

Czech Education System and experience with COVID-19

doc. RNDr. PhDr. Oldřich Hájek, Ph.D., MBA,
Faculty of Administration and Economic Studies in Uherské Hradiště Jagiellonian College in
Toruń, hajek.oldrich@gmail.com
Ing. Blanka Vytrhlíková, MBA,
Faculty of Administration and Economic Studies in Uherské Hradiště Jagiellonian College in
Toruń, blankavytrhlikova@seznam.cz

Abstract

Education is one of the most affected field of COVID-19 situation. The main aim of this research paper is to briefly describe and illustrate effects of COVID-19 pandemic situation in the Czech Education System. Methodology of description and analysis is used to evaluate effects of COVID-19. The research paper focuses on elementary schools, high school and universities and highlight outstanding issues caused by COVID-19 pandemic situation in respective education system levels. The research paper also suggests related conclusions based on the presented research.

Keywords: COVID-19, Education system

Introduction

COVID-19 has its impact on many aspects of one's life. The pandemic situation in the World has been affecting the way people live, the way they go shopping as well as it affects education. On one side the, the pandemic situation, may help to accelerate services digitalization, people and students are getting used to have delivered their services on-line via variety of application. However, on the other side, it may be considered that accelerated on-line education may not be accessible to every single learner (e.g., for learners from poor countries or for learners with hearing/sight impairment).

During pandemic situation in 2020 at least four times more respondents reported that they use online platforms for teaching, training or assignment in a comparison with pre-COVID-19 times. Scientists (e.g. Chen) also highlight that synchronous learning platforms are being used in COVID-19 era (e.g. 2020) which is absolute opposite of pre-recorded learning videos from 2018 and 2019. Many respondents stress out that on-line education is the future for teaching, learning and assignments, especially in higher education and adults professional training (Chen, 2020). We can see the shift from in-class teaching to online platforms. However, is this the most significant way the COVID-19 has been affecting the education system in the Czech Republic?

The COVID-19 pandemic situation has affected Czech education system as well, especially with the government-enforced restrictions which include for instance using on-line means of education only and mandatory COVID-19 tests for elementary school students. Many parts of education system remain closed for in-class education (e.g., High Schools and

Universities). The effects of COVID-19 to education sector are visible and they may affect not only education providers (e.g., schools), but also students and parents (Ministry of Education, Youth and Sports, 2021). The research aims at providing a short overview introduction of COVID-19 effects on Czech Education System ranging from Elementary Schools to Universities.

Methodology of the research

For making this article, the methodology of analysis, compilation and description has been used. The research aims at providing an overview information regarding:

COVID-19 effects on Elementary Schools from the point of view of restrictions and its effects (illustrated on one specific chosen measurement) in the Czech Republic,

COVID-19 effects on High Schools from the point of view of restrictions and its effects (illustrated on one specific chosen measurement) in the Czech Republic,

COVID-19 effects on universities from the point of view of restrictions and its effects (illustrated on one specific chosen measurement) in the Czech Republic,

The main source of data is previous research of published scientific articles and data provided by government and government-related agencies (e.g., The Ministry of Education, Youth and Sports of the Czech Republic and Czech Statistical Office and Czech School Inspectorate).

In accordance with the presented methodology, the following hypotheses are set:

Hypothesis H1: In elementary school, students and teacher use mainly School platforms which are designed to facilitate communication between students and teachers to communicate with each other (e.g., Google Classroom or personalized Education School System),

Hypothesis H2: The most significant changes in the lesson plans and content delivered to students may be seen in Vocational School (which are not finished by Maturita High School Leaving Exam), no more than 40 % of vocational schools teaches their students according to the in-class lesson plan online,

Hypothesis H3: University students have significantly more on-line classes in comparison with pre-COVID-19 pandemic situation; the growth of weekly time distribution of on-line lessons for university students is highest in their weekly time distribution.

