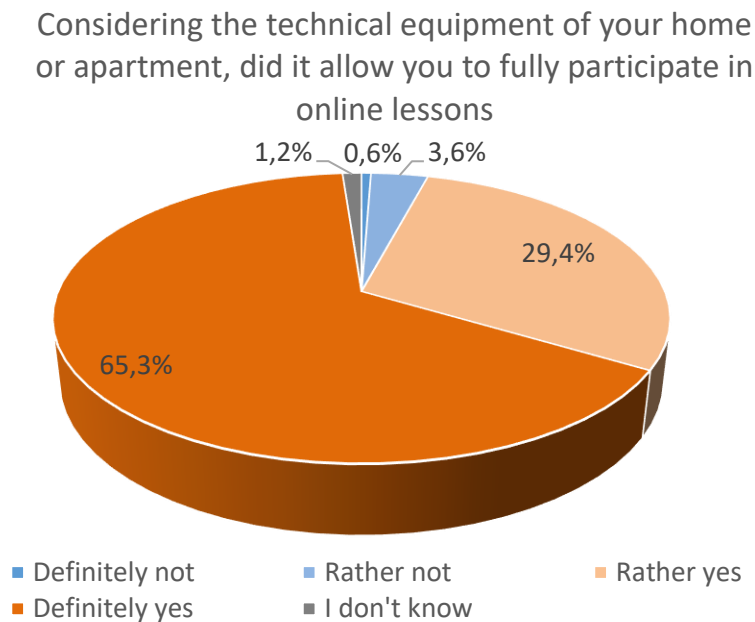
Figure 14. Technical equipment as a barrier to full participation in online lessons. (Source: field research)

Unproblematic technical equipment is also indirectly confirmed by the students' answers to the question regarding what device they mainly used for remote learning. Only 0,6% of students did not use a tablet, a smartphone or a desktop PC or a laptop for their remote learning. A laptop was the most used type of equipment for remote learning (for almost half of sampled students) followed by the smartphone (for one third of students) (Figure 15).

What device did you mainly (usually) use for
remote learning?

0,6%

12,2%

48,7%

34,1%

4,5%

- Laptop - Tablet - Smartphone - Desktop - None of the above
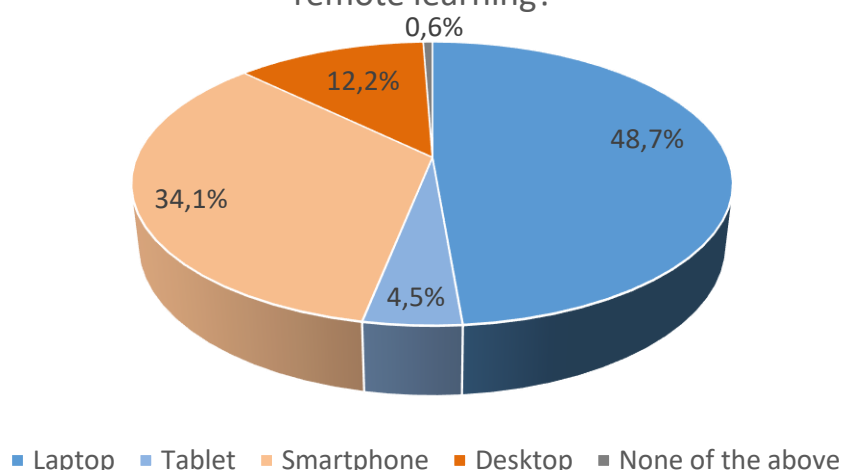
Figure 15. Devices used most often for remote learning. (Source: field research)

As shown in Figure 16, the vast majority (84,6%) of students directly possessed the device they most often used for remote learning. Only about one in ten students shared their device with siblings or parents, and about four percent borrowed the device from the school.

Who was the owner of this device, which you
used mainly for remote learning?

0,3%

4,5%

10,7%

84,6%

- It was my own device
- It was a device that I share with others, with my parents or my siblings
- It was a device borrowed from the school
- I didn't use any digital device

Figure 16. Owner of the device used for remote learning. (Source: field research)

Where did students mostly learn during the school closures? Almost half of the students used their own room, and about three in ten students studied in the room they share with their siblings. A non-negligible proportion of students had to learn in a shared family room (for example living room, kitchen, dining room), which may suggest deprivation and

worsened conditions to learn effectively among these students. About 5,0% of students studied in another (unspecified) place (Figure 17).

Where did you most often study during remote learning?

