



UN COVID-19 Response  
and Recovery Fund  
— #RecoverBetterTogether —



# Assessment on the Quality of Distance Learning in Higher Education in Bosnia and Herzegovina During the COVID-19 Pandemic



Banja Luka & Sarajevo, June 2021

This document represents one of two assessments carried out for the purposes of the project "Reimagining Education for Marginalized Girls and Boys during and post COVID-19 in Bosnia and Herzegovina", jointly implemented by UNICEF, UNESCO, ILO and UN Volunteers in Bosnia and Herzegovina. The second complementary assessment "Assessment on the Needs of Lecturers in Distance Learning in Higher Education in Bosnia and Herzegovina during the COVID-19 pandemic" is also the result of the work of a multidisciplinary team of researchers from Bosnia and Herzegovina. Primary and secondary research was conducted in the period from March 23 to April 9, 2021.

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## Acronyms

|                 |  |
|-----------------|--|
| <b>BD</b>       | Brčko District   |
| <b>BiH</b>      | Bosnia and Herzegovina   |
| <b>COVID-19</b> | Corona virus pandemic  |
| <b>DELT</b>     | Digitally supported teaching activities                          |
| <b>EU</b>       | European Union   |
| <b>FBiH</b>     | Federation of Bosnia and Herzegovina                             |
| <b>ILO</b>      | International Labor Organization                                 |
| <b>ICT</b>      | Information communication technologies                           |
| <b>RS</b>       | Republika Srpska   |
| <b>UN</b>       | United Nations   |
| <b>UNESCO</b>   | United Nations Educational, Scientific and Cultural Organization |
| <b>UNICEF</b>   | United Nations Children's Fund                                   |
| <b>HEI</b>      | Higher education institution                                     |

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## Abstract

The study was done to learn more about the impact of the COVID-19 pandemic on higher education in Bosnia and Herzegovina, as it is clear that the impact has been dramatic and transformative. The research focused on the assessment of the quality of learning, given that previously only one study was conducted on the quality of the teaching process in Bosnia and Herzegovina, and fundamental assessments of the quality, shortcomings and challenges of higher education institutions for the implementation of distance learning are necessary in terms of increasing the capacity and readiness of higher education to systematically respond to this and future crises. Data for analysis were collected from available secondary sources as well as through semi-structured interviews with relevant persons and through separate surveys for students, teachers and representatives of higher education institutions. Based on the findings, it is clear that the quality of distance learning in higher education in Bosnia and Herzegovina during the COVID-19 pandemic is far from ideal conditions and quality.

## 1. Introduction and purpose

The study was carried out within the framework of the United Nations (UN) socio-economic recovery plan for Bosnia and Herzegovina (BiH), within which the United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Labor Organization (ILO) and UN Volunteers developed the project "Reimagining Education for Marginalized Girls and Boys during and post COVID-19 in Bosnia and Herzegovina" to support educational institutions in the three pilot administrative units in combating effects of the COVID-19 pandemic, and to strengthen the capacities of education authorities, and teachers/lecturers from preschool to higher education. The project covers education from preschool to higher education level with the purpose of ensuring quality and inclusive distance learning and teaching process that includes a *blended learning* model. There is an evident lack of data on the application of distance learning at the level of higher education, unlike data about access and quality of distance learning in BiH for lower levels of education, conducted after the outbreak of the COVID-

19 and school closures across the country. The assessment revealed that there is only one study on the quality of the teaching process, which was conducted and published in March 2021.<sup>1</sup>

As of mid-March 2020, as part of preventive measures to combat the spread of the COVID-19 pandemic, 31 higher education institutions<sup>2</sup> (HEIs) in BiH were closed<sup>3</sup>, which directly affected the learning process of 67,839 students enrolled in the 2019/2020 academic year, as well as 9,844 employees at the University.<sup>4</sup> Based on the data collected through the "Rapid Assessment of the Situation and Needs - Education in Bosnia and Herzegovina - Phase II", which was jointly carried out by UNICEF and UNESCO from June to August 2020, all HEIs introduced distance learning on an *ad hoc* basis in order to ensure the continuity of learning for their students. However, the quality of distance learning at that stage could not be fully assessed due to the lack of necessary data from institutions dealing with higher education.

