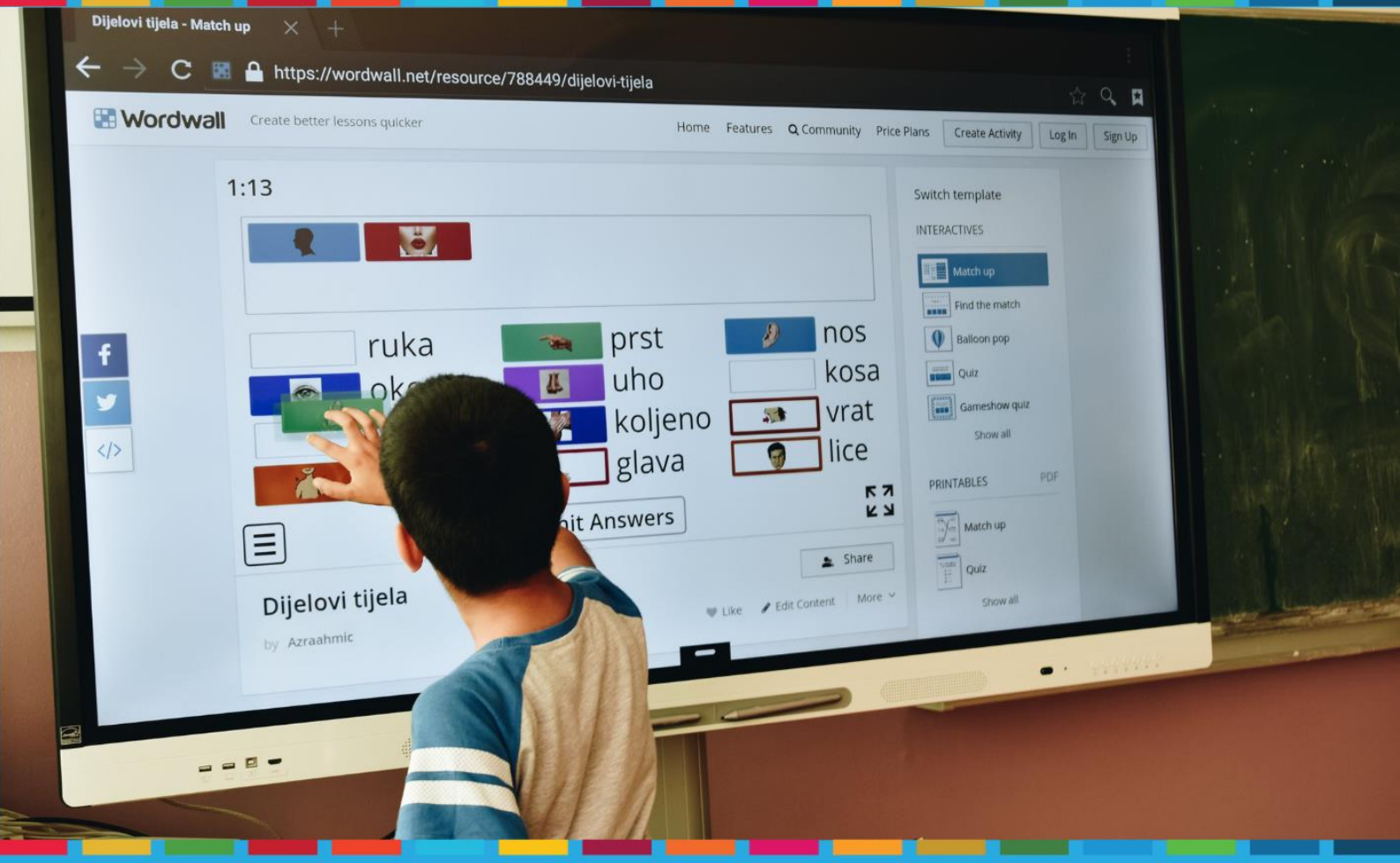
UN COVID-19 Response and Recovery Fund

#RecoverBetterTogether



Assessment of the Teachers' Needs in Distance Learning and Blended Learning in Primary and Secondary (and TVET) Schools in Bosnia and Herzegovina During the Coronavirus Pandemic

UNITED NATIONS BOSNIA AND HERZEGOVINA

unicef for every child

unesco

ILO International Labour Organization

UN VOLUNTEERS

Banja Luka & Sarajevo, November 2021

This document represents one of two studies conducted for the project "Re-imagining Education for Marginalized Girls and Boys during and post COVID-19", which is jointly implemented by UNICEF, UNESCO, ILO, and UN Volunteers in Bosnia and Herzegovina. The second complementary study "Assessment of the Quality of Distance Learning and Blended Learning in Primary and Secondary (and TVET) Education in Bosnia and Herzegovina During the Coronavirus Pandemic" is also the result of the work of a multidisciplinary team of researchers from Bosnia and Herzegovina.

Team of Experts:

Amer Osmic PhD – University of Sarajevo – Faculty of Political Sciences; Ivana Zecevic PhD – University of Banja Luka – Faculty of Philosophy; Sanel Huskic Mr. sc. – University of Sarajevo – Faculty of Political Sciences; Srdjan Dusanic PhD – University of Banja Luka – Faculty of Philosophy; Lamija Husic MA – Ministry of Education of Sarajevo Canton

Acronyms

BD	Brcko District of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
COVID-19	Coronavirus Disease
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
ILO	International Labour Organization
ICT	Information and Communication Technologies
RS	Republika Srpska
TVET	Technical and Vocational Education and Training
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

Table of Contents

1. Introduction and Purpose of the Analysis

The study was conducted within the framework of the United Nations (UN) socio-economic plan for Bosnia and Herzegovina (BiH); United Nations Children's Fund (UNICEF), United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Labor Organization (ILO) and UN Volunteers have developed the project "Re-imagining Education for Marginalized Girls and Boys during and post COVID-19" to help educational institutions in BiH. The project is being implemented in three pilot administrative units in BiH to combat the effects of the coronavirus pandemic, to strengthen the capacity of the authorities in charge of teacher education from pre-school to higher education. The project covers educational sectors from pre-school to higher education to provide quality and inclusive distance learning and teaching processes that include blended learning models.

At the time of conducting this study on the needs of teachers in distance learning and blended learning in primary and secondary schools, there is a possible lack of data on the application of distance learning at the level of primary and secondary education[1]. In addition to the UNESCO Study "A Review Study of the Lecturers Needs for Distance Learning in Higher Education in Bosnia and Herzegovina During the COVID-19 Pandemic" and the Study of the Agency for Higher Education of Republika Srpska "Thematic Analysis of Distance Learning Process During Emergencies Caused by Coronavirus ", there was a lack of research focused on the needs of the teaching process in extraordinary circumstances. Also, the search found that there is interest in understanding the impact of emergencies on education, which is reflected in several analyzes.[2] Therefore, the lack of data on the teachers needs in distance learning and blended learning for primary and secondary education levels is the main motivation for this research.

In order to suppress the spread of coronavirus infection, since mid-March 2020, as part of preventive measures, 1,719 regular primary schools (parent and independent with regional schools) and 45 schools for children with disabilities[3] in BiH were closed, which directly affected the learning process 147,690 students of 1st to 5th grade, 120,369 students of 6th to 9th grades enrolled in the academic year 2019/2020. as well as 24,548 teachers.[4] Also, this refers to high school education. During the 2019/2020 school year 112,796 students were enrolled in 315 secondary schools in BiH and 12,716 teachers were involved in the teaching process (Appendix 1).[5] Based on data collected through the "Rapid Assessment of the Situation and Needs -

[1] UNESCO (A Review Study on the Needs of Lecturers for Distance Learning in Higher Education in Bosnia and Herzegovina During the COVID-19 Pandemic, study in the approval phase), the Agency for Higher Education of the Republika Srpska. "Thematic Analysis of the Process of Distance Learning During the Extraordinary Circumstances Caused by the Appearance of the Coronavirus." (March 2021); available at: https://www.heaars.com/attachments/article/378/tematska_ analiza_20210315.pdf;

[2] ProMente, "Evaluation of Online Teaching During the COVID-19 Pandemic by Parents and Students in BiH - report (March-June 2020), available at: https://www.promente.org/onlineroditeljiucenici.pdf; "Results of Research on the Impact of the COVID-19 Pandemic on Young Activists" (KULT & MOZAIK), available at: https://mladi.org/v2/phocadownload/REZULTATI%20ISTRAZIVANJA%20%20UTJECAJ%20PANDEMIJE%20COVID-19.pdf

[3] The total number of primary schools includes parent schools and independent schools with regional schools. There were 620 parent and independent schools in the school year 2020/2021 (of which 607 regular schools and 13 schools for children with disabilities).

[4] Agency for Statistics of BiH, "Demography and Social Statistics: Primary Education in the school year 2020/2021"; available at: https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/EDU_03_2020_Y2_1_BS.pd

[5] Agency for Statistics of BiH, "Demography and Social Statistics: Primary Education in the school year 2020/2021"; available at: https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/EDU_04_2020_Y2_0_BS.pdf

Education in Bosnia and Herzegovina - Phase II", conducted jointly by UNICEF and UNESCO from June to August 2020, all primary and secondary schools introduced distance learning on an *ad hoc* basis to ensure continuity of learning for their students. However, the quality of distance learning at this stage could not be fully assessed due to the lack of necessary data from institutions dealing with primary and secondary education.

The purpose of the study is to thoroughly assess the quality, shortcomings, and challenges of primary and secondary education institutions regarding distance learning with a focus on assessing the needs of teachers. The purpose of the study is to support the strengthening of the capacity of educational authorities and institutions to systematically design solutions to future crises, but also to be more adequately involved in global trends of digitalization of the teaching process which imply a significant change in the paradigm of teaching staff competencies and a focus on a systematic and methodological approach to the methodology of strengthening digital and pedagogical competencies of teaching staff during distance learning and combined-hybrid teaching.

In order to systematically approach the identification and review of the needs of teachers at the level of primary and secondary education in the context of distance learning, and to identify opportunities and gaps, the study made an analysis of the following units:

- Analysis of teachers' attitudes, challenges and needs in distance learning and blended learning
- Positive and negative aspects of distance learning and blended learning
- Assessment of the types of training and guidance provided to teachers for distance learning, with a focus on methodologies, e-learning platforms, and management systems, and their applicability (outcomes)
- Support for the inclusion of students from marginalized groups in distance learning and blended learning

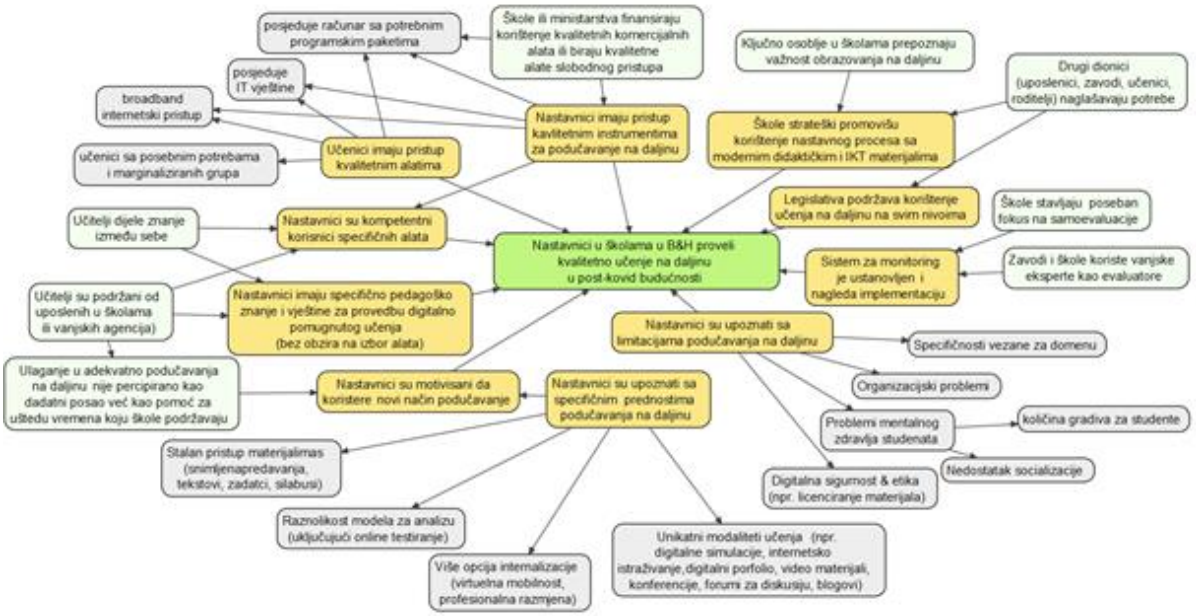
After the research units were defined, the basic factors (which represent logical and theoretical assumptions) from these units were taken into consideration, and they indicate that quality teaching takes place in primary and secondary schools in BiH. The model states that quality distance learning should be supported by digital technologies and new didactic approaches both during normal conditions and also in the period after the coronavirus pandemic. The final model is visualized as the Theory of Change in Figure 1, which takes into account key aspects of the UNESCO philosophy[6] of distance education development as well as the principles advocated by the European Union (EU)[7]. The purpose of the developed model is twofold:

1. The model can serve as a strategic working model for improving the quality of distance learning and blended learning in primary and secondary education in BiH;
2. The model was a reference framework for creating tools for examining the needs of teachers in conducting distance learning and blended learning and the factors that contribute to it.