- In my own room
- In the room I share with my siblings
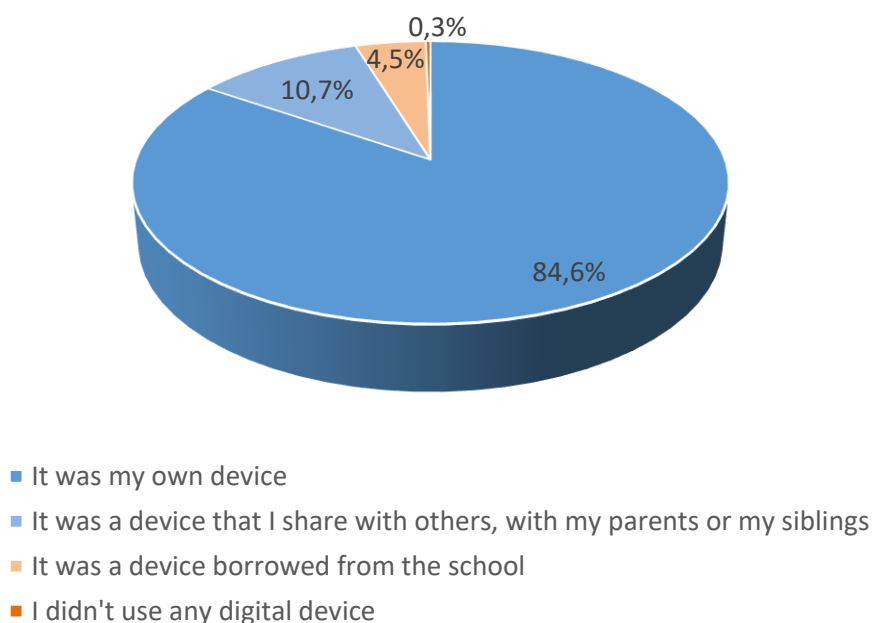- In a family shared room (for example living room, kitchen, dining room)
- In a place other than those mentioned above
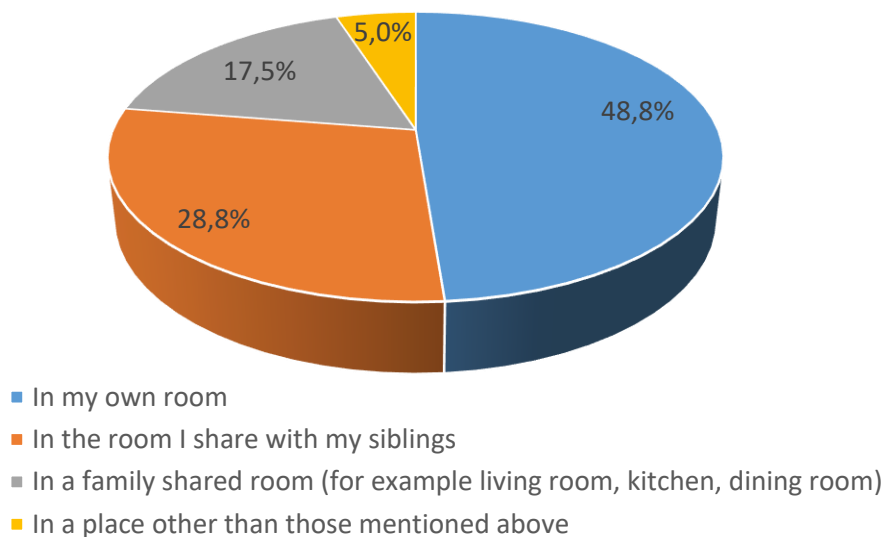
Figure 17. Most used places of study during remote learning. (Source: field research)

4.2 Online education assessment

Another section of the questionnaire consisted of the assessment of online education by the respondents. As seen from Figure 18, most respondents thought they were at much lower level (about one in four) or and a little lower level (about half of them). Only 12,8% of students perceived them at (much or little) higher level compared to the traditional school lessons. The results indicate that for the majority of students, teachers were not able to improve the quality of their lessons when using a medium of instruction instead of direct in person teaching.

The quality of online lessons, compared to traditional lessons at school, were on …

3,6%
9,6%
12,8%
23,3%
50,7%

- Much lower level
- A little lower level
- On the same level
- A little higher level
- Much higher level
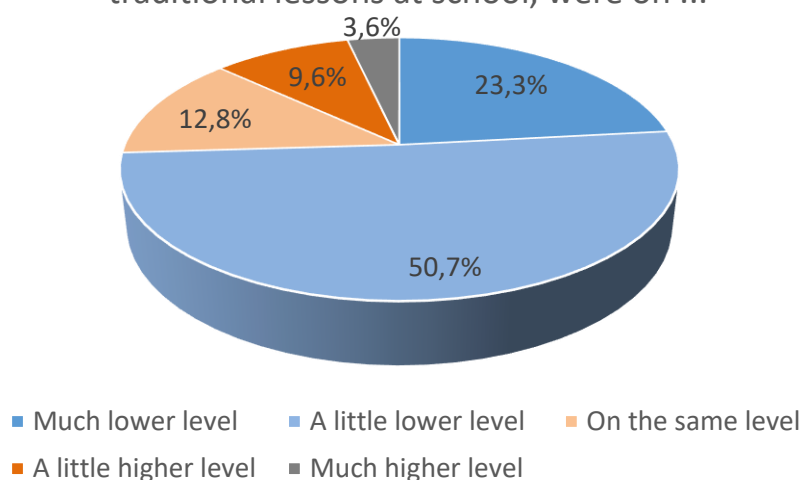
Figure 18. The assessment of the quality of online lessons compared to traditional lessons at school. (Source: field research)

A more detailed perspective on students' opinions and views on remote learning s provided in the Figure 19. Three statements with the highest **degree of <u>agreement</u>** (highest proportions of answer "Yes" or "Definitely yes") were following:

- I was able to learn even if I had other, more interesting things to do (80,1% of respondents).
- I took an active part in the online classes (75,7%).
- I finished homework and tasks assigned by teachers on time (72,6%).

