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Modern Technology As Help And Support In Times Of Educational Changes

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ABSTRACT
The first confirmed case of COVID-19 in the Czech Republic was recognized on 1st March 2020. The confirmation was followed by restrictions and limitations based on the decision of the Czech´s government. One of the influenced fields was education. The restrictions have significantly affected the schools, teachers, students, and parents also. Many parents must stay at home with their children which have influenced diverse areas of the economy. The education has moved to the online environment, which has never happened before. This article aims to investigate in perspectives of primary schools' teachers and their approach to modern technologies as educating tools. What are their experiences and what technologies (software and hardware) they have to work with?

Keywords: online education, distance education, modern technologies, pedagogue, pandemic Covid-19, pupil, student

INTRODUCTION

In the current situation, modern technologies are one of the pillars not only in education but in the whole education process also. Tendencies to include modern technologies in education have significantly supported the pandemic COVID-19 and the transfer of education to the virtual environment. The pedagogues at all levels of education provide students with material for home studying, hand out homework and share links for more supportive materials. Thanks to possibilities of internet and software are possible to teach online, organize classes, have consultation, parents meeting etc.

From long-term studies carried with adolescents, based on the results of magnetic resonance and other resources and methods, it is obvious that generation which grows up with IT technologies has lower IQ, their stupidity grows, their ability to solve problems is lower, and under the influence of texting their ability to communicate is dropping down (Stránský, 2017).

Řezníček (2020) discuss online learning and its risks. The risks are inequality between people; reachable online sources for pupils; the new resources for work; the change in pedagogical communication, presentation and sharing the thoughts, and autonomy of pupils. Řezníček (2020) points out the inequality in modern technologies from the perspective of the ability to work with them and our skills, and the fulfil usage of their potential. The author highlights the need to recognize digital and informational literacy. Digital literacy is using the resources, but informational literacy is needed for the digital. Both types of literacy cannot work without the other one. The ability to find the information they work with data does not end, it is crucial to think critically and systematically. Thus, the pupil can analyse the data. However, if this does not happen the pupil just connect the data, but they cannot interpret and use the data in practice.

Skálová (2004) comes up with the theory that with expand of informational and communicational media the world is dehumanized and humans´ diversity will be threatened by the influence of those modern technologies. The author claims that pedagogues critique the TV and other media for bringing the lowest cultural influences. The lowest influences then lead to the vulgarization of sense for art and flair, affect the values of young people, supports the aversion to quality education and does not support higher thinking. On the other hand, she states the efficient use of ICT can positively influence education.

According to the Czech school inspection (Zatloukal, 2020), digital technologies are most used in subjects focused on biology, geology and foreign languages. Often the digital technologies were used by the teacher to present learning materials or showing the procedure. Digital technologies are mostly used by teachers, only 10% of the digital technologies are used by all pupils. Furthermore, on purpose, digital technologies are used in 54% of lessons.

The connection of modern technologies between schools and families is obvious. The parents should care about children´s view on school, and how do the children perform in school. The cooperation between schools and parents should produce the feeling of cooperating and belonging (Stárek, 2021). However, for some parents, communication in the current situation can be discomforting. Not only, the digital learning involves the

technologies which parents know by intuition such as learning program, but it comes up with different communication style with the teacher also.

Digital and informational literacy

By digital literacy, we understand the collection of digital competencies such as knowledge, skills, values and positions. These one needs to be able to use the digital technologies for safe, confident, critical and creative activities such as for work, for learning, in leisure time or for entering the social life. (National agency for learning, online).

Digital competencies are understood as modern and key competencies. This kind of competencies is seen as a key role for developing them within our pupils and students. The base is characteristic application. So, we can understand this as using the most modern and recent technologies while activities and for solving problems. With regards to it, we can assume their changes throughout periods, and how the digital society changes are visible from the National Agency for learning (online).