[6] For more information see the "UNESCO ICT Competency Framework for Teachers (Version 3)", available at: https://en.unesco.org/themes/ict-education/competency-framework-teachers

[7] For more information see the "European Framework for the Digital Competence of Educators: DigCompEdu", available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC107466

Picture 1. Applied model of Theory of Change for the study of teacher needs for distance learning.



Source: Developed according to *UNESCO/BiH A Review Study on the Needs of Lecturers for Distance Learning in Higher Education in Bosnia and Herzegovina During the COVID-19 Pandemic*

The same model was used to design a complementary study on the quality of teaching in primary and secondary schools in BiH during the pandemic. Unlike that study, which had a wider scope and dealt with the consideration of the overall context of education, technical forms of distance learning (eg educational platforms), this study focuses on the position of teachers. The role of teachers is the core of the teaching process because they have the most active role in that process and are relatively constant participants, unlike students and persons who have administrative positions. Therefore, investing in teachers is certainly the safest and most economical way to improve education in the long run.

The transition to distance learning around the world has affected drastic changes in teaching practices for a large number of those who have not had previous experience with this form of teaching. There are a large number of reports that have empirically documented the challenges and needs of lecturers in meeting the unknown ways of working.[8]

Reports[9] indicate the existence of a large number of effective online solutions ranging from sending recorded lectures, then using scheduled lectures to discuss material that students have studied in the meantime (the so-called flipped classroom approach), through tasks that significantly involve students in topic research on the Internet and presentation of findings, all

[8] Examples of empirical papers with a focus on the lecturer's perspective: Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education, 2*(3), 923-945. i Alea, L. A., Fabrea, M. F., Roldan, R. D. A., & Farooqi, A. Z. (2020). Teachers' Covid-19 awareness, distance learning education experiences and perceptions towards institutional readiness and challenges. *International Journal of Learning, Teaching and Educational Research, 19*(6), 127-144.

[9] For more information see the "UNESCO ICT Competency Framework for Teachers (Version 3)", available at: https://en.unesco.org/themes/ict-education/competency-framework-teachers i "European Framework for the Digital Competence of Educators: DigCompEdu", dostupno na: https://publications.jrc.ec.europa.eu /repository/handle/JRC107466

the way to the use of the achievements of high-resolution information technology that enables simulation of the environments or virtual microscopy. Of course, the reports also document a number of shortcomings faced by lecturers, resulting from a lack of physical contact.

2. Methodology

The methodology for assessing the needs of teachers for conducting distance learning in primary and secondary schools in BiH is designed to ensure systematic and effective data collection and triangulation of information through various methods and sources, given the pandemic circumstances and deadlines for writing reports. Triangulation - obtaining information from different sources - was necessary given that the construct of needs itself is complex and directly depends on the perception of different participants or users of the educational process. In particular, what is taken into account when assessing the needs of teachers in the educational process is largely determined by the context and possibilities, ie the needs are differently evaluated by the competent educational authorities, administrative staff of the institutions, students, teachers, and employers.

For this study assessing the needs of teachers for distance learning and blended learning in primary and secondary education (and TVET) in BiH during the coronavirus pandemic, a combination of qualitative and quantitative methods (mixed methods approach) was used to collect data, which included:

- secondary research of relevant documentation and data (literature review),
- semi-structured interviews with key persons in relevant institutions related to primary and secondary education; semi-structured interviews with civil society organizations; semi-structured interviews with employers' representatives,
- questionnaires for teachers, students (from 4th to 5th grade, from 7th to 9th grade, and high school students - 2nd to 4th grade), professional staff in school institutions.

Secondary research used available resources related to distance learning in primary and secondary education in BiH, including existing guidelines, studies, reports, analyses, assessments, and legal/legislative documents, statutes, and strategies. For comparative purposes, recent reports of international research and recommendations made by relevant organizations in the field of primary and secondary education were used in response to the new situation. The primary research was conducted through semi-structured interviews with key persons and surveys (separate survey questionnaires) of students, teachers, and professional staff in educational institutions in BiH.

When it comes to interviews, the sample was of a deliberate type through which representation in the administrative composition of BiH was ensured, as well as previous experiences with distance learning. Interviews were mostly conducted via electronic communication platforms, with a smaller portion conducted live. A total of 22 persons (12 representatives of institutions and 10 experts and representatives of the NGO sector) were interviewed using interview protocols (separate protocols for representatives of educational institutions, civil society representatives, and employers' representatives) containing inquiries related to key questions from the study. The protocol for the interview was piloted (one representative of the primary school and one civil servant-employee of one of the BiH ministries). The operational (target) population for the interviews consisted of persons with previous experience with distance learning, taking into account the administrative structure of BiH. In order to ensure the participation of the interlocutors, the UNICEF Office in Sarajevo prepared a

cover letter which was sent to all potential interlocutors as part of an email with clear instructions and the purpose of the interview.

Survey questionnaires were created with the aim of obtaining key information on the degree of satisfaction on various aspects of teacher needs and quality of distance learning, aspects identified in the above-mentioned theory of change. Given the pandemic conditions and the efficiency of data collection, it was decided to collect data online. As mentioned, three different target groups were identified: school management (principals and professional staff) who had a direct insight into the implementation of teaching, teachers[10] who taught in schools, and students in selected classes and schools.

Separate measuring instruments (survey questionnaires) were created for each target group. For some aspects, it was possible to request identical information from several perspectives and thus check their compliance (eg. whether technical conditions were provided for quality distance learning in terms of software tools, internet flow speed, technical support for students and lecturers), while for some aspects information was requested from only one target group which was assessed as relevant (eg. students assessed the motivation of teachers to adapt to online teaching, professional staff pointed out possible legislative obstacles faced by schools). A special measuring instrument - a questionnaire - was constructed for each target (sub) group. When it comes to students, the research was conducted with three different survey questionnaires for three groups of students: lower and upper elementary school students and high school students. Between these three groups of students, there are differences in each segment of development (cognitive, socio-emotional, physical) which is one of the reasons for creating special questionnaires for each group. In addition, in the previous year and a half, there were some differences between primary and secondary school students when it comes to teaching, which is also one of the factors that required a different approach to data collection. The method for collecting data during the research is defined by the survey technique and the questionnaire instrument, which was distributed to the target population in the form of a questionnaire via an online link accessible to students, teachers, principals, and professional services (target population). All measuring instruments were piloted (pilot research in one (1) school based on the first level of stratification). After the pilot, all instruments were reviewed and finalized. Data collection was conducted completely anonymously and in order to reduce the possibility of the assumption of identity disclosure that could affect the sincerity of the responses of target groups, only those demographic indicators were defined that are related to basic information, e.g. age and scientific-professional field in which teachers teach. The sampling process is defined as a stratified multi-phase random sample that defines the schools to which the survey questionnaire will be distributed.

Multi-phase stratification in this study involved three levels of stratification, first according to the administrative and political system of BiH on three strata of the Federation of Bosnia and Herzegovina (FBiH), Republika Srpska (RS), and Brcko District (BD), then within each stratum (BD - one (1) region), stratification is performed based on regions: RS (three regions - West (Banja Luka), South (Trebinje) and Northeast (Bijeljina), FBiH (10 cantons: Una-Sana Canton, Posavina Canton, Tuzla Canton, Zenica-Doboj Canton, Bosnia-Podrinje Canton, Central Bosnia Canton, Herzegovina-Neretva Canton, West Herzegovina Canton, Sarajevo Canton, Canton 10) The third

[10] The term teachers mean all teaching staff - teachers and professors.

stratification was performed based on the *urban-rural categorization*[11] of schools that can be selected in the pattern which is primarily related to elementary schools.

According to available data in BiH[12,13] in secondary education we have a total of 8,134 classes attended by 110,404 students, which is 13.5 students per class. When we talk about primary education, we have a total of 14,848 classes attended by 268,059 students, which is 18 students per class. Based on all the above, 79 primary and secondary schools were selected by random sampling, of which 52 primary schools and 27 secondary schools.

In the first step, the UNICEF Office in Sarajevo sent a request for participation in the research together with a cover letter to the relevant e-mail addresses of the competent ministries of education. After that, all schools involved in the research were sent an email with clear instructions, a link to each of the surveys, and a short text that could be forwarded to all respondents. Based on the feedback, the schools were contacted again, if necessary. Some educational authorities did not submit timely approvals for conducting research, which significantly affected the duration of fieldwork. The survey questionnaires were posted (open) on the online platform SurveyMonkey on September 30, 2021 and closed on October 28, 2021[14]. After the databases were closed, responses were received (complete and incomplete) from 3,936 students, 730 teachers, and 131 school representatives (professional staff). The level of completion of questionnaires (complete answers) as planned ranged from 54% to 55%, observed in particular, students in secondary schools 55%, students in primary schools 7th-9th grade 57%, students in primary schools 4th- 5th grade 52%, teachers 59%, and principals and professional staff 50%. After forming the database and reviewing it (eliminated: all answers that were not completed at least 75%, all answers that did not pass the control of the test questions) a sample was obtained which included: students 2,524 (Elementary school = 1,575; High school = 949); teaching staff 477, and principals and professional staff 72 respondents. Based on the presented sample, it can be concluded that the sample is representative for students in the relation to the target groups with 95% probability, 5% risk (confidence interval ± 2.46), while the collected sample of teachers with 95% probability (5% risk; confidence interval ± 4.46) is also representative. When it comes to principals and professional staff, there is no official data on the target population (total number of employees in primary and secondary schools), so this part of the target population can be treated only for information purposes. Also, it should be noted that due to the large heterogeneity of the nature of primary and secondary education and teaching conditions, but also the possible biased response of respondents (see the section Limitations), the quantitative part of the study is primarily descriptive as findings and recommendations may vary significantly (specific schools, classes attended). The analysis of the collected quantitative indicators (descriptive statistics) was performed in the statistical program SPSS (Statistical Package for Social Sciences), graphical processing of the obtained data was performed through the software platform Numbers.

[11] According to the 2013 Census in Bosnia and Herzegovina, 53.7% of the population lives in rural areas, while 42.7% of the population lives in urban areas.

[12] Agency for Statistics of BiH (2021) Primary Education in Bosnia and Herzegovina - https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/EDU_03_2020_Y2_1_BS.pdf

[13] Agency for Statistics of BiH (2021) Secondary Education in Bosnia and Herzegovina - https://bhas.gov.ba/data/Publikacije/Saopstenja/2021/EDU_04_2020_Y2_0_BS.pdf

[14] The reason for the longer period of data collection was predominantly the fact that we have 12 competent Ministries of Education and not all of them submitted consents for conducting research at the same time.

Research Limitations

In the process of designing research, developing tools, and collecting data, several limiting circumstances were taken into account, which somewhat reduces the strength of the offered findings:

- Data were collected during the coronavirus pandemic. The epidemiological situation directly affected the response rate of respondents from the group of school representatives.
- There is a certain number of schools that did not respond to the request to complete the questionnaire even after multiple contacts. Of the schools that responded, 14 of them had a low turnout (30 or less), and for 12 schools there was a low turnout (10 or less). It was not possible to further influence the motivation for the surveys to be completed by teachers and students, nor could it be included in internal communication within schools that forwarded an invitation text with links to their employees and students. In addition, it is possible to assume that the lower response of some schools may have been influenced by the fact that they recognized their weaknesses in conducting distance learning, and were not motivated to share this information with third parties.
- The focus of the research was on assessing the needs of teachers and their digital competencies. This assessment cannot be performed objectively, ie. exclusively with the help of survey questionnaires, because survey research in itself allows respondents to be subjective, and to give socially desirable answers.
- Due to the fact that teachers and students were overwhelmed by numerous online surveys during the pandemic, it was methodologically necessary to create relatively concise questionnaires that could be completed “in one sitting”. This is clearly emphasized in the body of the invitation email and the introduction of questionnaires to maintain the motivation of potential respondents and thus lead to a satisfactory response rate. At the same time, this meant that certain interesting details had to be left out.

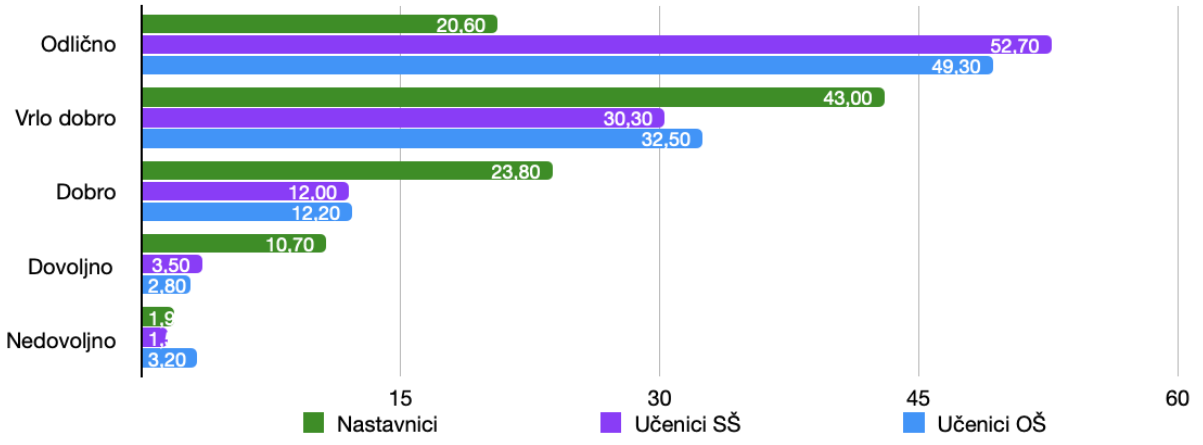
3. Analysis of teachers' attitudes, challenges and needs in distance learning and blended learning

Following the declaration of the Coronavirus pandemic, most education systems in both the European Union and the region did not automatically have an adequate answer to the question of how to continue teaching. A similar situation occurred in the education systems in BiH. All interviewees confirmed that the transition to distance learning caused numerous challenges. Authorities in education systems have coped in different ways:

" Distance learning in our conditions was not organized until the appearance of the Coronavirus pandemic. Through cooperation and joint work, we managed to organize distance learning. We primarily organized the recording of classes on the public service, and after that, we enabled distance learning using various platforms. It wasn't simple or easy, but the goal was not to interrupt the continuity of the teaching process. All the obstacles we faced, from the fact that the students did not have the technology to attend online classes, that they did not have the internet, telephones, etc, we solved in the way that schools gave laptops to students, and in cooperation with certain companies, we provided students phones as well as the internet access."