COVID-19 in Elementary Schools

COVID-19 has impacted especially elementary schools' students and their mental well-being. The isolation and not being able to be in contact with other students and in their normal school environment affect the way how elementary schools' students socialize. The use of on-line means of education may result in cyber-bullying and its effect on pupil's development and mental well-being, as well as in certain cases, the safe environment for education and socialization in school, is now missing due to isolation and schools closure. The isolation has its effect on education and learning process as well (Čermáková, Kment, Gargulák, 2020).

The following figure investigates the communication during COVID-19 pandemic situation between Elementary School Students and their teachers (chosen specific measurement).

The COVID-19 affects means of communication between students and their teacher. The in-class communication is not possible, therefore it is necessary to provide on-line communication and education to the students. The figure 1 shows the means of communication between students and teachers in Czech Elementary Schools during 2020. It is visible that the most used mean of communication is personalized e-mail (e-mail sent to each single student separately) followed by bulk e-mails (one non-personalized e-mail sent to all students at once). In both group, Grade 1-5 Group and Grade 6-9 Group it may be surprising that e-mails (both personal and bulk) and school Websites are common means of communication, however specialized school platforms and public platforms for communication (e.g., Google Classroom and School System “Bakaláři”) are not used as primary means of communication as often as it could be (Czech Statistical Office, 2020).

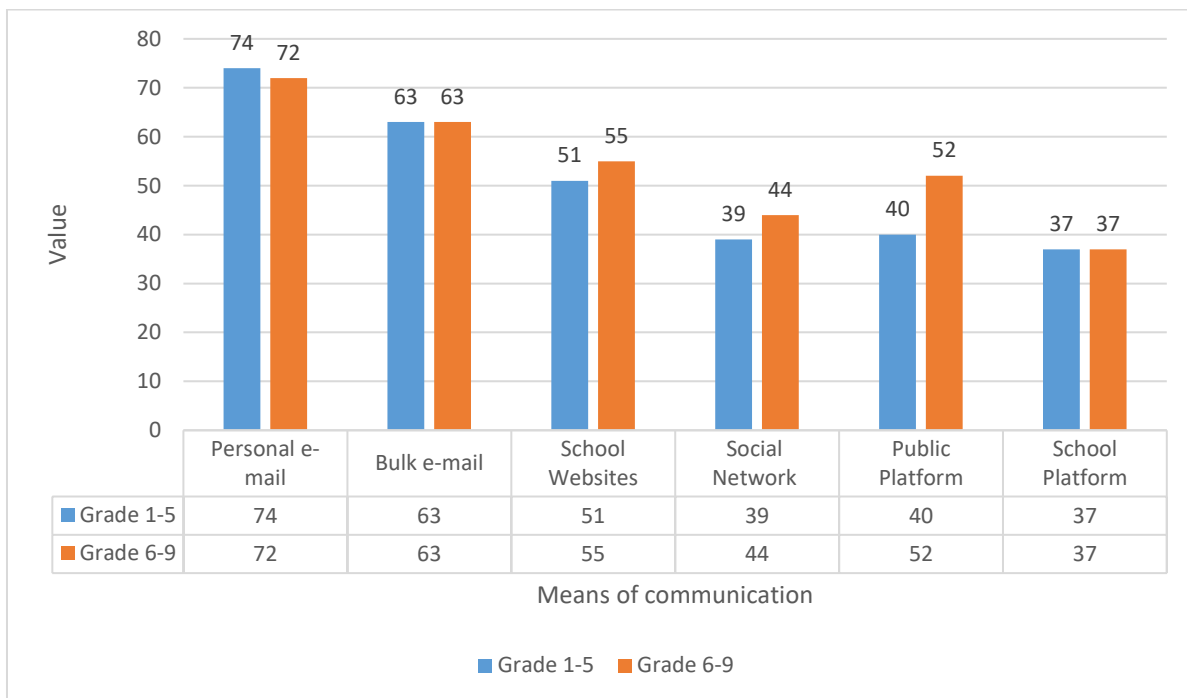


Figure 1: Means of communication in Elementary Schools during COVID (Czech Statistical Office, 2020).