Maněnová (2009) describes literacy differently not as the ability to read and write, but as abilities and skills. According to her, digital literacy is understood as the ability to work with modern informational and digital technologies and recourses. As mentioned before the informational technologies are mainly computers, notebooks, tablets, and cell phones. There are certain skills and abilities which are crucial for work with informational technologies. For example, abilities to use a computer and its peripheries as a writing tool, abilities to solve mathematical operations, abilities to solve practical problems with the use of cancel´s systems and abilities to print a text. Furthermore, abilities to structuralize texts, create simple documents, graphical records and create audio connections. Plus, abilities to use a computer as a connection to the internet, abilities to communicate medially, abilities to orient in systems of work with documents, abilities to search for information, and abilities to orient in filtering the information.

Kapounová & Pavlíček (2003) discuss the standards of computers´ and technological literacy in education. They highlight the international company for technologies in education – ISTE5 with residency in the USA. According to this company, these standards were created:

Primary literacy

- to learn to use a computer and other technologies during education,
- every future pedagogue should accomplish the basics in work with a computer in an area of basic terms, personal and professional use, and use of technologies in education;
- Special preparation of technologies in education
- to allow pedagogues to gain the skills for education the computers´ app,
- the preparation involves social, ethical and human perspectives while using computers, use the technologies as useful tools, be able to communicate and create access towards the information, do research, solves problems, and create products;

Professional preparation

during the professional preparation students learn how o prepare computers´ and technological literacy in education, and how to connect the methodology of education with knowledge about technologies while learning.

The Czech school inspection is observing the growth of informational literacy states the Year´s report of the Czech schools´ inspection (Zatloukal, 2020). The first is mentioned the abilities of informational literacy, whether their listing correlates with the previous listing. Furthermore, the report is focused on the content of curricula. Currently, the educational framework programs (RVP) demand the development of information literacy on a low level. The current educational framework programs limit the content of informational and communicational technologies (The educational framework programs for primary education).

Digital literacy is a collection of separate (digital) competencies which one needs to be able to use the digital technologies safely, confidently, critically and creatively. All of these are crucial for the usage of digital technologies for several activities such as for work, for learning, in leisure time and for participating in social life. The digital competencies are understood as key competencies without a teacher is not able to develop crucial competencies within the students, which are important for entering the job market and participating in society. However, the concrete competencies are not permanent. The competencies are changing accordingly to the diversity of using the digital technologies in society and one´s life (Zatloukal, 2020).

Distance learning aims to provide education to those who cannot participate the present/contact form of education (Zlámalová, 2007). Distance learning and its diverse forms have been successful more abroad and among pupils of elderly age or students at universities. Often this approach is presented as a suitable addition to usual school attendance. In Czech education, the development of a dual system has been allowed since 90. years. In August 2020 the novelization of the School law has been introduced, and it includes the rules for the implementation of distance learning. As pros of distance learning can be classified following time and content flexibility, diverse ways of feedback, high level of independence mainly for establishing own pace of learning and use of diverse informational and communicational technologies (Zlámalová, 2007). The risks and problems

related to distance learning can be linked to the pedagogues and the pupils/students. From pedagogues´ perspective the risks and problems are mainly in the field of preparation and organization, the need to have specific abilities and skills, demanding preparation and thoughtful planning of assessments (Zlámalová, 2007). From the pupils´ and students´ perspective is can be a lack of motivation, inexperience with this form of learning and lack of abilities and skills for using diverse technological tools.
With regard to the focus of the paper, it is necessary to draw attention to the legal issues … modern trends in the history of democratic and rule of law represent requirements for the active participation of citizens in creating an environment of legal stability and legal certainty, especially in relation to the protection of human rights and freedoms. Very complicated systems of legal rules are being created to guarantee the full and undisturbed exercise of human rights and freedoms and, on the other hand, the fulfillment of legal obligations (Víšek, Kroupa, 2020).

Methodology
The research has three main aims. The first aim is to get an overview of the relation and importance of modern technologies for primary pedagogues. The second aim was to investigate what equipment the primary pedagogues have concerning COVID-19. Finally, their view on a year duration of pandemic COVID-19 concerning their profession.