It is quite clear that in the beginning, it was very complicated to establish a system, which did not recognize distance learning. However, there is an impression that in some educational systems throughout BiH there were problems due to the fact that in institutions that decide on the teaching methods, there are no professionals who have developed digital competencies and who understand distance learning. The statement of one respondent in the qualitative part of the study was: *"Teachers were asked to switch to online classes within a few days and to continue where they left off." In conversations with teachers, they pointed out that the guidelines for teaching were not immediately ready, and that they were required to work. Also, during conversations with teachers, we also received information that they received certain guidelines every now and then, which were very often written by people who are not in the teaching process and who do not have an adequate overview of the situation. Teachers also pointed out that certain guidelines also contained basic errors caused by a lack of basic computer knowledge."*

Chart 1 Perceived basic computer knowledge (work on a computer) teachers and students

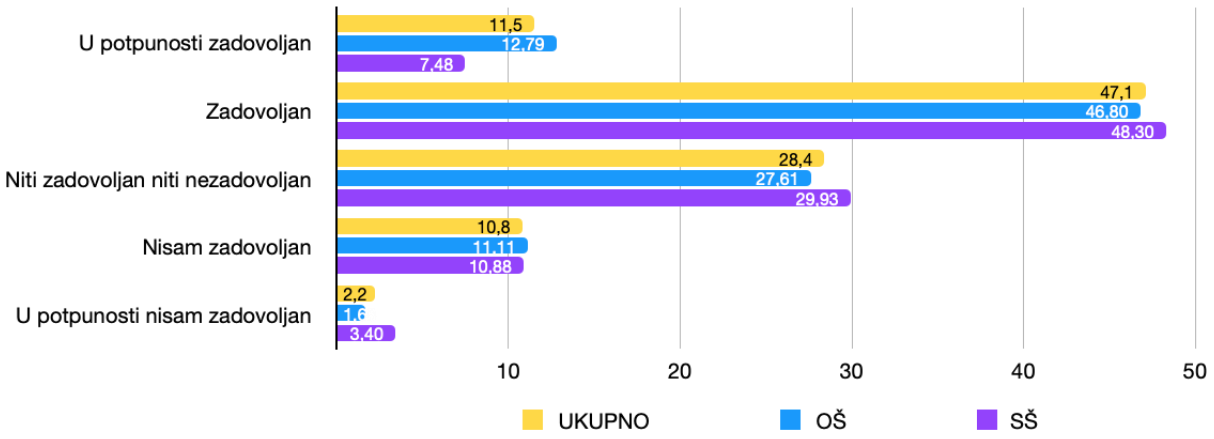


The perception of basic IT knowledge shows that teachers are "less confident" in their IT knowledge because only 20.6% of teachers state that they have excellent basic IT knowledge. This

is significantly different for students, ie 52.7 of students in secondary and 49.3% of students in primary schools states that they have excellent basic computer knowledge. In addition to the mentioned quantitative indicators, the qualitative part of the research, interviewed persons, pointed to the **obvious lack of basic IT knowledge of teachers and the great need for education in that direction, at the beginning of the coronavirus pandemic**. Also, teachers mentioned that a **significant number of students' lack IT knowledge, which was an additional challenge** in the "new reality" or distance learning because, in addition to the obligation to transfer knowledge from the subjects they teach, they were also obliged to explain to students and transfer knowledge in the field of digital competence. At the beginning of this analysis, it is important to keep in mind that digital competencies could be a problem for teachers and students, as well as for professionals working in relevant ministries and pedagogical institutes, who have created guidelines for teaching. This is indicated by the statement of the interviewee who says: *"In a conversation with a primary school teacher, the teacher tells me how he feels helpless because he realizes that the quality of his work depends, among other things, on the guidelines he received from a person who left education 30 years ago and who, until then (Coronavirus pandemics), did not even use email correspondence."*

Accordingly, all the challenges posed to the teaching staff, but also to the students and the competent ministries, it is understandable that the **teaching staff is not extremely satisfied with their way of teaching during distance learning if we take into account that only 11.5% of teachers stated that they are completely satisfied**, as well as in what way they conducted distance learning in pandemic conditions. **Teachers are generally satisfied with the distance learning process, but with the observed lack of self-confidence of the teaching staff in conducting distance learning** because most teachers faced a completely new pedagogical and methodological approach to education, as shown in the following chart.

Chart 2 Perceived satisfaction of teaching staff with distance learning in relation to the school in which they work



The obtained results correspond to the opinion of the teaching staff, as one teacher says: *"Regardless of the pandemic conditions, the teaching was of high quality (as far as the term "quality" can be applied to online teaching). With much greater efforts in the preparation and implementation of teaching, the results are positive. Most teachers have a similar opinion, or as one respondent states, "Although everything was new to me, this was a great challenge. In the beginning, there were a lot of problems in terms of technical equipment of students, training students and parents to use Office 365... Organizing meetings and live classes made it much easier for everyone. My greatest pleasure was when the whole class, 29 students of the 3rd grade, managed to overcome*

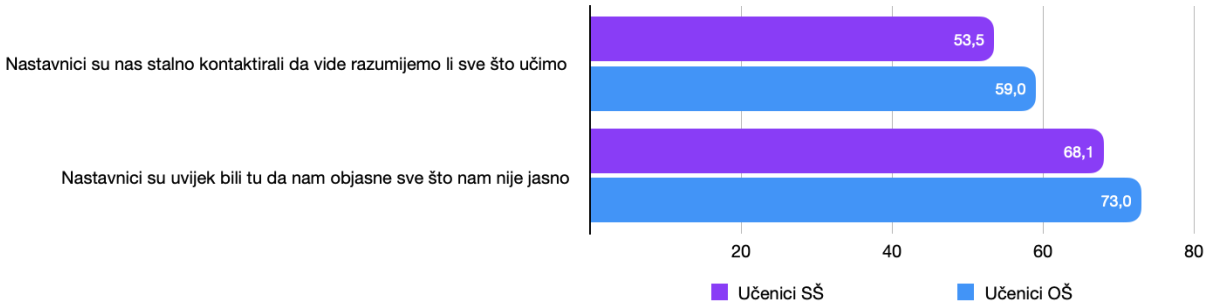
difficulties, quickly master the use of the new platform and together with the teacher successfully adopt the teaching contents".

3.1 Analysis of professional and pedagogical competencies of teachers' for distance learning and blended learning

3.1.1 Professional competencies of teachers' for distance learning and blended learning (communication, cooperation, reflective practices, and capacities for continuous professional development)

An important segment of teaching is professional competencies, i.e. communication, cooperation, and reflective practices and capacities that affect professional development. During distance learning, most teachers continuously communicated with students through platforms provided by schools or through communication platforms in group chats, such as Viber and/or WhatsApp. This indicator is also confirmed by students who state that their teachers have constantly contacted them to check whether the material they are learning is understandable and whether the material that has been processed is clear.

Chart 2 Perception of students in primary and secondary school about their communication with teachers



On the other hand, teachers state in their qualitative answers that they did not have a problem in communicating with parents, where consultations and parent meetings were most often conducted on the platforms where the classes were conducted. Also, the exchange of experiences and consultations between colleagues were cited by many teachers as positive experiences during distance learning, especially those teachers who are more related to computer skills due to their scientific and professional affiliation. Many teachers stated that most often IT teachers were the first to be contacted when they had a certain problem, which they solved after that in most cases.

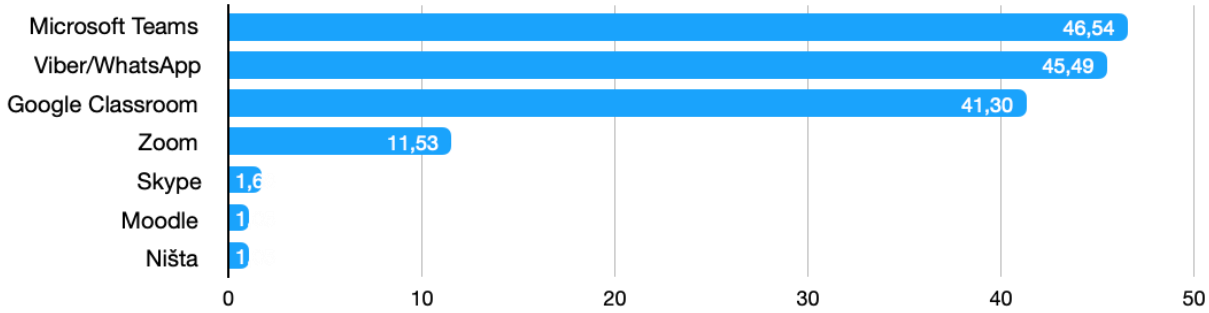
What is stated as a disadvantage are the opportunities for continuous professional development in the field of digital competencies, because especially in pandemic conditions, the competent education authorities have held only a certain number, according to many teachers, but an insufficient number of training for remote platforms, especially when it comes to the application of more advanced options offered by some platforms.

3.1.2 Teachers' pedagogical competencies for distance learning and blended learning (digital resources, teaching and learning, assessment, student empowerment, facilitating students digital competencies)

Teachers most often use Microsoft Teams, Google Classroom, and Viber/WhatsApp for distance learning. During the Coronavirus pandemic, most teachers were not able to use

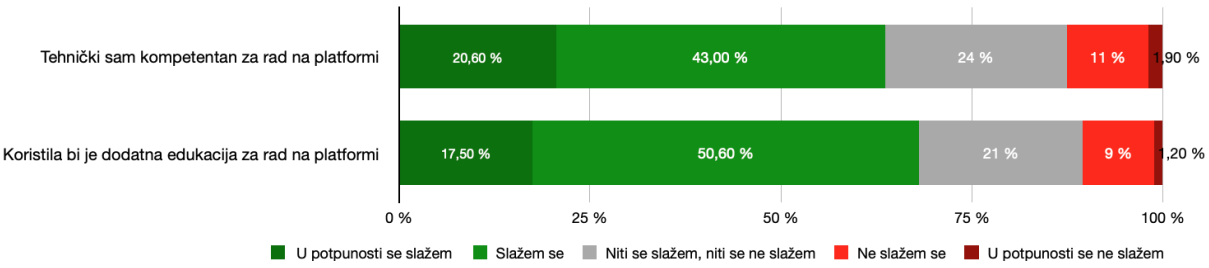
only one distance learning platform, so teachers said that they used at least two platforms or communication applications, but most often Microsoft Teams and Viber/WhatsApp. Furthermore, some differences were observed when it comes to the age of teachers. Younger teachers used Google Classroom and Microsoft Teams more often, while older teachers used Viber/WhatsApp and Microsoft Teams.

Chart 3 Most frequently used distance learning platform



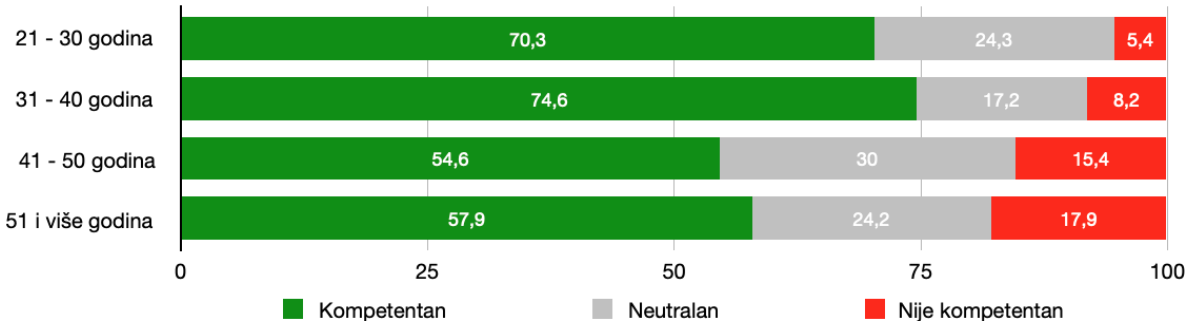
Teachers are considered technically competent to work on platforms. When it comes to technical competencies, the attitudes of the teaching staff are predominantly such that the majority of teachers (63.6%) believe that there are no such difficulties, while on the other hand, we are aware of the need for additional education (68.2%) to work on teaching platforms, based on the results obtained by surveying management representatives. Differences in the perception of technical competence for working on platforms between teachers employed in primary and secondary schools were examined. Teaching staff in primary schools in 63.37% of cases are perceived as technically competent while teaching staff in secondary schools in 60.87% consider themselves technically competent to work on platforms. Furthermore, every tenth teacher (12.45%) in primary school thinks that they are not competent enough to work on platforms, while the percentage of teachers in secondary schools who don't consider themselves technically competent to work on platforms is almost the same (13.77%).