According to the research, Grade 1-5 Group use slightly less Social Network as means of communication (39 % vs 44 %) as well as significantly less Public Platforms as a communication mean (40 % vs 52 %) than Grade 6-9 Group. According to the effect of COVID-19 on communication between Elementary Schools Students and their teachers, it is possible to conclude that:

E-mails and School Websites are used for communication in Elementary Schools during COVID-19 more often than Social Networks and Public/School Platforms,

Grade 1-5 Group teachers use less Social Network Communication and Public Platform to communicate with their students than Grade 6-9 Group,

Hypothesis H1: In elementary school, students and teacher use mainly School platforms which are designed to facilitate communication between students and teachers to communicate with each other (e.g., Google Classroom or personalized Education School System). Hypothesis H1 has not been confirmed.

COVID-19 in High Schools

Pandemic situation has effects on class organizational management. There is visible a reduction of study plans and content delivered to the High Schools students. For further examination, the following division of the Czech Education System at High Schools (“middle”) level is used:

Type 1 (HS Type 1): Vocational Schools without Maturita High School Leaving Exam (not finished by Maturita High School Leaving Exam),

Type 2 (HS Type 2): Vocational Schools with Maturita High School Leaving Exam (finished by Maturita High school leaving Exam),

Type 3 (HS Type 3): High School (“classic” High Schools, always finished by Maturita High School Leaving Exam).

The main difference between HS Type 1, HS Type 2 and HS Type 3 is that if students finish High School or Vocational School and pass the Maturita High School Leaving Exam, it is possible for them to continue to study further in Bachelor’s Degree Studies at Universities directly. On the other hand, students who finish only Vocational Schools without Maturita High School Leaving Exam (HS Type 1) are not allowed to directly enrol at Bachelor Degree Studies at Universities and have to study further to obtain and pass the Maturita High School Leaving Exam.

The following figure investigates the changes in lessons delivery from the point of view of content and/or subjects selection during on-line classes in COVID-19 pandemic situation.

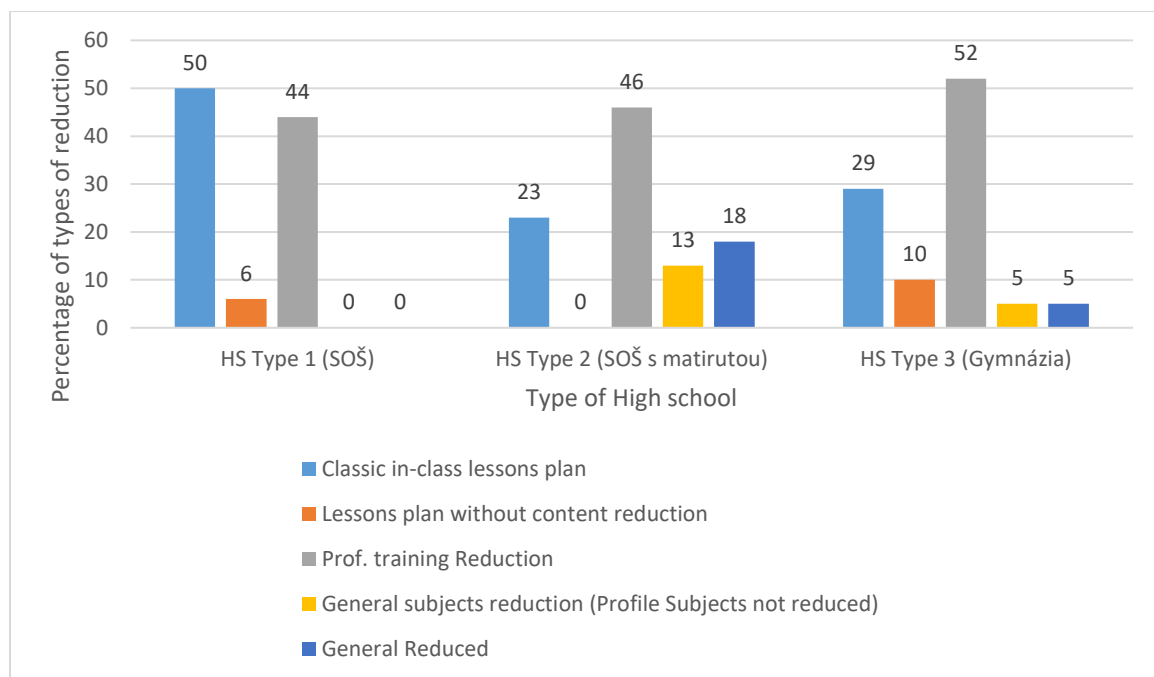


Figure 2: Changes in lesson plans/contents delivered to the students during COVID-19 in High Schools (Czech School Inspectorate, 2021).