The chosen research strategy
According to the methodology of data collection, Hendl (2016, p. 23) states that" … qualitative research uses random choices, experiments, and strongly structuralized data collection mainly through tests, questionnaires or observations. The constructive concepts find out by measuring, in the next step the data are analysed by static method to explore, describe and verify our hypothesis about the relation of researched things. Usually, it relates to the hypothetical-deductive model of the sentence." As a method of data collection for this research author used a questionnaire. It is a commonly used method in educational, sociological, and psychological research. The questionnaire is mainly for getting the information, attitudes, and thoughts about the topic. According to Chráský (2016), the questionnaire is a way to ask written questions and receive written answers. It is a set of prepared and formulated questions which are organized thoughtfully, which is respondent answering by writing. Due to the pandemic COVID-19 and the research topic, which is digital technologies, for distribution and answering the questionnaire the Microsoft Forms tool have been used. The distribution of the final version was in an online environment also. The link has been shared on several platforms such as Incluvsiveschool.cz, Czech school, EDUin, Open education, and social media i.e., Facebook. These platforms are used by pedagogues, so they were asked to participate in the research. The inconvenience is that the researchers do not know the number of asked participants. The questionnaire includes 19 questions. There were 17 closed questions and 2 open questions which invited participants to freely express their selves. For open questions, open coding was used and following categorization of answers.
In today's rapidly changing societies, new and new research topics are emerging for which qualitative research is suitable for its flexibility. We are convinced that qualitative research has a strong place in the pedagogical sciences, especially for special pedagogy (Daněk, 2021).

Characteristic of respondents
I nto the target group belong the pedagogues teaching at the first level of primary schools, who use modern technologies and tool for online learning in the educational process. According to Punch (2008) states that for collecting data from the specific group the questionnaire is focused. In the whole coverage, we mean all population. However, the questionnaire is focused on a sample of the population. Whether we want to apply the result to the whole population the results will not be representative. For this research, the author decided to apply this principle if it is possible to choose the sample which maximises the possibility to find out the relation between tested constants (Punch, 2008). From all gathered 149 responses, including the pilot clarification, there were 145 women´s pedagogues which is 97,3% and only 4 males´ pedagogues which are 2,7%. The age diversity in the respondents' group was 26-69 years. The age variety more likely corresponds with the results of the Czech school inspection (Zatloukal, 2020), in more details the most common age group is 40-49 years, followed by the age group 50-59 years. Another assumption was that the highest achieved degree will be a master's degree, which was true in 133 respondents. The respondents had the opportunity to state their qualification if they had achieved the master´s degree. This opportunity has used 61 participants. Almost one-third of participants have qualification as special pedagogue and two-thirds have qualification as pedagogues at the first level of primary schools. The last personal question is the location of the school, the most common answer was a city with 45,6% and the second was a village with 26,8%. According to Eurostate (2020) in 2018, there were 5,2 million teachers, and there were 72% of women in education. The age proportion was only 7% under 30 years and 39% above 50 years. The feminization of education is not happening only in the Czech Republic, but it is common problem and advantage in many countries across Europe.

Pilot verification

Every pilot verification has three main aims such as whether the questions are understandable and clear, tests length, time and difficulty of a questionnaire, examinates accessibility, ethical aspects and studiousness. Govara (2000) states that the researcher must have enough notes, theoretical ideas, and they must know the aims of the research and use of results. Therefore, the first of this pilot verification was studying and familiarizing with the literature, whether from books or online journal articles. The idea behind this was to find whether the research question and hypothesis have strong support in the literature. The content of this article is quite new in society, we are talking about the last two or three decades. Thus, there was not find any work which would be investigating in this field even with regards to pandemic COVID-19. Furthermore, was making theoretical art which was base on questions used in the questionnaire. During the pilot, verification was with six respondents discussed whether the questions meet all criteria. Thus, if questions are understandable, clear, what time the respondents need, and if the respondents find the questionnaire complicated. All respondents had the questionnaire in front of them, meanwhile, the online meeting was held. If had happens that some questions have not to meet any criteria it was formulated differently. The respondents of pilot verification had received the questionnaire one week ahead before the online meeting. Therefore, there was enough time to go through the questionnaire and reflect on this field. Very important was to find out whether the respondents understand technical terminology around informational and communicational technologies. Therefore, based on the recommendation the fourth question was implemented – "In what year of primary school are you teaching? (more responses able)". More likely the respondents have stated that it is different whether they are teaching in the first year of primary school or the fifth year of primary school. Furthermore, the word order was fixed, thus the question was clearer and sharp.