Chart 4 Perception of technical competence and the need for additional training to work on a distance learning platform



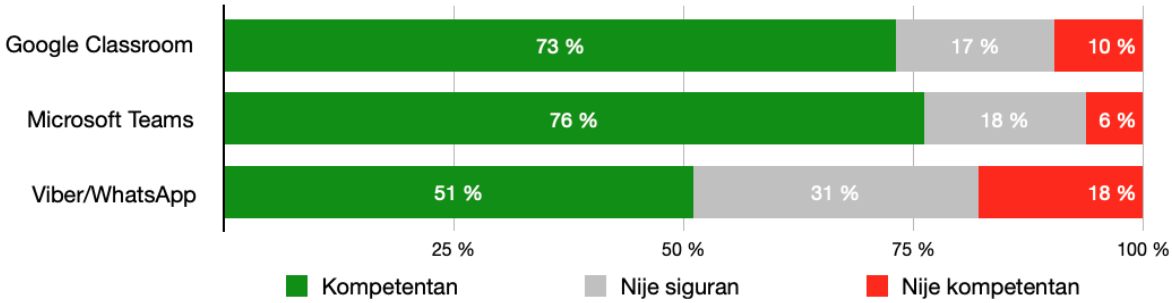
When the age groups of teachers are taken into account, we notice significant differences in the perception of technical competence. The older the respondent is, the less confident they are in their technical competencies for using distance learning platforms. A detailed overview is shown in the chart below.

Chart 5 Perception of technical competence for working on platforms in relation to the age of the respondents



When teachers were compared according to which platforms and applications they predominantly used in distance learning, the results showed that those who used the Microsoft Teams platform were considered the most technically competent, and then those who used the Google Classroom application. A very interesting fact is that teachers who used the Viber/WhatsApp application, 51% of them, also stated that they consider themselves technically competent to conduct distance learning.

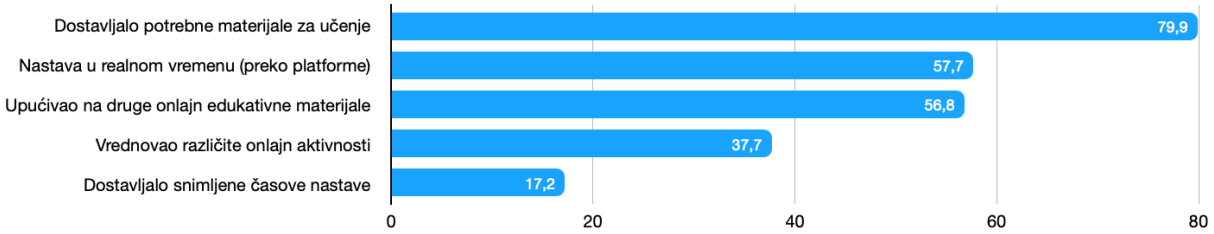
Chart 6 Perception of teachers' technical competencies in relation to platforms and applications used in distance learning



Based on the obtained data, we notice that teachers most often delivered learning materials to students (79.9%), then held classes in real-time and referred students to online educational materials.

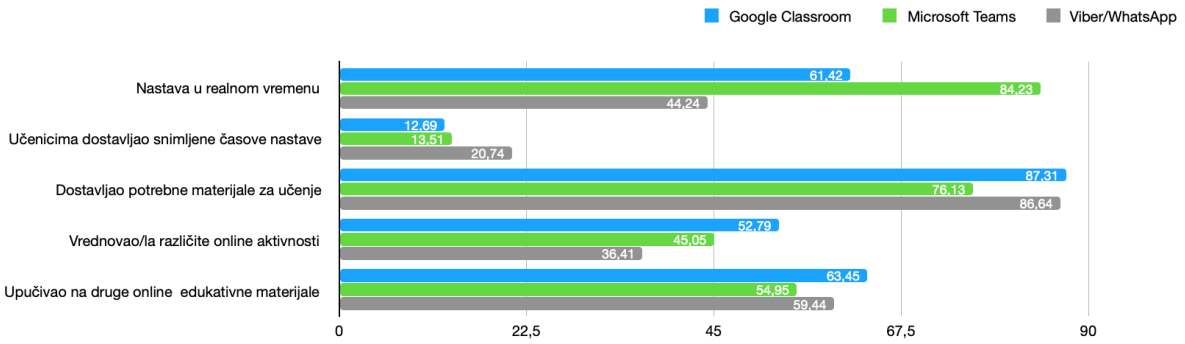
Also, the indicators (Chart 7) suggested the need for additional trainings in the field of evaluation of activities from distance learning, where 37.7% of respondents stated that they carried out this activity. While 17.2% of teachers state that they delivered recorded classes to students it is interesting to note that one teacher states that she "*found and posted various videos related to the teaching unit, which are appropriate for children's age, made videos*", while another says that she *"recorded shorter videos that students can open on their mobile phone"*.

Chart 7 Teaching activities conducted in the two school years 2019/2020 and 2020/2021 since the declaration of the pandemic



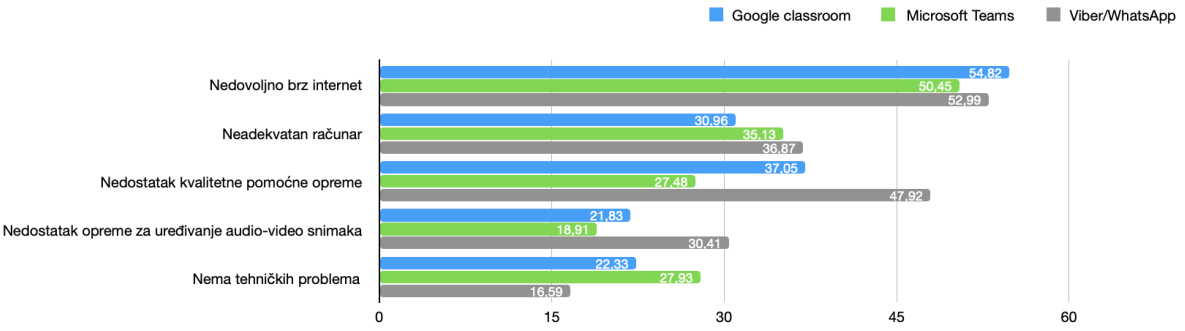
Teachers who taught in real-time most often used the Microsoft Teams platform, followed by the Google Classroom application, but they also used the Viber/WhatsApp application. Using the Microsoft Teams platform, 37.11% of teachers taught by video call, and interestingly, **15.72% of them said that they taught by video call using Viber/WhatsApp.** The Microsoft Teams platform, Google Classroom and Viber/WhatsApp were used almost equally to deliver learning materials. It is also interesting to note that **teachers preferred to deliver recorded lessons to students via Viber/WhatsApp applications**. Teachers used the mentioned platforms and applications equally for communication with students.

Chart 9 Using different applications and platforms for conducting distance learning activities



Half of the teachers who taught with the help of the Microsoft Teams platform complained about the poor connection and a third about the bad computer. Teachers who lacked quality support equipment (speakers, headphones, camera) preferred to use Viber/WhatsApp applications for distance learning. Also, a significant number of teachers had a problem implementing online teaching due to "technical" reasons, so one of the respondents said: *"Lack of knowledge, practice, and experience because we are educated for normal conditions. Everything else was used to help improve teaching quality and not as a basis for working with children. Not all children have internet access, computer, too much involvement of parents in completing all the tasks, great lack of independence of children in solving tasks and responsibilities which resulted in lack of independence, insecurity, lack of interest and too much ambition in assessments, bias in self-assessment and real knowledge, internet connection failures, inadequate feedback, inability to engage in real objective verbal communication, the presence of third parties in children's rooms, etc.".* Another teacher stated as a difficulty that he *"does not want to be recorded by someone".*

Chart 10 Use of distance learning platforms and applications in relation to the main technical shortcomings perceived by teaching staff

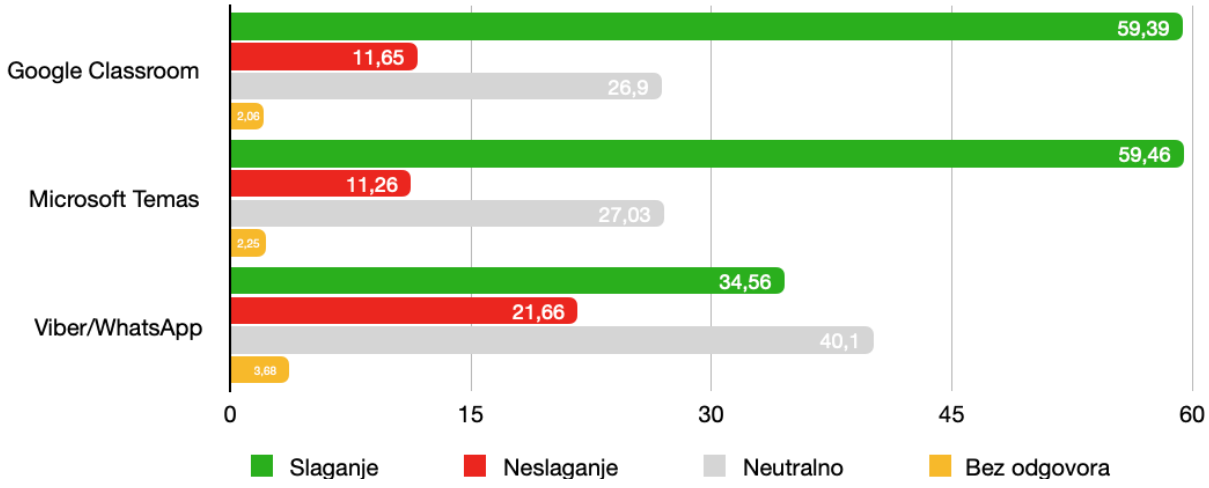


When we look at all the data related to the used platforms, applications, and the activities that teachers performed through these platforms and applications, it is necessary to return to the data we received from students, which can be useful for conclusions about how much were

technical and pedagogical methodological competencies of teachers useful to students. Namely, students in primary schools said that they predominantly followed classes via computers (48.5% for the 2019/2020 school year, and 50.3% for the 2020/2021 school year), but a number of them shared a computer with siblings, so that the percentage of students who were constantly able to follow distance learning, with the help of computers, is lower (for the school year 2019/2020 35%, and for the school year 2020/2021 36%). 48.6% followed classes in the 2019/2020 school year over the phone and 48% in the following school year. **This means that primary school students were able to continuously follow classes over the phone,** which automatically means that some of the options on the Microsoft Teams platform and the Google Classroom application were more difficult for them to use. When it comes to high school students, they also stated that they more often followed classes via computer (56.3% for the 2019/2020 school year and 56.9% for the 2020/2021 school year). However, a certain number of them shared computers with siblings, so the percentage of students who could continuously attend distance learning is lower (for the school year 2019/2020 44.9%, and for the school year 2020/2021 45.2%). 42.3% attended classes over the phone in both school years. **So, among high school students, we have a uniform percentage of those who followed the lessons via computer and telephone.** The same comment applies to these students who followed the lessons over the phone when it comes to the complexity of monitoring the lessons and activities during them.

Teachers who have predominantly taught using the Microsoft Teams platform and the Google Classroom application mostly believe that they have mastered the methodological and pedagogical competencies for conducting distance learning. Here, too, we get an interesting fact, that one-third of the teachers who used the Viber/WhatsApp application stated they believe that they have developed pedagogical and methodological competencies for conducting distance learning.

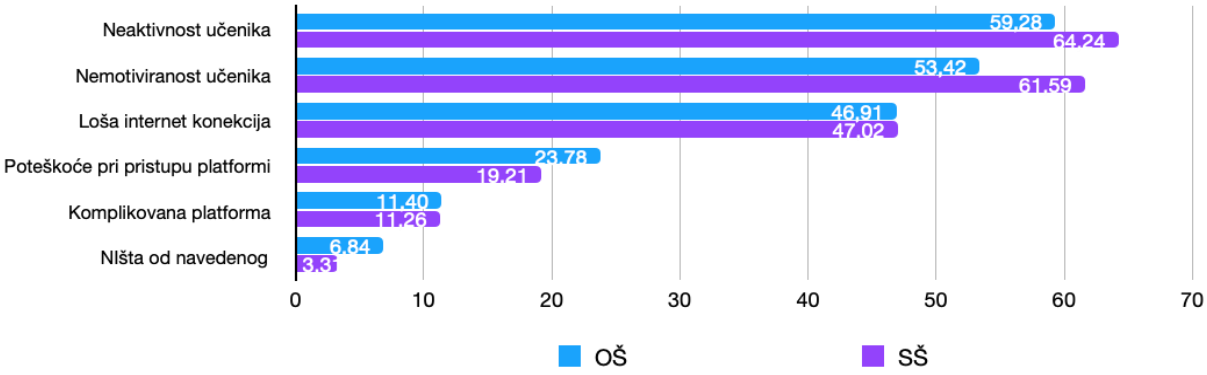
Chart 11 Use of platforms and applications in relation to the position on mastering pedagogical and methodological competencies in distance learning



Regarding what the school has done when it comes to the development of pedagogical and methodological competencies for distance learning, we received interesting answers from teachers who claim that it was *"organized by the Ministry and provided us, through the school, with training links"* while other states: *"referred us to an online education organized by the Ministry"*.