It is seen that in HS Type 1 (Vocational Schools which are not finished by Maturita High School Leaving Exam) teaches students in on-line lessons mostly according to the classic in-class plan (50 %) or with reduction of professional training subjects (44 %).

HS Type 2 (Vocational Schools which are finished by Maturita High School Leaving Exam) teaches the students mostly with reduction of professional training subjects (46 %). Only

less than one fifth of HS Type 2 schools teach their students according to classic pre-COVID lesson plan (23 %). HS Type 3 schools (classic High Schools) teach according to the reduced professional training plan (52 %) (Czech School Inspectorate, 2021).

From the chart, it is possible to read following statements:

HS Type 1 (which is not finished by Maturita High School Leaving Exam) teaches mostly according to the classic pre-COVID in-class lessons plan in their on-line lesson (50 %),

The highest percentage of overall general reduction of lesson plans and content delivered to students is in HS Type 2 (Vocational School finished by Maturita High School Leaving Exam), which is 18 %,

Content reduction or reduction of professional training or general reduction of delivered content to students (e.g., less subjects or teaching only the “core” subjects) is a problem especially for High Schools and Vocational Schools which are compulsory finished by Maturita High School Leaving Exam. Vocational Schools which are not finished by Maturita High School Leaving Exam may not face as many changes in delivered contents/lessons to students as other types of Czech High Schools.

Hypothesis H2: The most significant changes in the lesson plans and content delivered to students may be seen in Vocational School (which are not finished by Maturita High School Leaving Exam), no more than 40 % of vocational schools teaches their students according to the in-class lesson plan online. Hypothesis H2 has not been confirmed.

On the other side, it was discovered that HS Type 1 seems to be the less affected type of High School in the Czech Republic by an on-line lesson delivery. Total 50 % of HS Type 1 Schools have been teaching without any changes in lesson plans or content delivered to students in their on-line lessons.

COVID-19 in Universities

Universities may be affected by COVID-19 from the point of view of providing the lessons delivery time to their students. Unfortunately, there is a big difference among Czech Universities in point of view on in-class lessons supplement.

The following figure investigates the weekly time distribution of university students before and during COVID-19 pandemic situation from the point of view of lessons delivery and self-study.

The data show that students tend to spend more time with self-studying during COVID-19 pandemic situation in comparison with online studies (Institute of Sociology of the Czech Academy of Sciences, 2020).