RESULTS AND DISCUSSION

To assess the relation towards modern technologies there was used similar grading system as in Czech´s schools, so 1-5. Where 1 means brilliant approach to technologies, so the pedagogue is using them often and likes them, they understand them. Whereas 5 means inadequate approach, the pedagogue is not using the technologies and they do not like them. The average grade from all 149 responses was 1,74. This grade presents a positive attitude towards modern technologies. Similar results gained project Czech teacher in the world of technologies (2020), where the group of respondents was more diverse. However, the results were positive and most of the teacher (85%) stated they like to use modern technologies. The majority of respondents said that they are ready to efficiently use the technologies in education and that current Czech schooling needs the support of technologies in daily education. The next question was focused on the appropriacy of usage of modern technologies on the first level of primary schooling. Again, there was used the scale from 1 to 5. The grade was 1,57 which clarifies that pedagogues agree with the use of technologies. Obviously, modern technologies would find their place at the first level of primary schooling and the pedagogues are motivated and willing to work efficiently and motivate children to great results.

The field of research about pedagogues´ digital competencies presents that 76 pedagogues had good knowledge and skills about technologies, at the moment when schools were closed due to the pandemic COVID-19. Furthermore, 28 pedagogues had enough knowledge and skills that they did not need to learn something new. Another 27 pedagogues had not enough knowledge and skills, they had problems and a lack of experiences. Finally, 15 pedagogues had to learn everything, and it was their first time working with modern technologies.

In the project Czech teacher in the world of technologies (2020) was the question for pedagogues to assess their abilities, skills, and knowledge in the world of modern technologies. From the whole number of 2165 respondents came up these results: an average user of digital technologies sees themselves (66,24%), one-quarter sees themselves as the advance user (26,19%) and a part sees themselves as experts (3,83%). Only 3,51% sees themselves as a beginner in the world of modern technologies (Kopecký & Szotkowski, 2020).

From data collet by Czech´s school inspection (2020) arises that the whole situation around COVID-19 has shown pedagogues´ low competencies in work with digital technologies. Part of teachers could rely on their previous experiences. However, almost one half felt the need for support.

Furthermore, the research asked pedagogues where they find and learn new skill and abilities to work with modern technologies and online tools. The first mentioned resource is advice and tips from colleagues with 109 responses. Next is the YouTube platform with 102 responses. The third are webinars which are online seminars, thus they need to be connected to the internet, this had 89 responses. The last was Facebook with 83 responses. Another mentioned resource is the possibility of IT in school, IT coordinator or their employer had secure IT training. To compare with the project Czech teacher in the world of technologies (2020), 36% of pedagogues is in any kind of online community, where they share their experiences, advice and tips. The most used platform is Učitelé+.

The most used modern technology which pedagogues use is a notebook with 127 responses, the second most used is an interactive board with 94 repones. The third place has gained a printer with 77 responses. All of these are closely related to each other, next well-used technologies are computer, scanner, data projector and tablet. The least responses gained tv and cell phone. Interesting were four other responses with were graphical tablet and visualizer (backward projector).