On the other hand, the three statements with highest **degree of <u>disagreement</u>** (highest proportions of answer "No" or "Definitely not") were following:

- I am afraid that I will not be able to cope with traditional education (70,8%).
- I understood everything that was presented in the online classes (55,7%).
- I am afraid of the demands made by teachers after returning to traditional education (53,2%).

To what extent you agree or disagree with following opinions on remote learning?

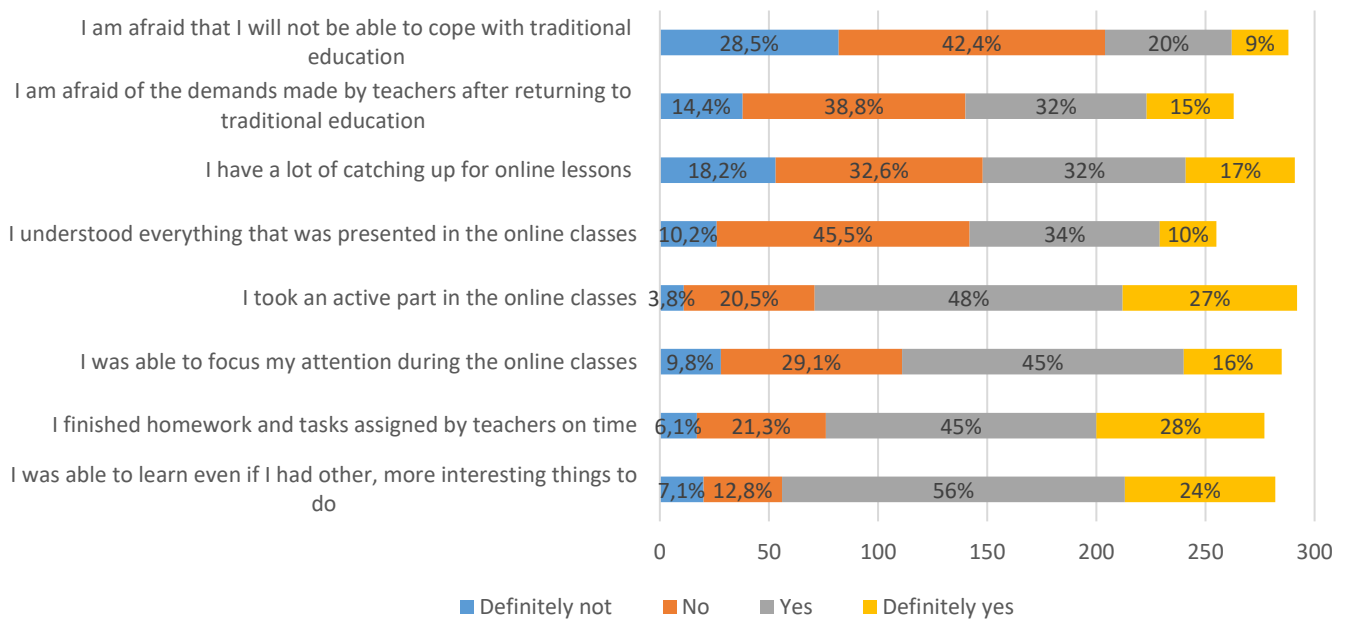| Statement	Definitely not	No	Yes	Definitely yes
I am afraid that I will not be able to cope with traditional education	28,5%	42,4%	20%	9%
I am afraid of the demands made by teachers after returning to traditional education	14,4%	38,8%	32%	15%
I have a lot of catching up for online lessons	18,2%	32,6%	32%	17%
I understood everything that was presented in the online classes	10,2%	45,5%	34%	10%
I took an active part in the online classes	3,8%	20,5%	48%	27%
I was able to focus my attention during the online classes	9,8%	29,1%	45%	16%
I finished homework and tasks assigned by teachers on time	6,1%	21,3%	45%	28%
I was able to learn even if I had other, more interesting things to do	7,1%	12,8%	56%	24%

Figure 19. General views and opinions of students on remote learning. (Source: field research)

Note: missing responses or "Hard to say" answers are not displayed in the chart.

Yet another set of statements and degree of (dis)agreement is displayed in Figure 20. Positively, the vast majority of students agreed that they wanted to learn as much as they could (four out of five students). For about half of the students, the remote learning was interesting. Only one third of students was looking forward to online lessons and almost one third felt unable to complete tasks.