Teachers state an innovative approach to the teaching process as a particularly positive aspect of distance learning, while they single out the inactivity and lack of motivation of students during classes as negative aspects. The positive aspects of online teaching are most often perceived by teachers in an innovative approach to the teaching process (54.3%), a sense of freedom in the digital world (29.4%), and the independence of students in mastering the curriculum (26.0%). Only 8.4% of teachers believe that distance learning is easier to transfer materials to students, while 4.6% of teachers claim that the positive aspect is the higher level of concentration among teachers and students during distance learning compared to the classic teaching process. It is interesting to point out that teachers found it much easier to identify negative aspects of distance learning compared to positive ones, so they most often consider the "main problems" of this teaching in inactivity (61.0%) and lack of motivation (56.0%) of students during distance learning classes. 47.2% of respondents consider poor internet connection to be a negative aspect of distance learning, while 22.4% believe that difficulties in accessing the platform through which teaching takes place, respectively the complicated platform through which the teaching process takes place (11.1%) are also "disruptive factors" in distance learning.

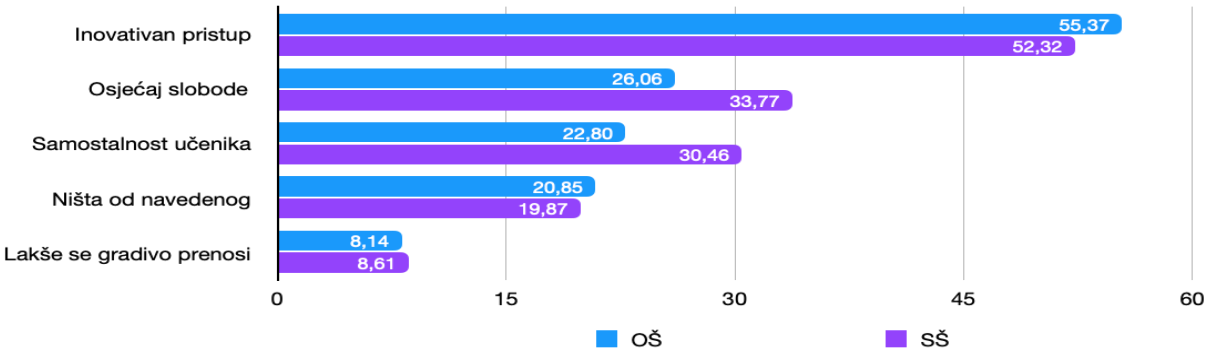
Chart 15 Negative aspects of distance learning in relation to the school where teachers are employed



From the chart, we notice that the identified negative aspects of distance learning related to the school in which the respondents' work are quite "uniform", still we notice a higher perception of inactivity and lack of motivation of students in high school. This attitude is confirmed by students who in a significant percentage (53.6%) believe that distance learning was not more interesting than the classical form of teaching, which can be attributed to a significant percentage of perceived inactivity and lack of motivation of teachers compared to more active student participation in distance learning.

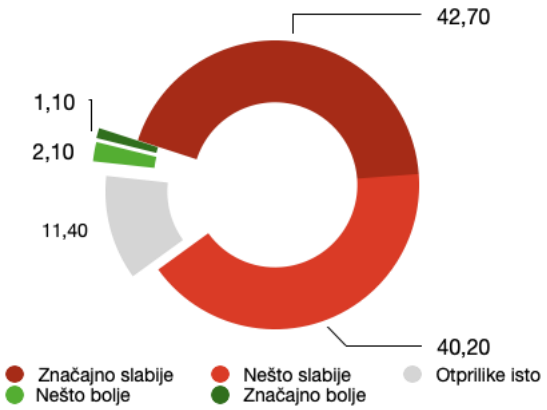
When we analyze the positive aspects of distance learning in relation to the school where they work, it seems interesting to mention that the positive aspects of the feeling of freedom in the digital world and students' independence in mastering teaching materials are more pronounced among high school teachers.

Chart 16 Positive aspects of distance learning in relation to the school where teachers are employed



Teachers believe that the achievement of students during distance learning is significantly lower compared to previous generations for which teaching was conducted in the usual way. The vast majority of teachers (82.9%) believe that the achievement of students during distance learning is somewhat (40.2%), or significantly (42.7%) lower than in previous generations, while only 11.4% believe that the achievement is about the same. Only 3.2% of teachers believe that the achievement is better compared to previous generations and the in-class teaching model.

Chart 16 Assessment of student achievement during online teaching compared to teaching in the usual way (in class)



Attitudes of teaching staff about the inclusion of online activities in the teaching process are usually negative. If we take into account the experience gained by teaching staff during distance learning in the previous year and a half, we can conclude that 37.7% of teachers have a negative experience (extremely negative-10.5%; mostly negative-27.2%) about distance teaching and would not include it in the teaching process. 35.8% have a neutral attitude, while 26.5% of respondents state that they have a positive attitude towards the inclusion of online activities in the teaching process within the subject they teach.

3.2 Teacher requirements: ICT equipment, connectivity, general digital competencies, advanced digital competencies and methodological training for creating interactive and creative digital content

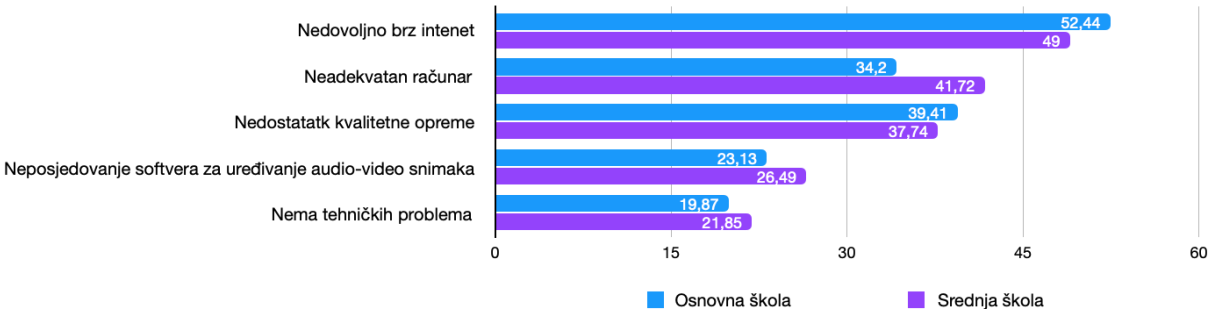
The beginning of distance learning was very difficult, both due to insufficient equipment of schools and teachers with information and communication technologies (ICT), high-speed internet and due to insufficiently developed digital competencies of teachers and students. Without adequate equipment and competencies, distance learning could be conducted predominantly only through the simple exchange of information through available free platforms and applications, emphasizing that, to begin with, these platforms and applications should be either familiar to teachers and students or simple enough so that knowledge and skills of the users can develop rapidly. The interviews revealed that the ministries and pedagogical institutes relied especially on IT teachers, which they saw as the initial capacity because they could be the persons who would educate colleagues on how to use digital technologies and various tools and platforms. In addition, according to the statements of representatives of the competent ministries and pedagogical institutes, international organizations UNESCO, UNICEF, OSCE, GIZ, etc, were quickly engaged, offering various trainings. The attitude of the respondents is that the trainings were mostly superficial and too short to seriously improve teacher competencies.

"Trainings were organized, but it was at the level of informative and superficial. Everything could be on a higher level. Online teaching has enabled some students to work independently. Those who were dependent on the help of teachers had a problem."

Based on the above mentioned, but also according to the teachers who participated in the research, it can be concluded that the trainings organized most often trained those teachers and/or students who had some prior knowledge and were somewhat familiar with the functioning of distance learning platforms. A large number of teachers, especially the elderly, have failed to adequately prepare for the new concept of the teaching process. Or as one teacher states: *"I believe that the older generation of professors and teachers need additional education to use certain models of online teaching, to easily provide them with the opportunity to communicate through certain platforms. Teachers of the younger generation are somewhat more successful in this because of today's general interest in technology and its progress."* While another teacher who, as she states, belongs to an older group of teachers, says: *"... trainings on the use and operation of platforms and certain software should be repeated until we all adopt enough knowledge for quality online teaching."*

Primary and secondary school teachers stated that they had similar problems when it comes to ICT equipment and high-speed internet. The only difference that has emerged in comparing these two groups of teachers is the inadequate computer and/or outdated software. The chart shows that high school teachers had this problem more often, so it could reflect on the quality of their teaching because they had to use computers predominantly all the time since the declaration of the Coronavirus pandemic. Unlike primary school teachers, a certain number of them were deprived of distance learning in real-time in the 2019/2020 school year because some students watched classes on TV.

Chart 2 Comparison of primary and secondary school teachers in relation to ICT problems



Following the opinion of teachers, interviewed representatives of relevant ministries and pedagogical institutes said that they were aware of the significant shortcoming when it comes to ICT equipment and school capacities, but also when it comes to teachers themselves, who had to work from their homes after the declaration of Coronavirus pandemic. *"At the time of the pandemic, the biggest problems were the lack of IT equipment for teachers who worked for some time exclusively from home. The schools had equipment, but it was locked down, so the Ministry reacted by giving computers for use to teachers and students from low-income families. "*

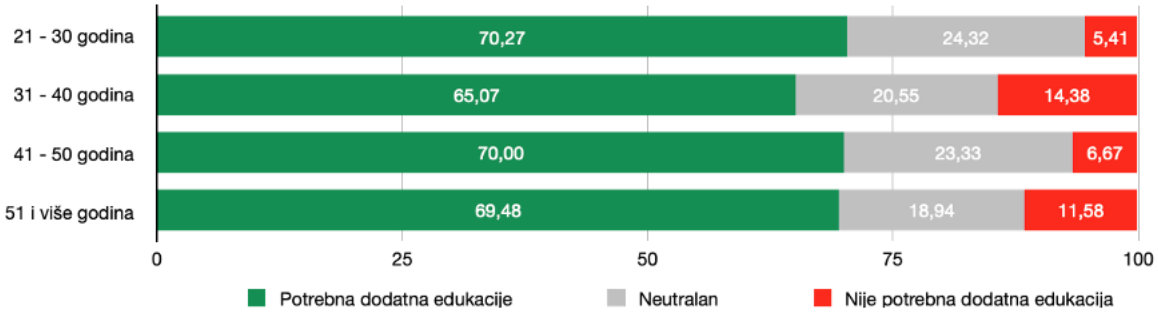
If we take into account that according to the official data of the Agency for Statistics of Bosnia and Herzegovina, the equipment of primary and secondary schools with computers is not at an enviable level, ie that primary schools have 28,355 computers, of which 1/4 (6,976 computers) are planned for school employees, and we have stated that 24,548 teachers work in primary schools, leads us to the conclusion that for every 3.5 teachers there is 1 computer, but the ratio is even higher if we take into account that a certain number of computers intended for employees and due to the nature of work can not be dislocated from school. The situation in secondary schools is somewhat worse. Secondary schools in BiH have a total of 14,292 computers, while 3,964 are used for school employees, which is a ratio of 1 computer to 3.2 teachers. It should also be taken into account that ICT equipment in a large number of schools, both primary and secondary, is rather outdated and is not regularly renewed. ICT analysis data[15] show that the number of computer classrooms in primary schools is 1.2 while in secondary schools is 1.3. Further 0.17 (primary schools) and 0.12 (secondary schools) computer units are equipped in the last three years. These indicators are additionally confirmed by the attitudes of teachers. As one teacher states, it is necessary to *"provide the minimum technical conditions required for online teaching as well as "electronic" records of student achievement (laptop, tablet ... on the school desk of teachers, professors)."* In their answers, teachers most often cited the lack of quality ICT equipment as a key difficulty, but also problems if the household in which the teacher lives has one computer (laptop, personal computer), and in addition to teachers, there are also school-age children. Analogous to the above, it is necessary to significantly equip both primary and secondary schools with modern and quality ICT equipment, as well as teaching staff.

[15] UNICEF (2021) Basic Technical Standards for Information and Communication Technology Tools in Education Systems in Bosnia and Herzegovina

3.3 Assessment of the types of training and guidance provided to teachers for conducting distance learning, with a focus on methodologies, e-learning platforms, management systems, and their applicability (outcomes)

Quantitative and qualitative research showed that most teachers had at their disposal trainings, which were organized to raise the level of their technical knowledge on how to use platforms and applications in distance learning. As a result of this trainings, more than 60% of teachers see progress in their technical knowledge and ways of using various software intended for distance learning. Representatives of the ministries and pedagogical institutes believe that the trainings were necessary, but at the same time very superficial, short-term, informative, and as one of the participants in the research stated *"one hour of opening an account in Google Classroom and twice 60 minutes for Teams, after that we didn't even use it, we mostly trained on our own."*

Chart 12 Perception of the need for education to work on a distance learning platform in relation to the age of the respondents



It is clear from the chart that there are no significant discrepancies when it comes to the age difference and awareness of the importance of continuing education in this area. Also, many teachers stated that the trainings organized were not enough to master the necessary segments for distance learning, so many teachers stated that they learned the most about the functioning of platforms by learning by doing. Platforms that enable video chat and distance learning (Microsoft Teams and Google Classroom) are perceived with their options as very complex and unused by teaching staff according to all the possibilities they have, which leads to the conclusion that **practical trainings with certain advanced features are needed based on which teachers could adequately evaluate student activities during distance learning.** That is, as one teacher states: "better education on the use of certain tools for online teaching (not webinars, although this type of education is not bad), and the opportunity to practice and apply them."