A fundamental assessment of the quality, shortcomings and challenges of HEI for the implementation of distance learning is necessary and relevant not only in the context of the above-mentioned UN assistance to educational authorities during the COVID-19 pandemic, but also with the aim of increasing the capacity and readiness of higher education to systematically design solutions to future crises, but also to be more adequately involved in the global trends of digitization of the teaching process. In this sense, UNESCO began the preparation of this assessment, which offers an assessment of the quality of distance learning at the level of higher education in Bosnia and Herzegovina.

In order to assess the quality of distance learning at the University of Bosnia and Herzegovina in BiH, the study used five key research questions:

- What are the strengths and weaknesses of the current distance learning systems in Bosnia and Herzegovina and to what extent the quality of the currently used systems support positive learning outcomes; How do the existing systems of distance learning in Bosnia and Herzegovina compare with the countries of the Western Balkans and the practices of the member states of the European Union in relation to distance learning?
- Which dimensions within the existing legal, financial and administrative systems favor the application of distance learning at higher education institutions in Bosnia and Herzegovina?
- To what extent distance learning models (tools and platforms), which are currently used by higher education institutions in Bosnia and Herzegovina, meet standards that ensure quality; what are the main features and modalities of all types of distance learning and distance learning at higher education institutions in Bosnia and Herzegovina?

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<sup>1</sup>The Agency for Higher Education of Republika Srpska. "Thematic analysis of the process of distance learning during the extraordinary circumstances caused by COVID-19." (March, 2021); available at [https://www.hears.com/attachments/article/378/tematska\\_analiza\\_20210315.pdf](https://www.hears.com/attachments/article/378/tematska_analiza_20210315.pdf)

<sup>2</sup>Higher education institutions in BiH are universities and colleges. For more information, see: <http://cip.gov.ba/bs/visoko-obrazovanje>

<sup>3</sup>Agency for the Development of Higher Education and Quality Assurance of Bosnia and Herzegovina, "List of Accredited Higher Education Institutions in BiH"; available at: [http://hea.gov.ba/akreditacija\\_vsu/](http://hea.gov.ba/akreditacija_vsu/)

<sup>4</sup>Agency for Statistics of Bosnia and Herzegovina, "Education Statistics - Higher Education in the 2019/2020 school year"; available at: [http://bhas.gov.ba/data/Publikacije/Saopštenja/2020/EDU\\_05\\_2019\\_Y2\\_0\\_BS.pdf](http://bhas.gov.ba/data/Publikacije/Saopštenja/2020/EDU_05_2019_Y2_0_BS.pdf)

- To what extent are the needs of students and lecturers addressed regarding access to distance learning and platforms (connection and availability of equipment); special focus on students with special needs and marginalized groups?
- What is the quality of distance learning curriculum implementation, including practical lectures, and the overall success of students?

After the research questions were defined, the most important factors were identified that represent logical and theoretical assumptions that high-quality teaching supported by digital technologies (DELT; Eng. *digitally enhanced learning technologies*) takes place at HEIs in BiH even in the post-pandemic period. The final model is visualized as a *theory of change* in Figure 1, which considers the key aspects of the UNESCO philosophy<sup>5</sup> of distance education development as well as the principles advocated by the European Union<sup>6</sup> (EU). The theory of change represents a visual description of the conditions and mechanisms that lead to the desired outcome within a complex system. The purpose of the created model is twofold: (1) the model can serve as a strategic working model for improving the quality of distance learning at HEIs in BiH; (2) the model represented a frame of reference for the creation of instruments for examining the quality of distance learning and the factors that contribute to it.