Do you agree with the following claims about home learning regarding the time when schools were closed and only remote learning was taking place?
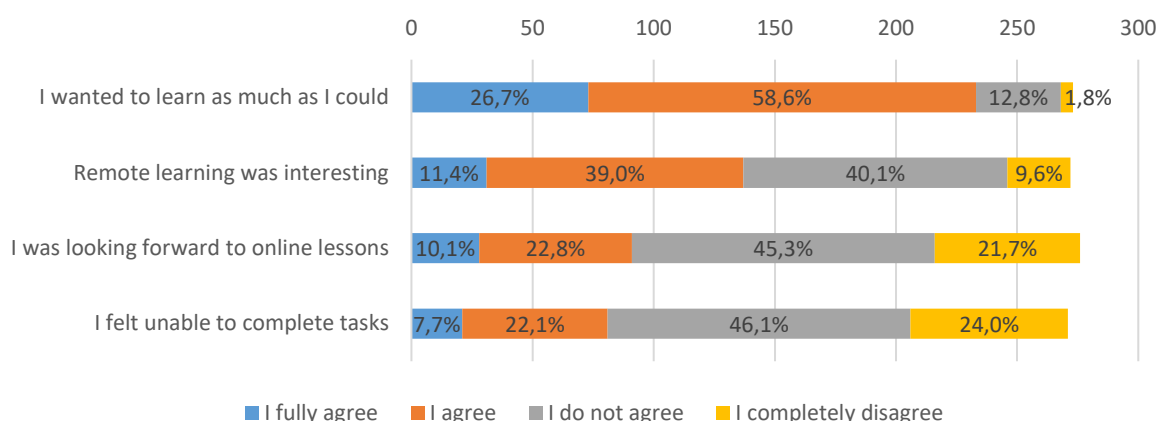
	I fully agree	I agree	I do not agree	I completely disagree
I wanted to learn as much as I could	26,7%	58,6%	12,8%	1,8%
Remote learning was interesting	11,4%	39,0%	40,1%	9,6%
I was looking forward to online lessons	10,1%	22,8%	45,3%	21,7%
I felt unable to complete tasks	7,7%	22,1%	46,1%	24,0%

Figure 20. Agreement of students with claims about remote learning. (Source: field research)

Note: missing responses or "I don't know" answers were excluded from the chart.

4.3 The pros and cons of online education

Questions about pros and cons of remote learning and online education were also a part of the questionnaire. Again, students were asked to express their level of (dis)agreement with eight statements. Figure 21 shows the distribution of student responses.

Four statements with **highest degree of <u>agreement</u>** (highest proportions of answers "I strongly agree" or "I rather agree") were following:

- I didn't have to get ready, travel to school and I had more time for myself (85,7%).
- Thanks to remote learning, I had more time for my family, classmates and friends (75,0%).
- I could learn more while studying at school than at home (70,9%).
- During remote learning, you can sleep well, you don't need to rush anywhere (68,0%).

On the other hand, the statements with **highest degree of <u>disagreement</u>** (highest proportions of answer "Definitely I do not agree" or "I rather disagree") were following:

- I was unable to fully participate in the online lessons due to health problems (80,3%).
- During remote learning my relationships and interactions with teachers worsened (65,3%).
- During remote learning I was tired and physically exhausted (53,6%).
- During remote learning my contact with my classmates worsened (53,3%).
- During remote learning, other students listened to what I was saying and it made me embarrassed (53,3%).

Please indicate to what extent you agree with opinions about remote learning

Legend: Definitely I do not agree · I rather disagree · I neither agree nor disagree · I rather agree · I strongly agree

Statements and percentages:

- Thanks to remote learning, I had more time for my family, classmates and friends: 3,0% | 7,4% | 14,6% | 34,8% | 40,2%
- I didn't have to get ready, travel to school and I had more time to myself: 1,2% | 4,2% | 8,9% | 26,8% | 58,9%
- During remote learning, I had fewer learning responsibilities: 13,5% | 19,8% | 19,5% | 27,5% | 19,8%
- I'm used to remote learning and I don't want to go back to school: 20,5% | 20,5% | 27,1% | 14,9% | 17,0%
- Remote learning is safer as I avoid catching COVID-19 at school: 7,1% | 10,4% | 26,5% | 24,1% | 31,8%
- During remote learning my relationship interactions with teachers worsened: 33,2% | 32,0% | 20,7% | 10,2% | 3,9%
- During remote learning my contact with my classmates worsened: 26,6% | 26,6% | 22,8% | 15,0% | 9,0%
- I could not fully understand the online lessons' material: 11,6% | 19,6% | 30,7% | 24,1% | 14,0%
- During the online lessons, it was difficult for me to focus on what the teachers were saying: 13,1% | 18,1% | 19,3% | 29,7% | 19,9%
- I was unable to fully participate in the online lessons due to health problems: 57,0% | 23,3% | 11,5% | 6,4% | 1,8%
- During remote learning, other students listened to what I was saying and it made me embarrassed: 27,8% | 25,4% | 24,0% | 12,9% | 9,9%
- Due to remote learning, I spent too much time at my computer / laptop / tablet / smartphone: 11,0% | 13,6% | 15,4% | 25,8% | 34,1%
- During remote learning I was tired and physically exhausted: 28,6% | 25,0% | 16,1% | 16,4% | 14,0%
- I could learn more while studying at school than at home: 5,0% | 6,2% | 17,8% | 18,7% | 52,2%
- During remote learning, you can cheat and use the help of parents and siblings: 6,0% | 8,0% | 20,2% | 28,0% | 37,8%
- During remote learning, you can sleep well, you don't need to rush anywhere: 7,7% | 11,0% | 13,4% | 19,3% | 48,7%
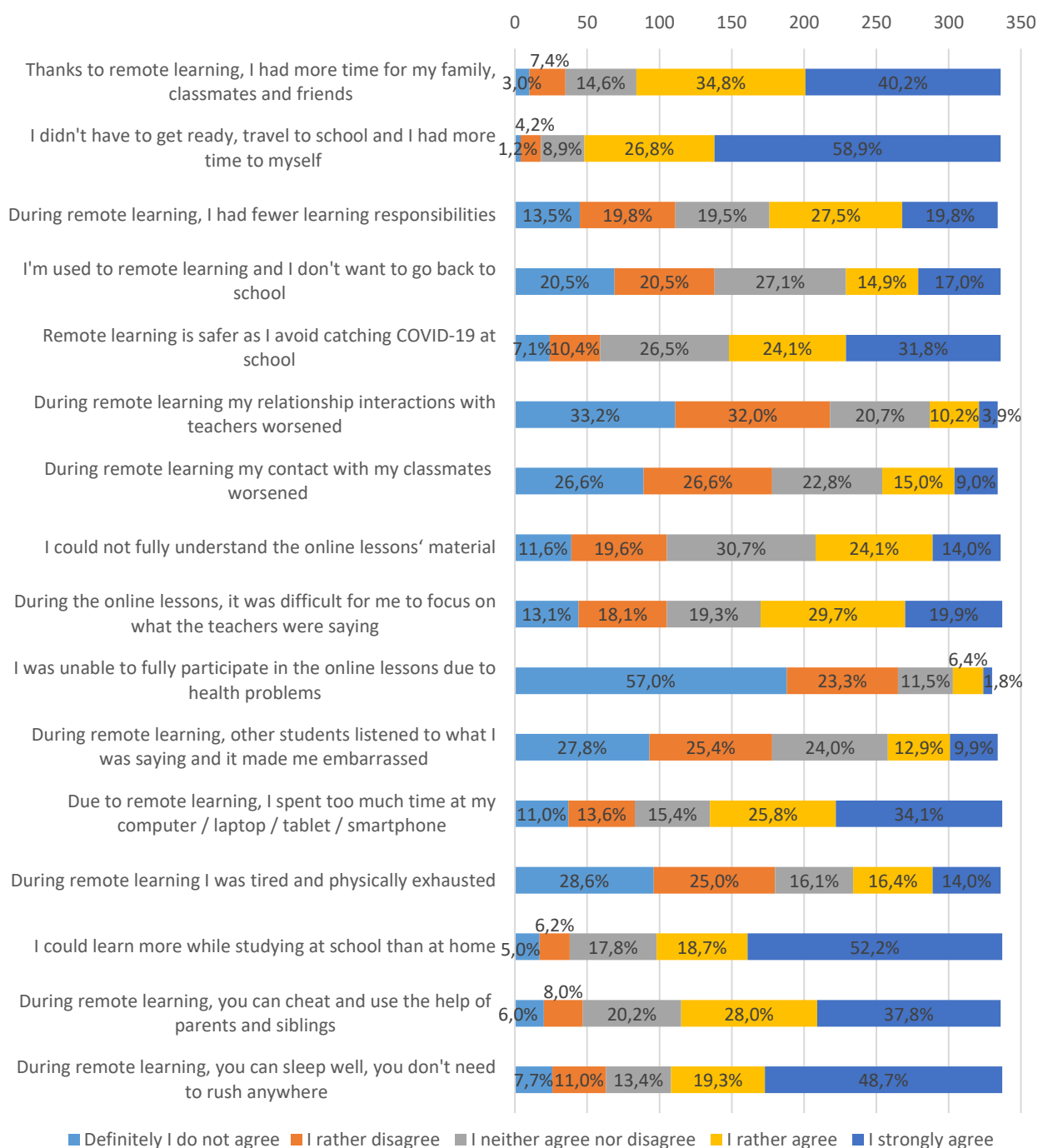
Figure 21. Agreement with statements about pros and cons of remote learning. (Source: field research)

Note: missing answers not displayed in the chart.

4.4 Level of involvement in online classes

How time consuming was the students' school life during the remote learning period? We asked how much time a day on average they spent on online lessons, on preparing for lessons, and doing homework. We also asked how much time have their parents or guardians spent

helping them to learn online. Table 8 shows, that on average, students spent 3,76 hours a day on online lessons, and about 1,92 hours on preparing for lessons. The involvement of parents or guardians was rather low, as they did not help the students not even one hour per day on average.

Table 8. Students' time involvement in school life during 2021

Number of hours a day spent on average during remote learning...	N	Mean	Median	Minimum	Maximum	Dev. std	Coefficient of var.
on online lessons	318	3,76	3,5	0	10	1,39	0,37
on preparing for lessons and doing your homework	328	1,92	1,5	0	10	1,42	0,74
Parents/guardians helped learn online	321	0,78	0,5	0	8	1,04	1,34

Source: field research.