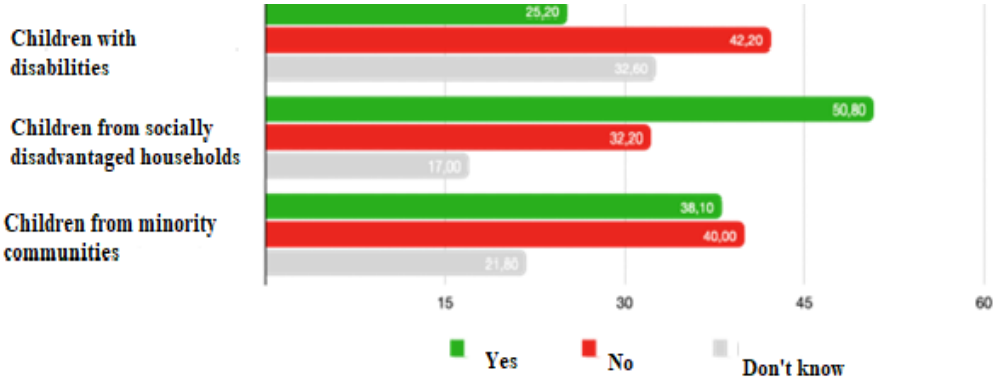
Schools received guidelines for the organization of distance learning and blended learning from the competent ministries.

3.4 Assessment on teacher competencies for delivering quality distance learning and blended learning for maginalized students

Teachers feel that the adequate support was missing when it comes to the inclusion of children with disabilities and children from minority communities. 38.1 % of surveyed teachers felt that they indeed were provided with adequate support with including children with disabilities into the distance learning process, whileas 40.0 % of teachers claims there was no adequate support whatsoever, with 21.8 % support claimed they had no knowledge to give an

answer. Situation is somewhat different when it comes to children with socially disadvantaged households where teachers claimed (50.8%) they had an adequate support in including these groups into distance learning, whileas 32.2 % of them claimed they didn't have any support. Furthermore, every fourth surveyed teachers (25.2 %) claims to have had an adequate support in inlcuding children from minority communities into distance learning process, while 42,2% of them answered negatively. The notion is that there is no difference when it comes to an adequate support to teachers who worked with children from marginalized groups. When it comes to age structure of the surveyed participants, **it was noticed that the teachers with more experience, meaning longer working experience in education, identified more frequently an inadequate support in working with children from marginalized groups,** especially identified in regards to **children with disabilities and children from minority communities.**

Chart 13 Teacher assessed support in regards to working with children from marginalized groups



Another surveyed element was the satisfaction with the inclusion of children with disabilities into distance learning process, where 39.0% of teachers claimed their satisfaction, while 39,3 % were neutral and 21.7% weren't satisfied with the way of inclusion of children with disabilities into online learning process. Situation is very similar to category of children from socially disadvantaged households with 41,7% of teachers claiming satisfaction, 34,7% claiming indiferent position, and 23,6% claiming non satisfaction with the way of including children from socially disadvantaged households into online learning process. This segment, during the delivery of online learning process, according to the claims of school management and relevant education authorities, was brought into a special attention. Schools and relevant education authorities as well as certain organizations, in accordance with their capacities, significantly helped children with social disadvantages, meaning those which, during the realization of the online learning didn't have Internet connection or adequate ICT equipment for attending the online learning. School management also emphasized the assistance and help from certain entrepreneurs and firms but also parents who helped socially disadvantaged children. Unfortunately, this kind of assistance wasn't conducted sistematically through relevant institutions and equally on the level of BiH.

Satisfaction with including children from minority groups was shown by 30,5% teachers, while 48,0 % were neutral and 21,5% felt non satisfaction with the ways of including children from minority groups into distance learning process.

It was indicative that most teachers claimed they didn't konw or felt inadequate of assessing the satisfaction in regards to inclusion of children from marginalized groups into distance learning process, which lead us to the presumption of them not having the opportunity to work with children from marginalized groups in society, or weren't able to recognize these opportunities. This premise is partially confirmed by our interlocutors during the qualitative survey where there was quoted that *„'the first wave of pandemic caused a havoc''. Ministry reacted well, not right away, but was strategic in questioning the organization of education process – this was a positive side of realization of the education process. Negative side – students with disabilities weren't given special treatment, not as a specific group, not their parents, the communication wasn't established, there was no direct communication with students or parents. ''Students – children with disabilities were on their own''.* The anxiety issues, laziness, introvertness – characteristic issues during the pandemic, hence why students need returning into their schools.

Chart 14 – Teacher satisfaction with including children from marginalized groups into distance learning

4. Overview of strategic drawbacks and/or possibilities available for fixing, with recommendations of policies for teachers' needs including but not limited to:

4.1 Overview of teachers' professional competencies

Most teachers continuously communicated with students via platforms provided by schools or through communication platforms in group chats, such as Viber and/or WhatsApp. Significant percentage of students claimed that teachers continuously contacted them to check up on the understanding of education materials and if the materials they received were clear.

Communication with parents was established and continuou where the parent teacher meetings were held via platforms used for school classes. Exchanging experiences and consultations with work colleagues were highlighted as positive sides to distance learning. The lack of opportunities for professional development in digital competencies, especially in the pandemic conditions was marked as a negative element. Relevant education authorities provided only certain but insufficient trainings, according to the opinion of many teachers, especially when it comes to the application of more advance options provided by certain platforms.

4.2 Overview of teachers' pedagogical competencies

Pedagogical competencies of teachers for executing the distance learning process weren't as developed, due to the pandemic conditions in BiH, as teachers didn't have the opportunities to, even within the initial trainings, learn about methods and techniques of working in the online environment, nor did they have any additional trainings on this topic. These competencies were enhanced a little in conducting distance learning, but not through trainings, because of lack thereof.

Special issue lies in the fact that even assistants and public servants working in the ministries an pedagogical institutes weren't as experienced in conducting this type of learning, and therefore were unable to adequately support the process.

Biggest percentage of teachers wasn't interested to continue applying these methods of online teaching in their regular school work later on. This may be caused by negative experiences during these past two school years in terms of distance learning and the absence of expert support, when it comes to their technical competencies as well as pedagogical and methodical competencies. Aside from this, unmotivated students, weak skills and knowledge and the adversities students had in this process of learning and acquiring knowledge and skills, may all be factors which influenced this type of response.

Most frequent negative sides to online learning reported were the lack of motivation and activity from students, which was causally linked. If we connect these two factors teachers perceived as most problematic, with their initial capacities in ICT and pedagogical competencies, then it is also safe to say that there's a probability, among other issues, this lack of activity and motivation is

caused by a linear way of learning, implemented by a certain number of teachers, due to the lack of key competencies needed for working in an online environment.

On the other note, a very useful fact is that certain teachers emphasized that the innovative approach was a positive characteristic of online learning, which leaves enough space for reflecting on how the enhancement of their ICT and pedagogical skills would bring about implementation of various innovative solutions from distance learning to regular teaching on site.

4.3 Overview of teachers' ICT competencies

ICT Equipment of schools, teachers and students didn't suffice during the initial pandemic period, and so the starting of school was disabled in an adequate way. Equipping of schools was done in a year and a half period, but was also difficult, due to the lack of finances, weak distribution of ICT equipment to BiH due to pandemic. This issue was partially fixed through donations or ICT equipment renting, which definitely doesn't show as a permanent solution.

ICT competencies of teachers in education systems in BiH weren't satisfactory in the initial pandemic phase, which presented as an obstacle to continue distance learning adequately. They progressed during time passing owing to the trainings organized, but the opinion of representatives of relevant authorities and pedagogical institutes was that these trainings were short and didn't dive enough into the core.

Inadequate ICT competencies of teachers and students influenced distance learning in a way that it became a sole exchange of materials and holding classes in real time, dominantely with classes and delivery of video materials.

Equipping schools with ICT equipment, software solutions necessary for quality distance learning and blended learning along with securing a quality Internet connection. It is crucial that schools are properly equipped if there is a tendency to raising levels of distance learning quality and blended learning quality. Aside from this, the aim being rasing digital competencies of teachers and students, it is also necessary that schools have the contemporary and modern ICT equipment, adequate software solutions and a quality Internet connection.

4.4 Suggested overview of teachers training packages, founded on systematic overview of teachers' needs

Digital transformation of education should be a strategic goal. Education systems that are able to offer services such as distance learning will remain, being able to include those who are unable to participate in regular education process (athletes, those with health issues, unemployed etc.) This particularly pertains to the higher age groups and higher levels of education.

Establishing standards for providing distance learning and blended learning. Standards for distance learning and blended learning consist of clear defining of conditions in which these forms of education are conducted, roles of each stakeholder, activities these roles consist of as well as responsibilities of each one of them. Standards should be clear and concise in terms of

guidelines on how this process is to be realized (distance learning and blended learning). With function of standards being securing of quality, it is essential that, based on them, proper tools for evaluation and self evaluation are formed, to evaluate the work of both schools and teachers.

Establishing quality organization of distance learning and blended learning, which should conform to these specific pre-conditions:

- planning and organization of distance learning, on school level
- school should be equipped with proper and quality ICT equipment and have stable and quality Internet connection,
- platforms for distance learning should be unique and the same for all the teachers and students on school level,
- all teachers and students should have the adequate ICT equipment and quality and stable Internet connection,
- teachers should have well developed digital competencies.

Forming of contemporary curricula for primary and secondary education, which would support distance learning and blended learning. Contemporary curricula are the ones leaving space for flexibility of teachers in their teaching ways, but are created for developing competencies for the 21st century. These curricula are easily adapted to distance learning processes and blended learning, as well as other new concepts of teaching.

Continuous trainings of professionals working in education institutions. In terms of trainings and educations in education institutions, which would lead to raising quality of teaching process, as well as its modernization, it is essential to disperse these professionals into four groups and observe the additional trainings in such way:

1. school directors
2. expert associates
3. teachers
4. other school employees

Continuous trainings for directors should contain the following modules of training: development of digital competencies which in itself include using of ICT equipment, software being used in education, development of managerial competencies, writing projects towards domestic public and non governmental organizations and towards international organizations, as well as creating project proposals for international projects, e.g. ERASMUS +, developing knowledge and skills for establishment of interschool cooperation, not only on a national but international level, protecting mental health of students and professionals in education, development of inclusive culture and school policy.

Continuous trainings for expert associates should contain following modules of training: development of digital competencies that include the use of ICT equipment, software used in teaching, providing individual support to all students who require it, and to those who attend distance learning process, protecting the mental health of students and professionals in education, development of socio-emotional competencies in students, counseling work in emergency situations, development of inclusive culture and school policy, counseling work with parents.

Continuous trainings for teachers should contain following modules of training: development of digital competencies that include the use of ICT equipment, application of various software solutions in teaching in order to adequately encourage the knowledge and skills gain for students , planning distance learning, continuous monitoring and assessment of students by using formative and summative assessment, providing individual support to students distance learning, working with students from marginalized groups in distance learning and blended learning, preserving the mental health of students and professionals in education, developing socio-emotional competencies in students, developing partnerships with parents, developing inclusive culture and school policy, and developing inclusive classroom practices.

In development of digital competencies of teachers, it is necessary to pay attention to the following areas:
1. Development of professional competencies - which include improving organizational communication with students, parents and colleagues, the use of digital technologies for additional education, knowledge exchange and innovation of pedagogical knowledge and developing awareness of the need for continuing education in this area.
2. Development of pedagogical competencies - which include knowledge and skills in identifying and selecting adequate digital resources for teaching and learning, creating digital content for students and sharing it with students, understanding copyright and other people's digital content while respecting copyright, encouraging collaborative learning with other students with the help of digital technologies, encouraging self-regulation of learning with students with the help of digital technologies and content exchanged with students, use of digital technologies for formative and summative assessment, giving feedback, and using digital technologies in working with children belonging to marginalized groups .

Continuous trainings for other school employees should contain the following modules of training: development of basic digital competencies in accordance with the requirements of the work performed in the school, preservation of mental health.

Continuous education should be accompanied by the **development of various textbooks and guidelines**, which would facilitate the participants in the application of acquired knowledge and skills. Continuous training is realized at at least 3 levels - primary, secondary and tertiary level, in accordance with the previously acquired competencies of the participants. It is obligatory to prescribe the minimum number of hours of training per year.

Modernizing the way of conducting practical classes. In line with global development, it is necessary to work on modernizing the approach to practical teaching. It is undeniable that it is very important that students are given the opportunity to conduct practical classes in the workplace (specific firms) where they would eventually be employed, but it is also important to enable them to, whenever it is useful and meaningful, conduct practical classes using digital technologies. In order to work on the modernization of practical teaching, it is necessary to educate both teachers and employers in this direction. These trainings should necessarily include trainings in the field of digital competencies, conducting practical classes in the online environment (where possible and meaningful), and monitoring the realization and progress of students in conducting practical classes. In this sense, it is necessary to develop textbooks for teachers / coordinators of practical classes and mentors.

4.5 Overview of teachers' and students' approach to tools and platforms for distance learning, quality of connection, approach to education platforms, avalibility of trainings for education management systems and the avalibility of ICT equipment, with specific focus on marginalized groups

Teachers did not have adequate support for working with children from marginalized groups. When it appeared as available, it was very limited due to the pandemic and the measures imposed by the crisis units, which made it very difficult to work with children who urgently need individual support (children with disabilities), but also with other children who did not have ICT equipment , and no TVs in their homes. For these children, distance learning during the period was very difficult.

It is important to bear in mind that working with children with disabilities, especially those with intellectual disabilities, is not possible solely with the help of digital technologies and that an individualized approach and direct in-face relationship is very important for these children. In addition, working with children from marginalized groups was hampered by a situation in which their families did not have adequate ICT equipment, and some families did not even have TVs, so children were not able to watch classes on TV.

Teachers' sensitivity towards children belonging to marginalized groups is present, but it is not enough to educate these children in an adequate way in distance learning process.