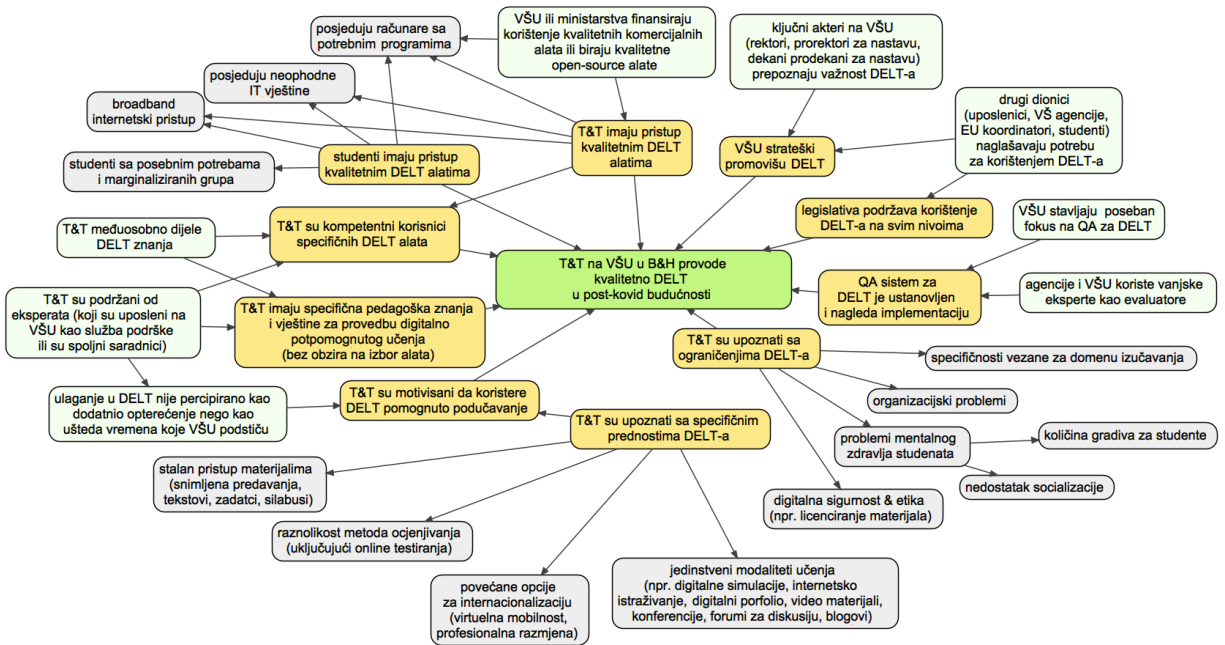
**Figure 1.** *An applied theory of change model for the UNESCO distance learning quality study.*

[Abbreviations used: T&T = *Teachers & Trainers* , QA = *Quality Assurance* , DELT = *digitally supported teaching activities*, IT = *information technologies*, VŠU (HEI)= *higher education institution*]

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<sup>5</sup> For more, see "UNESCO ICT Competency Framework for Teachers (Version 3)", available at: <https://en.unesco.org/themes/ict-education/competency-framework-teachers>

<sup>6</sup> For more see "European Framework for the Digital Competence of Educators: DigCompEdu", available at: <https://publications.jrc.ec.europa.eu/repository/handle/JRC107466>



The extraordinary circumstances in higher education caused by the pandemic revealed vulnerabilities and shortcomings of the existing higher education systems, as well as the need for the development of digital literacy. These circumstances also represent an opportunity for greater digitization of education and ultimately offer the opportunity for this form of teaching to become an integral part of education even after the pandemic. The current situation has resulted in the evaluation of the role of the Higher Education Institution in providing quality education, the way of conducting classes, the availability of education, as well as the importance of lifelong learning for lecturers and teachers, and is provided as an opportunity for teachers and decision-makers to gain insight into how to improve higher education in BiH.

As in BiH, the higher education systems of the European Union (EU) member countries found themselves in extraordinary circumstances. However, they dealt with such circumstances more easily, as the EU puts a continuous effort to monitor and solve the challenges brought by the expansion of electronic communications and digitalization in the society. The EU is in the permanent process of developing new policies and strategies in order to provide all segments of society, including the higher education sector, with equal access to the skills and systems necessary for the digital transformation of society. Through various communications, recommendations, reports, declarations and resolutions, the EU enables and directs its members and countries in the accession process to move in the direction that ensures the digital competences, both on individual and societal levels.

The response to the challenges of the pandemic at HEI takes place within the institutional framework of higher education, which is set to reflect the administrative arrangement of BiH. Competences in the field of education are defined by entity and cantonal constitutions as well as the Statute of Brčko District (BD).



The framework law on higher education in BiH<sup>7</sup> regulates: i) organizations of higher education in BiH, ii) the responsibility of competent authorities in this area, iii) determines the bodies for the enforcement of laws and international obligations of BiH, and iv) the way to ensure quality in the field of higher education. The law also establishes the basic principles and standards for acquiring higher education in Bosnia and Herzegovina.<sup>8</sup> On the basis of the Framework Law on Higher Education, the Law on Higher Education was harmonized in Republika Srpska (RS), ten cantons in the Federation of Bosnia and Herzegovina (FBiH) and the Brčko District of BiH (BD), whereby BiH completely switched to the Bologna system of education.<sup>9</sup>

Taking into account all of the above, the methodology and limitations of the assessment are described in detail in the first part of the study. Assessment report offers the findings that resulted from the primary and secondary data collection. Based on the findings, the conclusions established by the research team are derived. Finally, recommendations are offered for the improvement of distance learning in higher education in BiH.