According to the Czech´s school inspection (2020), the good result is that even the headmasters appeal for investments for material progress, mainly for specialized classes. However, there is a paradox that by the third year the need for better equipment in ICT is lowering (from 60% to 30%). Nevertheless, the pandemic COVID-19 has shown that is crucial to promote this need and not lower it. The schools which have provided their pedagogues with sufficient has been in a better position in March 2020 when the schools were closed. With regards to technological foundation, a question about the most used technologies in the educational process arise. Based on the assumptions, the most used tool is a notebook, the second is an interactive board which is almost usual for schools, and the third is a printer. At similar positions are table, smartphone, data projector.

March 2020 will be in history seen as a milestone for distance learning because when schools were closed not only teachers needed to find a way how to teach online. The next question asks how the schools were technologically ready with regards that each teacher could connect with pupils immediately. The responses showed that schools were ready, thus each pedagogue has a notebook or there were one in the classroom. However, most schools have not been ready, and most technologies were bought during the closure.

The hardware equipment is one thing, but the brain of distance learning is software. The research investigated in software currently most used by pedagogues. The question offered a significant pile of well-known platforms, but it was open for more answers, to find out if the combination of platforms is happening. The results have clarified the hypothesis, from 149 respondents was collected 672 answers. The line of 70 answers has crossed email and tool from Microsoft Office for distance learning Microsoft Teams. The third-place have gain program Bakaláři. Another significant post has gained electronic books, which have free access for schools while crisis. Other platforms are G Suit and YouTube. Own places have Facebook, Messenger, WhatsApp, Office 365, Wordwall etc. In section, other teachers recommend Škola v pyžamu, Edupage, Learning Apps, Quizlet, Testmoz, Flippity …

Schools´ informational system Bakaláři which arises from own research as the most used, has been identified as most used in project Czech teacher in the world of technologies (2020) also. From 2165 respondents have 1279 respondents identified the system Bakaláři. This study has also clarified that at most primary schools the Google Classroom is the most used tool which is part of G Suit, the responses are 65,39% saying that. However, in this study, the most used tool is Microsoft Teams which is part of Office 365, which has gained only 19,12% in the project Czech teacher in the world of technologies (2020). From this, we can see that information diverse. However, it is important to mention whether the teachers have been working with the online tools before the schools´ closure. 108 respondents have stated they have been working with the online tool before and only 37 respondents had to start working with them to be able to complete the online learning. In category others, all respondents agree that they have used some of these, but now they have more diverse choices. The research highlights that pedagogues have studied on their own. However, only that far as it had a purpose for them. On the other hand, after the schools´ closure, they had to study and orient in the accessible online tools which they have not used before. At the primary schools is only 41% of pedagogues specialized in communicational and digital technologies. This has influenced the lower readiness for transfer to online teaching states Czech´s school inspection (Zatloukal, 2020).

Throughout open questions, the pedagogues could express their thoughts and opinions on the topic "What had pandemic COVID-19 taken and given to us?". Below are some of the answers:

- "The pandemic has given to me and my pupils new knowledge and skills in IT. Distance learning has improved the relationship between teacher-parents-pupils. The parents have been in closer contact with schools. However, it took children their socialization with classmates. On the other, their need for discussion has grown in the online environment. Also, it has tested children independence. For those who are less independent, it highlighted the need for help during schooling. Thus, for some parents (or other family members) it meant to sit with their children during whole online lessons and help them. Unfortunately, that has often led to an unpleasant atmosphere. It has shown that children have problems sticking to a regime and that they have significant problems following online learning at home. To compare, children who are more independent and have some responsibilities at home had no problems with online learning. And what it has taken from me? Unfortunately, I had to learn everything on my own in my leisure time. Thus, it took me time which I could spend with my children."
- "It has taken me my job. What I am doing now is not full filling me. I miss children, diverse activities, and action. By the computer, I spent most of my days, more time by preparation than I spent when we are normally teaching. I have learnt to work better with IT technologies, but I do not see any other positives."
- "It gave us skills for using the IT technologies, and it took our social skills."