4.6 Overview of teacher's ability to ease the distance learning process for students from marginalized groups

At the beginning of the pandemic, teachers were mostly unprepared to work with children who weren't from marginalized groups in the online environment, so for them working with children who were from marginalized groups was even more complex. Teachers do not possess adequate knowledge for working with children with disabilities in development in regular classes alone, as this knowledge is not acquired in the initial education, and they must be further educated about this. Knowledge to work with these children in the online environment is definitely necessary. However, we'd like to accentuate here as well, that working in an online environment with most of children from marginalized groups requires overcoming a lot of difficulties and obstacles.

5. Appendices

Appendix 1: Strategic EU Framework

The EU has identified media and information literacy (MIP) as a key competence for lifelong learning and has developed a "European Framework of Reference" with clear recommendations for EU governments (2006/962 / EC) on how to ensure these competences. The Recommendation identifies 8 key competences that are fundamental to every individual in a knowledge-based society, including a digital competence relating to the reliable and critical use of information and communication technologies for work, education, leisure and communication (2006/962 / EC); in other words, the MFA.

The eight key competencies are as follows:

1. Communication in the mother tongue: the ability to express and interpret concepts, thoughts, feelings, facts and opinions orally and in writing;
2. Communication in a foreign language: as mentioned above, but includes mediation skills (ie summarizing, paraphrasing, interpreting or translating) and intercultural understanding;
3. Mathematical, scientific and technological competence: good mastery of computing, understanding of the world of nature and the ability to apply knowledge and technology to perceived human needs (such as medicine, transport or communication);
4. Digital competence: reliable and critical use of information and communication technology for work, leisure and communication;
5. Learning to learn: the ability to effectively manage one's own learning, either individually or in groups;
6. Social and civic competences: the ability to participate effectively and constructively in social and working life and to participate actively and democratically, especially in increasingly diverse societies;
7. Sense of initiative and entrepreneurship: the ability to turn ideas into action through creativity, innovation and risk-taking, as well as the ability to plan and manage projects; and
8. Cultural awareness and expression: the ability to appreciate the creative importance of ideas, experiences and emotions in a range of media such as music, literature and the visual and performing arts.

Through these Communications, EU governments are invited to make the teaching and learning of key competences part of their lifelong learning strategies.

The Council Conclusions from May 30 in 2016 on developing media literacy and critical thinking through education and training in the EU draws attention to many benefits and opportunities available on the Internet and social media, but also highlights the potential threats and dangers they may present (2016). / C 212/05) [16]. This Communication emphasizes the importance of

[16] More information on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12016M002

education and training in helping young people to become media literate and responsible citizens of the future and in preventing violent extremism and radicalization (2016 / C 212/05)[17]. It is emphasized that:

1. A key element of education and training is the instillation of fundamental values in young people, such as those contained in the "Treaty on the European Union", while promoting their capacity for independent and critical thinking;
2. Lecturers and training staff should be supported so that controversial issues can be openly discussed in the classroom, and staff can keep up with the knowledge and skills needed to access, interpret, produce and use media content responsibly - by sharing good practices media literacy and critical thinking should be further promoted in the context of the ET2020 strategic framework;
3. In order to promote media literacy and critical thinking, EU funds and programs, such as Erasmus +, the Connecting Europe Instrument, the European Structural and Investment Funds, Horizon 2020, Creative Europe and Europe for Citizens, should be used by EU countries and the European Commission as well.

In its report "EU Cooperation in Education and Training - Priorities 2016-2020" the EU reviews progress in implementing the Strategic Framework for European Cooperation in Education and Training (ET 2020) in the medium term and sets new priorities for 2016-2020, of which Distance learning is also important (2015 / C 417/04). This 2015 Joint Report, prepared by the Council and the European Commission, identifies priority areas for the period 2016-2020, including "relevant and high-quality skills and competences, focusing on outcomes for employability, innovation and active citizenship" achieved through, inter alia, the development of "Digital Competence" (2015 / C 417/04).

The Communication of the Commission "Opening up education: innovative teaching and learning for all through new technologies and open educational resources" is directly related to online teaching. The Communication proposes activities at EU level and at individual national levels, in particular:

- helping learning institutions, teachers and students to acquire digital skills and learning methods;
- supporting the development and availability of open educational resources;
- connecting classrooms and introducing digital devices and content; and
- mobilization of all participants (teachers, students, families, business and social partners) to change the role of digital technologies in educational institutions (COM / 2013/0654 final).

The communication states that EU education is not in line with the digital society, and that the economy and technology provide an opportunity to increase efficiency and equity in education. They emphasize that Erasmus +, Horizon 2020 and other EU funding programs provide incentives and conditions that encourage partnerships and projects, in particular to address the following issues:

a) Open learning environments - opportunities for innovation:

[17] More information on: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:ef0016

- education and training institutions need to revise their organizational strategies to encourage innovative learning practices;
- teachers should be able to acquire good pedagogical digital competences, for example, through strong communities of exchange of practices as well as rewards for new teaching methods;
- Students expect to acquire digital skills and competences and that their skills will be easily certified and recognized for further study or work.

b) Open educational resources - opportunities to use open knowledge for better quality and access:

- high-quality open educational resources must become more visible and accessible to all citizens;
- copyright issues should be more transparent.

c) Connectivity and innovation - partnerships for infrastructure, new products and services, and exchange and use of information:

- Better internet connection infrastructure is still needed in some EU countries.

d) A joint effort to seize the opportunities provided by the digital revolution:

- An integrated approach is needed to better understand the opportunities to come, ie to provide access to digital content, information and communication technology infrastructure, the right level of digital skills and the right organizational strategies, which together can generate an educational offer that can support and sustain innovation.

The Communication on "School Development and Excellent Teaching for a Great Beginning in Life" identified the challenges that schools and teaching face in the EU, as well as ways in which the EU can support EU countries in reforming their school systems to meet these challenges (COM (2017) 248 final).
In their view, schools have a key role to play in lifelong learning and therefore action is needed to improve the quality and performance of education. Almost all EU countries face several key challenges:

1. weaknesses in the development of competencies;
2. school education does not play its full role in promoting equality and social justice; and
3. the effect of the pace of technological and digital change on economies and societies.

It also identifies three areas where EU support can help address the challenges:

1. Development of better and more inclusive schools, including:

- support to all students and the development of their competencies;
- improving learning by opening up to new forms of cooperation, for example, with local services, local community organizations, businesses and universities to help young people prepare for future employment and study;
- improving access to and quality of early childhood education and care.

2. Support to teachers and school management for excellent teaching and learning, including:

- make the teaching career more appealing;
- looking at teaching as a profession where teachers cooperate and work together;
- support to school management.

3. Become more efficient, fairer and more efficient in running the school education system:

- adequate and effective investment in school resources;
- combining autonomy and quality assurance.

In addressing EU countries, the Commission stated that it would support digital skills for all, in particular by "updating the Digital Education Action Plan and presenting a vision for improving digital literacy, skills and capacity at all levels of education and training and for all levels of digital skills (from low to advanced). Based on lessons learned from the COVID-19 crisis in areas such as online learning, the Action Plan aims to support the development of stronger digital competences and organizational skills in education and training systems (including distance learning) while fully exploiting the potential of new technology, data, content, tools and platforms to make education and training appropriate for the digital age "(European Commission, 2020).

References:

- "RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 on key competences for lifelong learning (2006/962/EC)", *Official Journal of the European Union*, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32006H0962

- "2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020): New priorities for European cooperation in education and training (2015/C 417/04)", *Official Journal of the European Union*, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52015XG1215%2802%29

- "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions — Opening up education: innovative teaching and learning for all through new technologies and open educational resources (COM(2013) 654 final)", *Official Journal of the European Union*, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legissum%3A4301337

- "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions —School development and excellent teaching for a great start in life (COM(2017) 248 final)", *Official Journal of the European Union*, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52017DC0248

- European Commission. (2020). "European skills agenda for sustainable competitiveness, social fairness and resilience", available at: https://ec.europa.eu/social/main.jsp?catId=1223

- "COUNCIL CONCLUSIONS of 30 May 2016 on developing media literacy and critical thinking through education and training (2016/C 212/05)", *Official Journal of the European Union*, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52016XG0614%2801%29

Appendix 2: Methodology – Sample description

The purpose of surveys was to obtain key information on the degree of satisfaction of various aspects distance learning quality and the needs of teachers and expert associates. Given the pandemic conditions and the efficiency of data collection, the research will be conducted online. Three different target groups have been identified, namely

(I) expert associates in schools, who had a direct insight into the implementation of teaching,
(II) teachers
(III) students.

For each target (sub) group, a special measuring instrument was constructed - a questionnaire (Appendix 4). When it comes to students, the research will have three types of questionnaires for three groups of students:
(I) lower primary school students (4th and 5th grade)
(II) upper primary school students (VII, VIII and IV grade)
(III) high school students

Between these three groups of students there are differences in each segment of development (cognitive, socio-emotional, physical) which is one of the reasons for creating special questionnaires for each group. In addition, in the previous year and a half, there were some differences between primary and secondary school students when it comes to teaching, which is also one of the factors that requires a different approach to testing.

The method for collecting data during the research was defined by the survey technique and the questionnaire instrument, which was distributed to the target population in the form of a questionnaire via an online link that will be accessible to teaching staff, professional services and administrative staff (target population).

All measuring instruments were piloted (pilot research in one (1) school based on the first level of stratification). After the pilot, all instruments were reviewed and finalized.

The surveys are anonymous, and in order to reduce the possibility of revealing identities that could affect the sincerity of the answers of professional associates, teachers and students, the collected demographic indicators are related to basic information, such as age and scientific field in which lecturers teach.

The sampling process is defined as a stratified multi-phase random sample that defines the schools to which the survey questionnaire will be distributed.

Multiphase stratification in this study involves three levels of stratification, namely

(I) first, according to the administrative and political organization of Bosnia and Herzegovina on the three strata of the entities of the Federation of Bosnia and Herzegovina and the Republika Srpska and the Brčko District,

(II) then within each stratum (Brčko District - one (1) region) stratification is performed based on the regions: Republika Srpska (three regions - West (Banja Luka), South (Trebinje) and Northeast (Bijeljina), Federation of BiH Canton: Una-Sana Canton, Posavina Canton, Tuzla Canton, Zenica-Doboj Canton, Bosnia-Podrinje Canton, Central Bosnia Canton, Herzegovina-Neretva Canton, West Herzegovina Canton, Sarajevo Canton, Canton 10).
(III) the third stratification will be performed on the basis of urban-rural categorization of schools that have the possibility to be selected in the sample, which primarily refers to primary schools.

The schools that were randomly selected in the sample are:

Banja Luka region - RS
Petar P. Njegoš, Bulevar Vojvode S.S. 16 A, B.Luka
Branko Radičević, Bulevar Vojvode S.S. 116, B.Luka
Đura Jakšić, Subotička bb, Šargovac, B.Luka
Liješće, Liješća bb,Brod
Mladen Stojanović, G.Podgradci bb, G.Podgradci
Georgios A. Papandreu, Aleksandrovac bb, Aleksandrovac
Petar P. Njegoš, Busnovi bb, Busnovi
Vuk Karadžić, Sitneši bb, Sitneši
Nikola Tesla, Cara Lazara bb, Prnjavor
Bijeljina region - RS
Petar P. Njegoš, Brđani bb, Boljanić
Torod Dokić, Kalenderovci bb, Kalenderovci
Sveti Sava, Svetog Save 26, Bijeljina
Sutjeska - Modriča, Maksima Gorkog 2, Modriča
Filip Višnjić, Donja Trnova bb, Ugljevik
Medicinska škola, Pop LJubina103, Doboj
Ekonomska škola , Račvanska 96, Bijeljina
SŠC "Petar Kočić", Vuka Karadžića 69, Zvornik
Trebinje region - RS
Petar P. Njegoš, Draže Mihajlovića 38, I.Ilidža
Sv. Vasilije Ostroški, Gorički put bb, Gorica
Veselin Masleša, Karađorđeva bb, Foča
SŠC"Aleksa Šantić", Petra Samardžića bb, Nevesinje
Canton Sarajevo - FBiH
Četvrta osnovna škola - Ilidža, Put Famosa 33
OŠ “ 6.mart ” Hadžići, Anđelka Lažetića 5
OŠ “Safvet beg Bašagić”, Gimnazijska 1