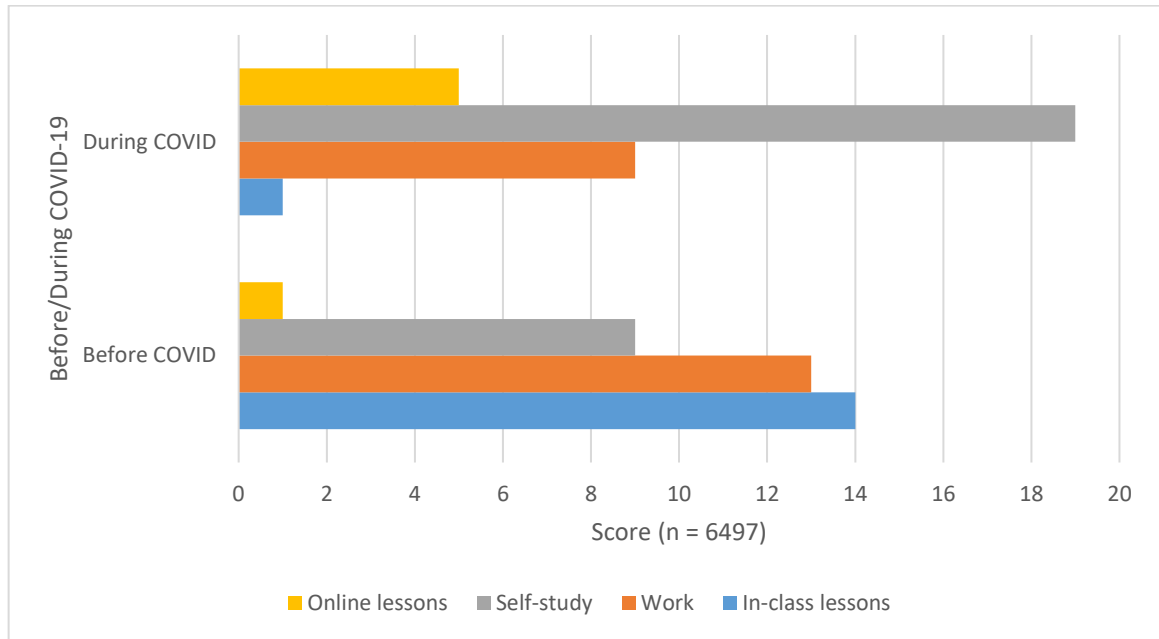


Figure 3: Weekly time distribution for students of Czech Universities (Institute of Sociology of the Czech Academy of Sciences, 2020).

The time distribution of university students (weekly) shows a significant shift in point of view of lessons delivery. It can be seen that in-class lessons for university students has become very restricted for students during COVID-19 pandemic situation. However, in contrary, we cannot see a significant increase of on-line lessons (pre-COVID vs COVID pandemic situation). What, however can be seen, is that:

During COVID-19 there is not sign of significant increase in on-line lessons delivery for university students (weekly time distribution),

During COVID-19 university students seem to prefer self-study, in which can be seen a significant increase in weekly time distribution,

Hypothesis H3: University students have significantly more on-line classes in comparison with pre-COVID-19 pandemic situation; the growth of weekly time distribution of on-line lessons for university students is highest in their weekly time distribution. Hypothesis H3 has not been confirmed.

On the contrary, we can see that there is a significant increase in self-study, which is higher than increase of on-line lessons (weekly time distribution for students). It is possible to make a conclusion that university students during COVID-19 pandemic situation focus more on self-study than on other means of studying (e.g., on-line lessons).

COVID-19 and teachers in the Czech Republic

Vaccination is a vital part of the fight against COVID-19 and it is important to vaccinate people working in high-risk professions such as teachers and other workers in education. In the Czech Republic, there is now vaccination of pedagogical and support profession through schools. The first figure shows development of diagnosed, hospitalized and dead workers and teachers in the Czech Education System from March 2020 till March 2021.