4.5 Attendance in online classes and reasons for absenteeism

Absenteeism is a serious problem under normal circumstances, but it becomes even more serious during remote learning. When the student is not physically present at school, but has to connect from home, he or she can encounter technical problems, such as poor internet connection, or may turn off the camera and not actively participate in the instruction. Nonetheless, the vast majority of students in our sample reported that they either attended every online lesson (35,2%) or most of the online lessons (56,0%). Thus, only one in ten students attended only a part of online lessons, or hardly any lesson (Figure 22).

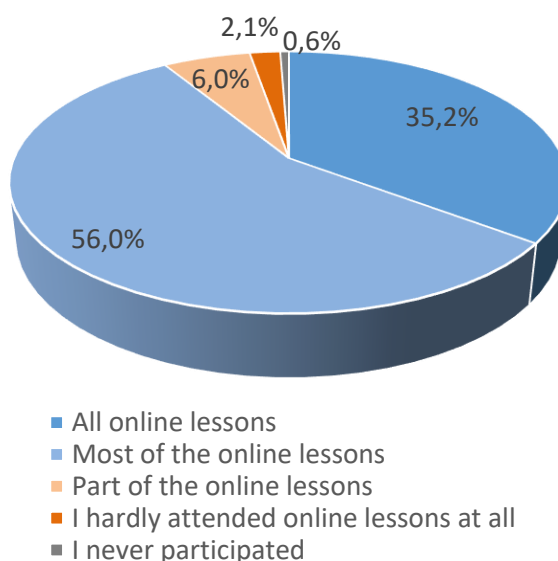During remote learning, I participated in ...

2,1% 0,6%
6,0%
35,2%
56,0%

- All online lessons
- Most of the online lessons
- Part of the online lessons
- I hardly attended online lessons at all
- I never participated

Figure 22. Attendance in online lessons. (Source: field research)

Students also reported various reasons for their absence in the remote online lessons (Figure 23). The most prevalent reason was sickness (42,8%) followed by other various reasons (33,5%). About one fourth of students could not attend some lessons because of technical problems with their computers or laptops (25,6%). Other reasons were less frequent.
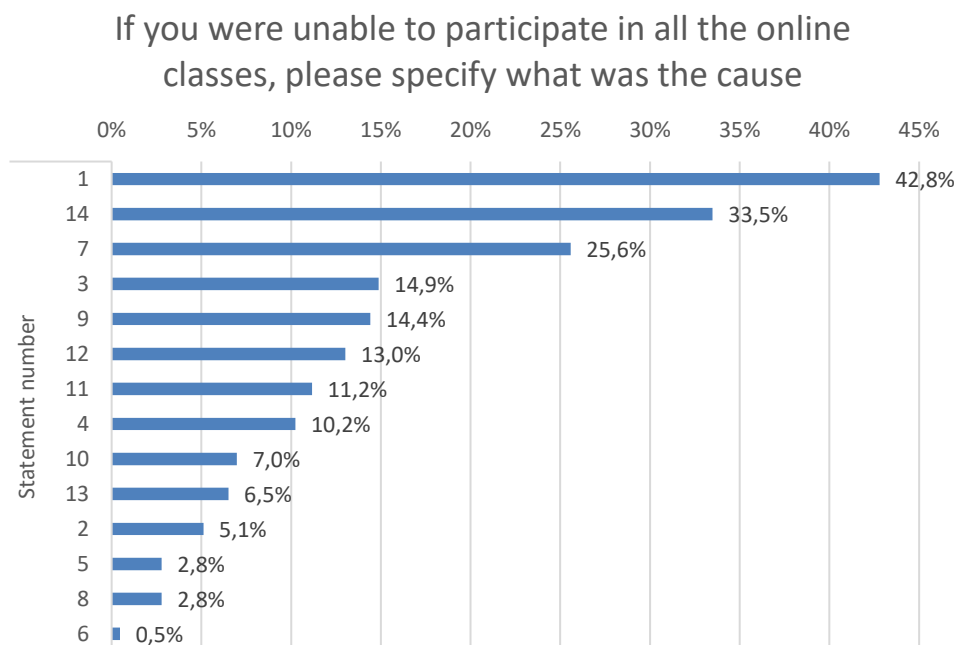
If you were unable to participate in all the online classes, please specify what was the cause

Statement number	Percentage
1	42,8%
14	33,5%
7	25,6%
3	14,9%
9	14,4%
12	13,0%
11	11,2%
4	10,2%
10	7,0%
13	6,5%
2	5,1%
5	2,8%
8	2,8%
6	0,5%

Figure 23. Causes of absenteeism during online lessons.[7] (Source: field research)

Note: this question was answered by those, who claimed they did not attend all online lessons (n = 215).

4.6 Readiness for school learning

The long period of remote learning together with some benefits that students may perceive may have influenced their opinions and views about the traditional school instruction. Therefore, one question in the questionnaire asked about students' preferences about ways they would prefer to obtain academic knowledge and skills in the future.

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[7] Statement numbers are following:
1) I was sick.
2) Parents or relatives were sick and I had to look after them.
3) I had to look after my siblings.
4) I had to help my siblings with the housework.
5) I had to help in a farm, seasonal work.
6) I had to work to bring money home.
7) I did not have functional / available computer / laptop to join the lessons.
8) Since I am not interested in school, I have different life plans.
9) Because some lessons were boring, uninteresting.
10) Because school bores me in general.
11) I did not do well during the lessons.
12) I was already tired of remote education.
13) Remote education gives you nothing, it's a waste of time.
14) Other than the above-mentioned reasons.