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<sup>7</sup> Framework law on higher education in Bosnia and Herzegovina, *Official Gazette of BiH*, number 59/07, 59/09; available at: <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>

<sup>8</sup> Framework law on higher education in Bosnia and Herzegovina, *Official Gazette of BiH*, number 59/07, 59/09; available at: <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>; the law also established the basic principles and standards for acquiring higher education in BiH in accordance with the relevant provisions of the European Convention on the Protection of Human Rights and Fundamental Freedoms (ETS No. 5, 1950) and its protocols, the Recommendation of the Committee of Ministers of the Council of Europe on recognition and assessment the quality of private higher education institutions [R(97)1], the Recommendation on access to higher education [R(98)3] and the Recommendation on the research task of universities [R(2000)8] and other relevant principles of internationally recognized legal instruments to which the state is a contracting party and Bosnia and Herzegovina, and in accordance with the Council of Europe/UNESCO Convention on the Recognition of Qualifications in Higher Education in the European Region (ETS No. 165, 1997).

<sup>9</sup>Center for information and recognition of documents in the field of higher education, "Information on higher education in Bosnia and Herzegovina"; available at: <http://cip.gov.ba/bs/visoko-obrazovanje>

## 2. Methodology

The methodology for assessing the quality of distance learning at HEIs in BiH was designed to ensure systematic and effective data collection and triangulation of information through various sources and methods, bearing in mind the pandemic circumstances and deadlines for writing reports. Triangulation - obtaining information from different sources - was necessary considering that the quality construct itself is complex and directly depends on the perception of different participants or users of the education process. In particular, what is taken into account when assessing the quality of education is largely determined by the subjective context and needs, i.e. quality is evaluated differently by independent experts (e.g. in accreditation bodies), administrative staff of institutions, students, lecturers and employers on the labor market.

For this study assessing the quality of distance learning at the level of higher education in BiH, a combination of qualitative and quantitative data collection methods was used, which included:

- secondary research of relevant documentation and data (desk analysis/literature review),
- semi-structured interviews with key representatives of relevant institutions related to higher education,
- separate surveys for teachers/lecturers, students, and administrative staff at higher education institutions.

Secondary research used available sources related to distance learning in higher education in BiH, including existing guidelines, studies, reports, analyses, assessments, and legal/legislative documents, statutes and strategies. For comparative purposes, recent reports on international research and recommendations made by relevant organizations in the field of higher education as a reaction to the newly emerging situation were also used. Primary research was carried out through semi-structured interviews with key persons and through surveys with students, lecturers and representatives of higher education institutions in Bosnia and Herzegovina.

The interview sample was of a deliberate practice, through which representation was ensured according to the administrative composition of BiH, as well as earlier experiences with distance learning. The interviews were mostly conducted via electronic platforms for communication, and a smaller part was conducted live. A total of 19 individual interviews were held (3 from state institutions, 1 from BD, 4 from RS, and 11 from FBiH cantons) with 26 people using an interview protocol that contained inquiries related to key questions from the study. The interview protocol was piloted (one representative of the Higher Education Institution and one civil servant-employee in one of the BiH ministries). The operational population for the interviews consisted of people who have previous experience with distance learning, taking into account the administrative structure of BiH. In order to ensure the participation of respondents, the UNESCO Office in Sarajevo prepared a cover letter that was sent to all potential respondents as part of an email with clear instructions and the purpose of the interview.

Surveys were created with the aim of obtaining key information about the degree of satisfaction with various aspects of quality distance learning, aspects that were identified in the previously mentioned theory of change. Considering the pandemic conditions and the efficiency of data collection, it was decided that the survey will be conducted online. As stated, the three different target groups were administrative representatives of HEIs who had direct insight into the conduct of classes (i.e. vice-chancellors for classes, quality assurance coordinators or some other administrative person), lecturers who conducted classes at HEIs, and students of all the programs within HEIs.