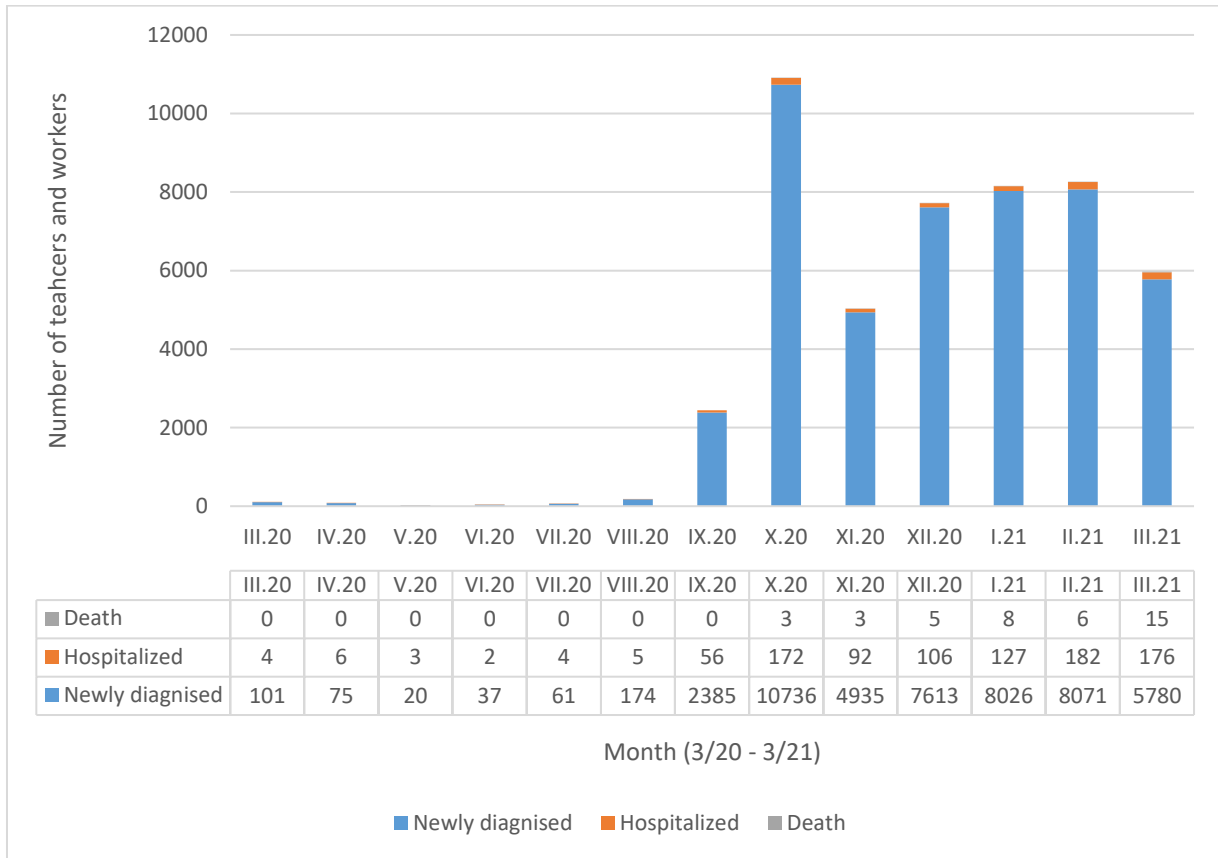


Figure 4: Newly diagnosed with COVID-19, hospitalized and death pedagogical professional in the Czech Republic from March 2020 till March 2021 (The Pedagogical Chamber of the Czech Republic, 2021).

Figure shows the ratio between newly diagnosed, hospitalised and deceased patients among pedagogical and non-pedagogical professionals working in the Czech Education System from 3/2020 till 3/2021. It may be seen that from October 2020 the ratio is decreasing. However, the number of deaths is slowly increasing from 3 deaths in October 2020 to 15 deaths in March 2021 (The Pedagogical Chamber of the Czech Republic, 2021).

The following figure shows vaccinations of teachers and non-pedagogical workers in the Czech Education System in 2021 (one of the priority group). Vaccination started in February 2021 and till the April, 12th, 2021 there is approximately 56 839 fully vaccinated workers and teachers in the Czech School System (Ministry of Health, 2021).