Actually, as Figure 24 shows, two out of five students would prefer to keep the traditional model of school learning without any kind of online lessons learning. Almost half of the students would, however, remain fully with online remote learning, or at least keep some of its aspects in the future school instruction: 28,0% of students would prefer hybrid learning and 18,0% would rather completely stay in a remote learning mode. Only 4,3% of students would prefer to stop studying at all, which can be considered a positive result given that students were sampled in socioeconomically disadvantaged regions.

If you had a choice and could freely decide how you will acquire school knowledge, which way of schooling would you choose

- I would like to go back to traditional education at school
- I would most willingly stay in remote learning
- I would prefer hybrid learning, where remote learning is combined with learning at school
- Preferably I would stop studying at all
- It's hard to say, I don't know
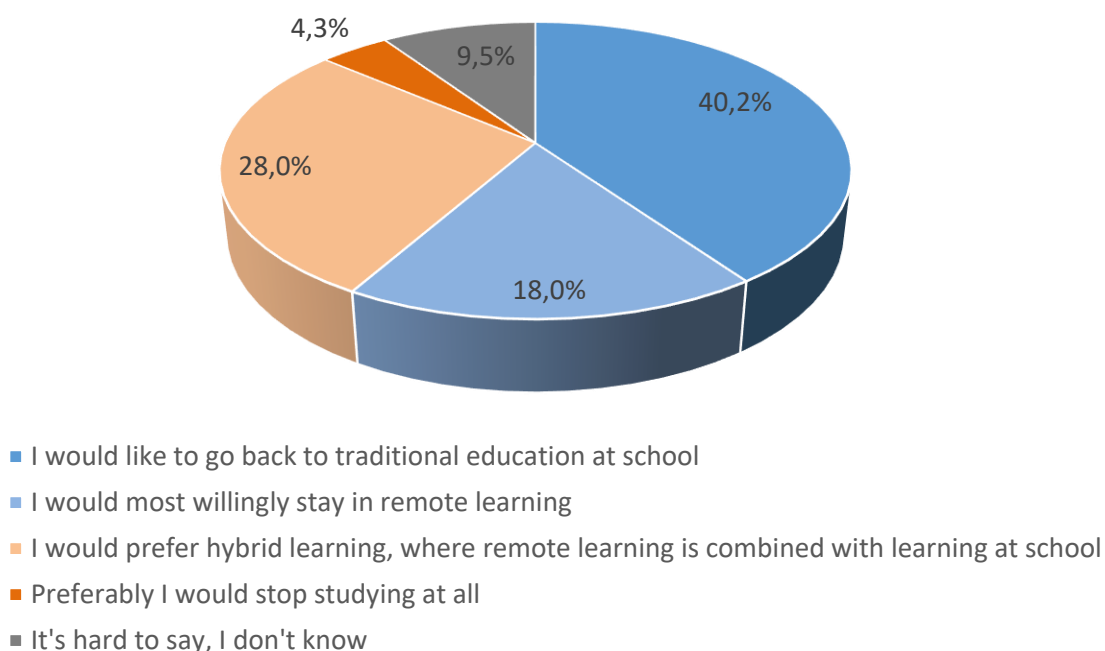
Figure 24. Students' preferences about learning in the future. (Source: field research)

4.7 Educational aspirations

Educational aspirations are generally lower among socioeconomically disadvantaged groups. This was also visible in the results of our survey. Only 10,0% of the students plan to continue their education in academic track upper secondary schools (the national average is 22%, Národní pedagogický institut, 2022). Most students intend to go to technical education schools (62,8%) and about one fourth of the students plan to obtain an apprenticeship certificate (Figure 25).

Where, after completing the primary school, do you intend to continue your education

0,8%
10,0%
26,4%
62,8%

- In a general education school
- In a technical education school
- In a VET school
- I do not want to continue my education
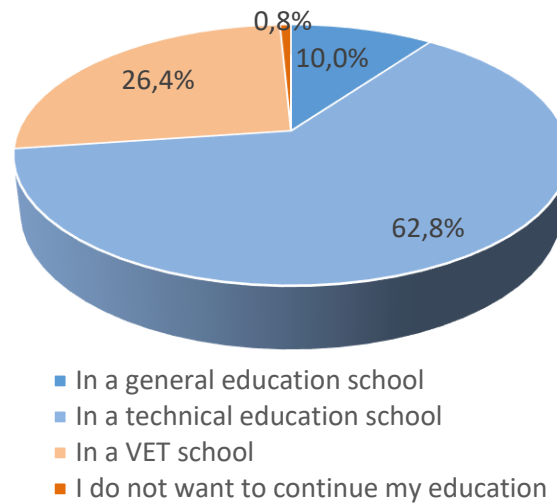
Figure 25. Educational aspirations of students in the sample.[8] (Source: field research)

4.8 Summary of the section

In general, the students seem to have had good technical and material conditions for learning during remote education. Most students also thought that online lessons were of lower quality compared to the traditional lessons, and most would also prefer to return to traditional school lessons in the future, perhaps with only some parts or aspects of school instruction being complemented with online teaching. Most beneficial for the students was that they saved the time they would normally use on travel to the school, and thus had more time for other things they wanted to do, and they could also sleep more. On the other hand, most students think they could learn more when studying at school, compared to the situation of remote learning.