OŠ “Fatima Gunić”, Nerkeza Smailagića 18
OŠ “Skender Kulenović”, Bulevar Mimar Sinana bb
Gimnazija Obala, Obala Kulina bana 3
Srednja građevinsko geodetska škola, Franca Lehara 5
Srednjoškolski centar Vogošća, Jošanička 119
Tuzla Canton - FBiH
JU OŠ "Seona" Aljkovići, Banovići
JU OŠ "Jala" Tuzla, Muharema Fizovića 2 Tuzla
JU OŠ "Šerići" Šerići, Živinice
JU OŠ "Hamdija Kreševljaković" Kamberi, Gradačac
JU OŠ "Breške" Breške, Tuzla
JU OŠ "Miričina" Miričina, Gračanica
JU OŠ "Mejdan" Tuzla, Muftije ef Kurta bb Tuzla
JU Mješovita srednja škola „Hasan Kikić“ Gradačac, Sarajevska bb
JU Mješovita srednja saobraćajna škola Tuzla, Bosne Srebrene 6
JU Turističko-ugostiteljska škola Tuzla, Muhameda Hevaija Uskufija 3
Central Bosnia Canton - FBiH
Osnovna škola “Kiseljak”, Josipa bana Jelačića 42/A
Osnovna škola “fra Marijan Šunjić”, Stojkovići
Osnovna škola “Mehurići”, MehurićI bb
Osnovna škola “Dubravica”, Preočica, Preočica bb
Mješovita srednja škola Bugojno, Zlatnih Ljiljana bb
Herzegovina-Neretva Canton - FBiH
O.Š. Ilije Jakovljevića Ante Starčevića bb 88 000 Mostar
JU O.Š.Suljo Čilić - Jablanica Bokulja 28 88 420 Jablanica
O.Š. Omer Maksumić-Podveležje-88 206 Podveležje
O.Š. Antuna Branka Šimića (I) Kraljice Katarine 38 88 000 Mostar
O.Š. Čerin Čitluk, Čerin bb 88 265 Čerin
Srednja strojarska škola Fausta Vrančića Mostar Kralja Zvonimira 24 88000 Mostar
Srednja škola Stolac Don Lazara Lazarevića 88360 Stolac
Bosnia-Podrinje Canton - FBiH
Osnovna škola „Husein ef. Đozo” Goražde
Mješovita srednja škola „Enver Pozderović“
CANTON 10 - FBiH
OŠ “Ivan Goran Kovačić”, Livno
Srednja strukovna škola, Tomislavgrad
West Herzegovina Canton - FBiH

Osnovna škola Marka Marulića Ljubuški
Srednja škola Antuna Branka Šimića, GRUDE
Zenica-Doboj Canton - FBiH
Osnovna škola Alija Nametak, Zenica
Osnovna škola Hasan Kikić, Zenica
Osnovna škola Žepče
Osnovna škola "Prva osnovna škola"; Maglaj
Gimnazija Rizah Odžečkić, Zavidovići
Mješovita Srednja Škola, Adolfa Goldbergera, Zenica
Una-Sana Canton - FBiH
U OŠ "HARMANI I", BIHAĆ
OŠ "ĆORALIĆI", CAZIN
OŠ "SEAD ĆEHIĆ", VELIKA KLADUŠA
OŠ "HASAN KIKIĆ", SANSKI MOST
JU "Mješovita elektrotehnička i drvoprerađivačka srednja škola", BIHAĆ
MSŠ "Hasan Musić", BUŽIM
Posavina Canton - FBiH
Osnovna škola Orašje
Srednja škola Pere Zečevića, Odžak
Brčko District - FBiH
JU Četvrta osnovna škola Brčko distrikt BiH
Ekonomska škola, Brčko

Appendix 3: Interview protocols with representatives of relevant ministries of education / pedagogical institutes; Interview protocol with experts in the field of education and civil society organizations; Interview protocol with employer representatives

INTERVIEW PROTOCOL WITH REPRESENTATIVES OF COMPETENT MINISTRIES OF EDUCATION / INSTITUTIONS

Protocol for interviews conducted by UNICEF as part of two surveys: "Assessment of the quality of distance education in primary and secondary schools in BiH" and "Assessment of the needs of teachers in distance learning in primary and secondary schools in BiH"

Thank you for participating.

We are conducting this interview in order to obtain information on distance education in primary and secondary education in Bosnia and Herzegovina, where we are particularly interested in its quality, the needs of teaching staff, and how to improve it. The purpose of our conversation today is to hear about your experience and thinking about this topic. Your contribution will greatly help us to understand and summarize data on existing activities, practices, as well as shortcomings of distance learning in Bosnia and Herzegovina.

All your comments are strictly confidential and you will not be identified in any way in any report.

[NOTE: Write down the name, position and full name of the institution]

1. How do you generally assess distance learning in the past period in the administrative unit (canton, entity) in which you work? What were the positive things and what were the disadvantages?
    a. How do you assess the basic technical capacity of schools (eg computers, network quality, etc.) for distance learning?
    b. How do you assess the pedagogical and technical competence of human resources for this type of learning?
    c. How do you assess the level of coordination in the education system during the implementation of distance learning? Did all schools receive adequate information and instructions on how to conduct classes?

2. Could you please share with us any documents, instructions, regulations that you think might contribute this study? Are these existing norms sufficient or is it necessary to define this area in more detail in the new circumstances?

3. Regarding the possible adjustment of legal, financial and administrative framework for distance learning or blended learning, is it applied and what - in your opinion - needs to be applied / adapted?
    a. In your opinion, were schools in shape at the time of the pandemic and used EU tools for self-evaluation? Did schools use SELFIE?
    b. In your opinion, does the existing legal framework allow for distance learning and blended learning, or should it be further adapted? In which segment?

c. In your opinion, with regard to the existing financial framework, should special and / or additional resources be planned for distance learning and blended learning? What amount / percentage of increase is in question? How important was public procurement at the time of the pandemic, did you have any problems when it comes to procuring equipment, internet / connections, platforms?

d. In your opinion, was the existing administrative framework satisfactory at the time of the pandemic (development of human resources in ministries / PPZ / schools - with emphasis on teachers)?

4. Are there measures and policies in the past and now that should facilitate distance learning?

a. Was there additional training for the teaching staff? If so, how was the training organized? Who developed and implemented the trainings? Were they paid? How long did it take? What trainings do you think were the most useful?

b. Have the online platforms used been defined / selected? Which online tools are most commonly used? Were these tools clearly defined by the competent educational institutions or could the teaching staff choose the tools voluntarily? Were the platforms / devices paid or were they free?

c. Were there any additional financial items and budgets for distance learning during the pandemic?

5. To the best of your knowledge, how have students with disabilities and members of vulnerable groups been involved in distance learning?

6. Do you have indicators on the impact of distance learning and blended learning in terms of the implementation of curricula and the achievement of planned learning outcomes?

7. In your opinion, to what extend and has there been any use of modern didactic approaches in distance learning and blended learning?

8. To your knowledge, what was the situation with the performance and quality of practical classes?

9. Do you think that certain forms of distance learning should be maintained in the future, regardless of epidemiological circumstances? If so, which forms of distance learning and to what extent?

10. In the context of distance learning, what do you think are the main needs of teaching staff that need to be taken into account in the future?

a. To your knowledge, what are the needs of schools and teaching staff in terms of ICT equipment, networking, training in the use of ICT equipment and applications, for the successful implementation of distance learning?

b. To your knowledge, what are the needs of teaching staff in terms of methodological approaches to distance learning and creating digital content for successful distance learning?

11. What measures do you propose in the future, in terms of distance learning and blended learning?

[NOTE: Ask the representatives of the Ministries for information on budget allocations for the education sector for 2019/2020 and 2020/2021]

Thank you again for participating in this conversation!

PROTOCOL OF INTERVIEWS WITH EXPERTS IN THE FIELD OF EDUCATION AND CIVIL SOCIETY ORGANIZATIONS

Protocol for interviews conducted by UNICEF as part of two surveys: "Assessment of the quality of distance learning in primary and secondary schools in BiH" and "Assessment of the needs of teachers in distance learning in primary and secondary schools in BiH"

Thank you for participating.

We are conducting this interview in order to obtain information on distance learning in primary and secondary education in Bosnia and Herzegovina, where we are particularly interested in its quality, the needs of teaching staff, and how to improve it. The purpose of our conversation today is to hear about your experience and thinking about this topic. Your contribution will greatly help us to understand and summarize data on existing activities, practices, as well as shortcomings of distance learning in Bosnia and Herzegovina.

All your comments are strictly confidential and you will not be identified in any way in any report.
[NOTE: Write the name, position and full name of the institution / organization]

1. How do you generally assess distance learning in the past period in BiH as well as in the area of the administrative unit (canton, entity) in which you work? What were the positive things and what were the disadvantages?

   a) How do you assess the basic technical capacity of schools (eg computers, network quality, etc.) for distance learning?

   b) How do you assess the pedagogical and technical competence of human resources for this type of learning?

   c) How do you assess the level of coordination in the education system during the implementation of distance learning? Did all schools receive adequate information and instructions on how to conduct classes?

2. Are these existing norms sufficient or is it necessary to define this area in more detail in the new circumstances?

3. Regarding the possible adjustment of the legal, financial and administrative framework for distance learning or blended learning, is and what - in your opinion - needs to be applied / adapted?

   a) In your opinion, were the schools able to use EU self-evaluation tools at the time of the pandemic? Did schools use SELFIE?

   b) In your opinion, does the existing legal framework allow for distance learning and blended learning, or should it be further adapted? In which segment?

c) In your opinion, with regard to the existing financial framework, should special and / or additional resources be planned for distance learning and blended learning? What amount / percentage of increase is in question? How important was public procurement at the time of the pandemic, did you have any problems when it comes to procuring equipment, internet connection, platforms?

d) In your opinion, was the existing administrative framework satisfactory at the time of the pandemic (development of human resources in ministries / pedagogical institutes / schools - with emphasis on teachers)?

4. Are there measures and policies in the past and now that should facilitate distance learning?

a) Was there additional training for teaching staff? If so, how was the training organized? Who developed and implemented the trainings? Were they paid? How long did it take? What trainings do you think were the most useful?

b) Have the online platforms used been defined/selected? Which online tools are most commonly used? Were these tools clearly defined by the competent educational institutions or could the teaching staff choose the tools voluntarily? Were the platforms /tools paid for or were they free of charge?

5. To the best of your knowledge, how have students with disabilities and members of vulnerable groups been involved in distance learning?

6. In your opinion, has and to what extent there has been the use of modern didactic approaches in distance learning and blended learning?

7. To your knowledge, what was the situation with the performance and quality of practical classes?

8. Do you think that certain forms of distance learning should be maintained in the future, regardless of epidemiological circumstances? If so, which forms of distance learning and to what extent?

9. In the context of distance learning, what do you think are the main needs of teaching staff that need to be taken into account in the future?

a) To your knowledge, what are the needs of schools and teaching staff in terms of ICT equipment, networking, training in the use of ICT equipment and applications, for the successful implementation of distance learning?

b) To your knowledge, what are the needs of teaching staff in terms of methodological approaches to distance learning and creating digital content for successful distance learning?

10. What measures do you propose in the future, in terms of distance learning and blended learning?

Thank you again for participating in this conversation!

PROTOCOL OF INTERVIEWS WITH EMPLOYEES 'REPRESENTATIVES INCLUDED IN THE VOCATIONAL EDUCATION AND TRAINING SYSTEM

Protocol for interviews conducted by UNICEF as part of two surveys: "Assessment of the quality of distance learning in primary and secondary schools in BiH" and "Assessment of the needs of teachers in distance learning in primary and secondary schools in BiH"

Thank you for participating.

We are conducting this interview in order to obtain information on distance education in primary and secondary education in Bosnia and Herzegovina, where we are particularly interested in its quality, the needs of teaching staff, and how to improve it. The purpose of our conversation today is to hear about your experience and thinking about this topic. Your contribution will greatly help us to understand and summarize data on existing activities, practices, as well as shortcomings of distance learning in Bosnia and Herzegovina.

All your comments are strictly confidential and you will not be identified in any way in any report. [NOTE: Write down the name, position and full name of the company]

1. How do you generally assess the organization of vocational education and distance training in the past period in your company? Have you noticed any positive things? What were the disadvantages?

a) Did you organize training in your workshops at the time of "closing"?
b) In the past school year, how much was online training, and how much in workshops?
c) How do you assess the basic technical capacity of your company and the schools you work with (eg computers, network quality, etc.) for vocational education and distance learning?
d) How do you assess the level of cooperation and coordination with schools in the implementation of vocational education and distance learning? distance learning? Did your company and the schools you work with receive adequate information and instructions on how to teach?
e) How do you assess the pedagogical and technical competence of your company's human resources for this type of education and training in your company?

2. Is there legislation governing distance education within the administrative unit to which you belong? Please could you share with us the documents, instructions, regulations that you think could contribute to this study? Are the existing norms sufficient or is it necessary to define this area in more detail in the new circumstances?

3. Are there mechanisms in the past and now that would facilitate the implementation of distance education?

a) Was there additional training for your staff for online training? If so, who developed and implemented the trainings? Did you have to pay for them or were they free? How long did it take? What trainings do you think were the most useful?
b) Have the online platforms used been defined / selected? Which online tools are most commonly used? Were these tools clearly defined by the competent educational

institutions or could the teaching staff choose the tools voluntarily? Were the platforms / devices paid or were they free?

c) During the pandemic, were there additional financial items and budgets for distance learning?

4. Do you have indicators on the impact of distance learning and blended learning in terms of the implementation of curricula and the achievement of planned learning outcomes?

a) To your knowledge, what was the situation with the performance and quality of practical classes?

5. Do you think that certain forms of distance learning should be maintained in the future, regardless of epidemiological circumstances? If so, which forms of distance learning and to what extent?

6. What measures do you propose in the future, in terms of distance education and training?

Thank you again for participating in this conversation!

Appendix 4: Survey questionnaires

FOLDER WITH ALL THE QUESTIONNAIRES
https://drive.google.com/drive/folders/1bTofw7SMXWnT38fGh_12J18KkitYm2QV?usp=sharing

FOLDER CONTAINS (GOOGLE DRIVE):

- QUESTIONNAIRE FOR TEACHERS
- QUESTIONNAIRE FOR STUDENTS (4. TO 5. GRADE) IN PRIMARY SCHOOLS
- QUESTIONNAIRE FOR STUDENTS (7. TO 9. GRADE) IN PRIMARY SCHOOLS
- QUESTIONNAIRE FOR STUDENTS (2. TO 4. GRADE) IN SECONDARY SCHOOLS
- QUESTIONNAIRE FOR EXPERT STAFF