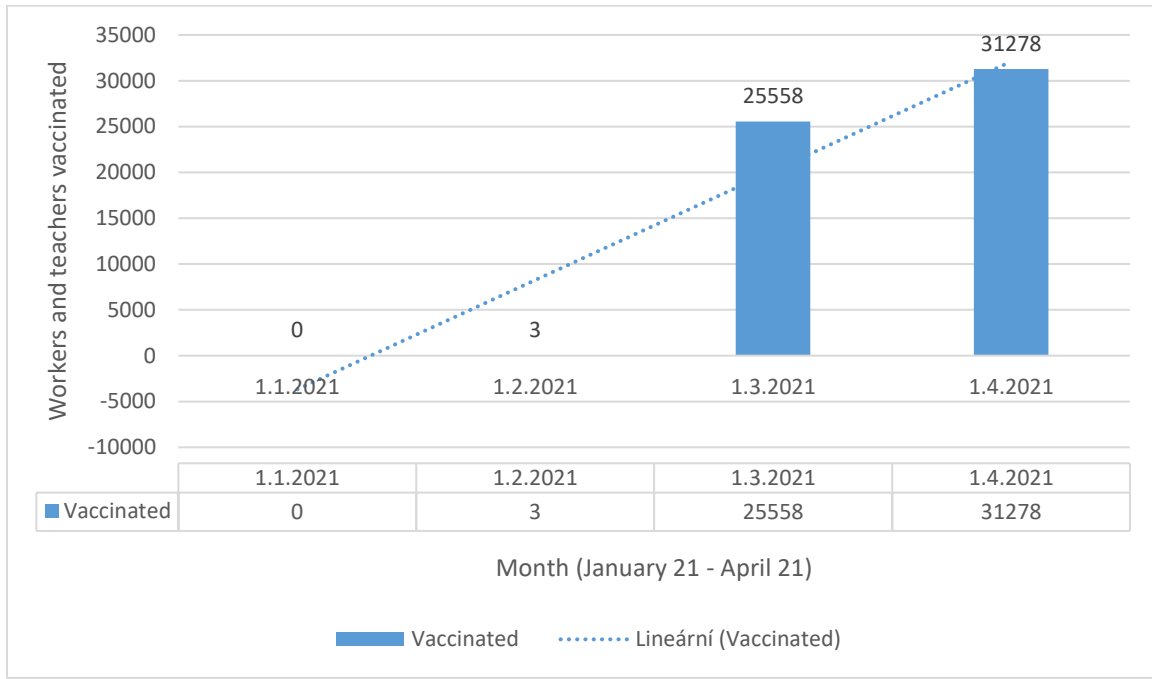


Figure 5: Progress of vaccination of teachers and workers in the Czech Education System as of April 12th, 2021 (Ministry of Health, 2021).

Conclusion

The research investigates public data issued by e.g., Czech Statistical Office, Czech School Inspectorate and Institute of Sociology of the Czech Academy of Sciences and other government and government-related organizations in the Czech Republic. For further investigation, the following hypotheses are set:

Hypothesis H1: In elementary school, students and teacher use mainly School platforms which are designed to facilitate communication between students and teachers to communicate with each other (e.g., Google Classroom or personalized Education School System),

Hypothesis H2: The most significant changes in the lesson plans and content delivered to students may be seen in Vocational School (which are not finished by Maturita High School Leaving Exam), no more than 40 % of vocational schools teaches their students according to the in-class lesson plan online,

Hypothesis H3: University students have significantly more on-line classes in comparison with pre-COVID-19 pandemic situation; the growth of weekly time distribution of on-line lessons for university students is highest in their weekly time distribution.

Hypothesis H1: In elementary school, students and teacher use mainly School platforms which are designed to facilitate communication between students and teachers to communicate with each other (e.g., Google Classroom or personalized Education School System). Hypothesis H1 has not been confirmed.

Hypothesis H2: The most significant changes in the lesson plans and content delivered to students may be seen in Vocational School (which are not finished by Maturita High School Leaving Exam), no more than 40 % of vocational schools teaches their students according to the in-class lesson plan online. Hypothesis H2 has not been confirmed.

Hypothesis H3: University students have significantly more on-line classes in comparison with pre-COVID-19 pandemic situation; the growth of weekly time distribution of on-line lessons for university students is highest in their weekly time distribution. Hypothesis H3 has not been confirmed.

The effect of COVID-19 pandemic situation is visible in all level of Czech Education System. Most immediate effect is government restriction of in-class lessons a de facto closure of School Education as we used to know before COVID-19 pandemic situation.

From the point of view of Elementary Schools in the Czech Republic, it is possible to state (according to the data) that E-mails and School websites are used for communication between teachers and students during COVID-19 more often than Social Networks and Public/School Platforms in general. It is also possible to state that Grade 1-5 Group teachers use less Social Network Communication and Public Platform to communicate with their students than Grade 6-9 Group teachers.