- "The parents are more involved (there is no other way), but children miss the social contact, they miss their hobbies. Furthermore, at our school, the problems with cyberbullying have arisen and at the first level of primary school problem with watching pornography also."
- "I think it has allowed children to be more independent and it took life through education. I mean they have no possibilities to experience the learning as they do in school. Plus, it has limited their social contact."
- "We have found out what we are able to do. Parents, children, and teachers. We are all trying to do our best."
- "It took our freedom, but it gave us and to pupils the computer literacy. About me – cervical spine, sciatica, backache, mouse syndrome, eyes… Sometimes I spent around ten hours by the computer."
- With regards to the statements above, it is obvious that teachers´ attitudes are diverse. Based on their life and professional experiences, and on their approach towards modern technologies also.

CONCLUSION

The support for higher involvement of modern technologies in education not only at the first level of primary schooling is necessary, not only with regards to the situation caused by the pandemic COVID-19. This type of support should be mainly provided by heads of schools which is understanding to need for informational and communicational technologies in the education and life of their pupils. Also, the heads of schools must be aware of their pedagogues´ abilities and skills to use modern technologies as a motivational and didactic tool for educating the pupils. This support does not rely on the heads of schools, teachers, or financial situation. It relies on the schools´ approach towards modern technologies in education and the strategy of including the teachers in it. Thus, the teachers undertake the strategy and apply it in education. Furthermore, this strategy should be transferred to the pupils and their parents. Distance learning forced us to do this process quicker. However, the question of time rises here. The time is not always on the schools' leaders´ side, thus the support of the connection between modern technologies and learning frameworks is harder.

From this research, it is clear that pedagogues at the first level of primary schooling, with regards to the demographical base, have a positive approach to modern technologies. This finding evokes another possible question about schools´ leaders´ approach towards modern technologies – from the perspective of pedagogues´ support and strategy to informational and communicational technologies. Based on the current situation with the pandemic COVID-19, it is clear that the importance of modern technology is supported by teachers. The technical and material securement for distance learning is not surprising. The pedagogues use mostly the same technologies which are used in other professions or in the everyday life of the average citizen. The most used technologies are a notebook and a printer.

According to research done by Ifinedo, Rikala & Hämäläinen (2020), there is still international comparison in the movement of pedagogues´ use, work, and attitude towards modern technologies as a part of education. Also, here is highlighted the aspect of lack of time, which not allows more intense experiment in the field of pedagogue and informational and communicational technologies. This time, when the support from the school is important will accelerate the start and meaningful use of modern technologies in education. The pedagogues are similar to pupils, both need to improve their abilities, skills, and knowledge.

The topic of modern technologies and online tools is very complicated because it is a new era that the current population is going through. The development of modern technologies is very intense and modern technologies will become a significant part of our lives, whether we want to or not. In relation to digital literacy is important to think not only about the current generation but about the future generation as well. The current pedagogues need to develop their knowledge and abilities because they are guiding current pupils through primary education and they give to pupils the basics in digital and informational technologies. Unfortunately, the technologies lead to a lazier lifestyle with is only supported by the pandemic COVID-19. We cannot forget how many positives and negatives this new era brings. The ability to separate in pedagogues´ lifetime for working and some other non-sitting activities.

The last area which the research has investigate was a personal perspective on the period of the pandemic COVID-19 which lasts longer than one year. The research does not aim to trivialize personal perspectives. The aim was to present the personal opinions and attitudes of pedagogues.

The schools should not educate only the pupils but themselves also. It should be an innovative place … with regards to the topic of this article the most innovative area should be the informational and communicational technologies. However, we cannot forget that technologies are only tools that help the teacher to achieve the learning goals. Mainly, it depends on the teacher´s attitude and skills, so the learning becomes interactive and helps pupils to understand the learning. Based on the current fast growth of modern technologies we can assume that the world will be more digitalized than it was before the pandemic.

One of the positive effects of distance learning is the familiarisation of parents, teachers, and pupils with skills and abilities related to digital literacy. Pedagogues have stated that these newly gained skills can improve the usual present learning. Also, the gain abilities and skills provide better reaction all formative-educational participants in a similar situation would happen again.

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