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[8] The total N = 261 as responses "I don't know yet" or missings are not displayed.

5 Main research results and further recommendations

The survey, which was conducted through a personally administered questionnaire among lower secondary students in disadvantaged regions, is the first of its kind in the Czech Republic. The data drawn from a sample of more than 300 students, have shown both positive as well as negative impact of school closures and forced remote learning, which the government introduced as a response to the Covid-19 pandemic.

The socioeconomic structure of the student sample corresponds with the socioeconomic disadvantage of the region from which the sample of schools was drawn, i.e., Ústecký kraj. For example, the overall education level of their parents/guardians was lower than the country's average. Students also expressed lower educational aspirations compared to their peers in other parts of the country and had comparatively lower cultural capital (measured by proxy through the number of books at home). These findings confirmed the students' high vulnerability since the impact of the online remote education is generally worse on socioeconomically disadvantaged students.

Positively, students seemed to have good technical equipment that allowed them to participate in remote learning. Perhaps surprisingly, despite large governmental programs that supported the schools' acquisitions of ICT to make it available to the students, only a small minority of students made use of this offer. Most students possessed the ICT equipment themselves, or alternatively, shared it with their siblings for the online lessons. That suggests that although the respondents often come from economically disadvantaged families, their parents could afford to procure at least some pieces of equipment (arguably older and used ones, which are more affordable even to low-income parents with lower-level occupations). Also, the reported absenteeism in online classes is relatively low and three quarters of students reported that they took an active part in the online classes (though the survey did not inquire more into detail about various ways students participated in the online lessons). Students do not seem to be demotivated by the remote education to study further.

The negative findings concern the overall state of the students' well-being and mental and physical health. Unfortunately, it is impossible to determine exactly the impact of covid-19 pandemic, and of governmental restrictions and imposed measures in this area, as we only have cross sectional data from a single time point. The assumption that the pandemic era had a significant impact on the students' life and health seems substantiated. Most students in the sample express signs of depression, and experience a moderate or high level of stress related to time constraints or to their mental or physical health, despite being supported relatively strongly by their parents or guardians. Many of the students agreed that their relationships with teachers or classmates worsened during the school closures. In some cases, more severe mental problems may have developed, which may require the intervention of a specialist (e.g., of a psychologist). In general, students also found the quality of online lessons lower than of lessons at school, and half of them found it difficult to concentrate on what the teacher was saying during online lessons. This may suggest that teachers have had difficulties in involving every student in active learning during remote education, or also that many students were unable to concentrate in their home environment and thought they can learn more at school rather than at home.

The main recommendations are to resume the normal functioning of schools as soon as possible, to avoid interruption of "normal" schooling and to reduce implementation of any further measures in the future.[9] During the two years of the pandemic, students have suffered a lot of psychological damage, which may be difficult to recover from. Thus, specialist support from psychologists should be arranged and made more readily available in schools not only to help the students who already developed signs of depression or other mental problems, but also prevent and seek out those who are in danger of developing an adverse mental health state. Special funds should be thus allocated to schools to hire these specialists (e.g., psychologists) as a (full-time or at least part-time) members of the school staff. Also, courses, special lectures, or psychological workshops about how to cope with the stress could be deployed in schools in the region.

Technical problems arouse mainly in the first waves of the pandemic in 2020, but in 2021, our survey showed that IT equipment was not perceived as a problem for most of our respondents in the sample. Also, every school that participated in the survey claimed (to the author's report in an informal conversation during data collection) that they offered their needy students notebooks and portable SIM cards with a connection to the internet, thus effectively allowing students to take part in the lessons. Schools have sought this support from various sources, including the ministry of education's special funds, but also turned to municipalities, which are responsible for the funding and establishing of schools, or to private donors (one principal mentioned a local coal mining company, with which the school cooperated in the long term, that financially supported the acquisition of ICT). Thus, effective cooperation of schools with the local community seems crucial to assuring appropriate conditions for remote education.

As of March 2022, the situation around coronavirus pandemic seems to indicate positive developments with the omicron variant, which is much less severe compared to the original virus. Hopefully, the future developments will show that no further restrictions or measures are needed nor implemented. Despite that, two years in the lives of young, developing people is quite a long period of time, and will require further research, as the consequences and impacts in many students' mental health, and their formation of values and social relationships will likely become more visible in the long term.

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[9] The pandemic response in the second half of the year 2021 was somewhat different from the first half, when the schools were closed completely. In autumn 2021, different rules applied and were more invididualized, i.e., based on covid test results or on vaccination status. The impacts of this differential treatment on school or classroom climate and relationships among students and teachers was not in the focus of our survey, but should remain open for further more detailed research.

Glossary of abbreviations and terms used

CV   coefficient of variation

ICT   Information and communication technologies

PSS   Perceived Stress Scale

SSYSS   Short scale of Youth's social support

WHO   World Health Organisation

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