In general, it is possible to make a conclusion that school platforms which are designed to deliver on-line lessons to students may not be the main means of communication between elementary schools' students and their teachers. On the other hands, personal e-mails, bulk e-mails and School Websites are used more often.

In High School Level Education, it is possible to see the change of lessons plans and content delivered to the students during COVID-19 pandemic situation. It is surprising that Vocational Schools (which are not finished by Maturita High School Leaving Exam) seem not to change the lesson plans/content delivered to students and teach their students according to the original in-class lesson plans from before COVID-19 pandemic situation.

On the other hand, it is possible to conclude that the highest percentage of overall general reduction of lesson plans and content delivered to students is in HS Type 2 (Vocational Schools finished by Maturita High School Leaving Exam). Classic High Schools (HS Type 3) are affected as well, mostly by Professional Training reduction in their lessons plans.

University students do not show significant increase in on-line lessons delivered to them (in comparison to weekly time distribution), on the other hand it is possible to see a significantly higher increase in self-study hours in comparison to weekly time distribution. Therefore, it is possible to assume that during COVID-19 university students seem to prefer self-study to on-line classes and other means of lessons delivery.

Summary of conclusion of the research paper:

Elementary schools' teachers use mainly personal e-mails, bulk e-mails and websites as means of communication with their students during COVID-19,

High Schools which are finished by Maturita High Schools Leaving Exam (HS Type 2 and HS Type 3) are more affected by COVID-19 from point of view of lessons plans, lessons and subjects reduction than Vocational Schools which are not finished by Maturita High Schools Leaving Exam (HS Type 1). The most affected part of lessons plan/content seems to be Professional Training which is reduced in all types of High Schools.

University students seem to prefer self-study to on-line classes during COVID-19 pandemic situation.

It may be recommended to investigate the effect of COVID-19 from the perspective of changes which prevail after the pandemic situation in the future.

References

- CHEN, Z. (2020). *COVID-19 Educator Survey*. Singapore: Institute for Adult Learning.
- CZECH SCHOOL INSPECTORATE (2021). *Distanční vzdělávání v základních a středních školách*, Available AT:
https://www.csicr.cz/Csicr/media/Prilohy/2021_p%c5%99%c3%adlohy/Dokumenty/TZ_Distancni-vzdelavani-v-ZS-a-SS_brezen-2021.pdf
- CZECH STATISTICAL OFFICE (2020). *Způsoby on-line komunikace*. Available at:
<https://pbs.twimg.com/media/EgQjcAeXoAAG-Zc?format=png&name=4096x4096>
- ČERMÁKOVÁ, B., KMENT, Š., GARGULÁK, K. (2020). *Dopady uzavření škol kvůli pandemii koronaviru: logický model*. Praha: EduIn. Available at: https://www.eduin.cz/wp-content/uploads/2020/08/Dopady_uzavreni_skol_pandemie_koronaviru.pdf
- INSTITUTE OF SOCIOLOGY OF THE CZECH ACADEMY OF SCIENCES (2020). *Vysokoškolští studenti během první vlny pandemie koronaviru*. Available at:
https://www.soc.cas.cz/sites/default/files/soubory/tz_20200924_vysokoskolsti_studenti_behem_prvni_vlny_pandemie_koronaviru.pdf
- MINISTRY OF EDUCATION, YOUTH AND SPORTS (2021). *Nejčastější dotazy k aktuálním opatřením ke koronaviru*. Available at: <https://www.msmt.cz/faq-nejcastejsi-dotazy-k-aktualnim-opatrenim-ke-koronaviru>
- MINISTRY OF HEALTH (2021). *Denní přehled dat k očkování proti COVID-19 k 12. 4. 2021*. Available at: <https://www.mzcr.cz/tiskove-centrum-mz/denni-prehled-dat-k-ockovani-proti-covid-19-k-12-4-2021/>
- THE PEDAGOGICAL CHAMBER OF THE CZECH REPUBLIC (2021). *ÚZIS: Koronavirus a školství (prezentace)*. Available at:
<https://www.pedagogicka-komora.cz/2021/04/uzis-koronavirus-skolstvi-prezentace.html>