Separate surveys were created for each target group. For some aspects, it was possible to search for the same information from several perspectives and thus check their agreement (e.g. whether the technical conditions for conducting high-quality distance teaching in terms of software tools, internet speed, technical support for students and lecturers were provided), while for some aspects, information was requested from only one source that was assessed as the most relevant (eg students assessed the lecturer's motivation for adapting to online classes, administrative representatives presented potential legislative obstacles faced by the Higher Education Institution). All survey instruments were piloted (focus group with students, cognitive interviewing of one student and several lecturers, and one representative of a HEI at the faculty level). The survey was anonymous, and in order to reduce the threat of identity disclosure that could affect the honesty of students' and lecturers' answers, the only demographic data that was collected was related to the year of study and the study program in which the students are enrolled, i.e. age group and scientific-professional the area where the lecturers teach.

The operational population of the study consisted of all students and all lecturers at higher education level in Bosnia and Herzegovina, as well as the mentioned administrative representatives of those institutions. To ensure the greatest possible response from the respondents, the UNESCO Office in Sarajevo sent a request for participation in the research together with a cover letter to the relevant email addresses of all HEIs that were potential participants. After that, an email was sent with clear instructions, a link for each survey and a short text that could be forwarded to all lecturers and students. Based on the feedback, HEIs were contacted again, if necessary. After fourteen days - the duration of data collection - 2793 students, 755 lecturers, and 19 representatives of HEIs (all 8 public universities from BiH and 11 private HEIs, 6 from FBiH and 5 from RS) received answers.

When it comes to absolute numbers for students and lecturers, it is an enviable sample size, on which, in theoretically ideal conditions, it would be possible to determine the population parameters (according to the previously presented estimate of the number of employees at HEIs and students in BiH from 2019, sampled is 7.7% of the population employed at HEI, i.e. 4.1% of the total population of active students). However, due to the great heterogeneity of the very nature of higher education and the conditions of teaching (e.g. studying in different fields, at different sub-organizational units within different HEIs, different lecturers at different years of study), but also the possible biased response of respondents (see the Limitations section), quantitative part of the study is primarily descriptive in nature, since the findings and recommendations can vary significantly depending on the context (i.e. specific university, years of study, area of study). Regardless, the amount of information that was collected enables a high degree of empirical insight into the general

picture of the quality of higher education in BiH during the pandemic, and in the data analysis - where possible - contextual factors were also taken into account. The analysis of the survey data was performed in the statistical programming environment R.

## Limitations

In the process of research design, instrument development and data collection, several limiting circumstances were taken into account, which to some extent reduce the strength of the offered findings:

- Data were collected during the peak of the third wave of the COVID-19 pandemic (end of March - beginning of April 2021). This epidemiological situation had a direct impact on the response of respondents from the ranks of representatives of the Higher Education Institution; for example, it is known that at several public universities, several key contact persons were infected at the time of the research, which made it impossible to adequately forward information and collect data within the stipulated time frame.
- There is a certain number of private HEIs that did not respond at all to the inquiry about filling out the questionnaire, even after multiple contacts. Of the HEIs that responded, 8 have a low student response (10 or less), and 9 have a low response from lecturers (10 or less). It was not possible to additionally influence the motivation of lecturers and students to fill out the surveys, nor could it be included in internal communication within HEI, which forwarded an invitation text with links to its employees and students. In addition, it is a plausible assumption that the lower response of some HEIs could have been influenced by the fact that they recognized their own weaknesses when conducting distance learning, and were not motivated to share this information with third parties.
- The focus of this report is the issue of teaching quality. Quality is difficult to objectively measure without a direct external evaluation led by experts from various scientific and professional fields. Unfortunately, when it comes to the work of HEIs, apart from occasional accreditation reports, there are no such quality standards even for the pre-pandemic period. It was impossible to include the views of potential employers and experts from the labor market, because the real results of the "forced switch" to distance learning will be visible only in the distant future.
- Due to the fact that students and lecturers were overwhelmed by numerous online surveys during the pandemic, it was methodologically necessary to create relatively short survey instruments that can be filled out "in one sitting". This is clearly emphasized in the body of the invitation email and the introduction of the surveys in order to maintain the motivation of the potential respondents and thereby reach a satisfactory numerical response. At the same time, this meant that certain interesting details had to be left out.

## 3. Findings and conclusions

In this part of the report, the focus is on the analysis of purposefully collected data. The first part presents an analysis of the quality of distance learning at HEIs through four sub-areas: i) legal, financial and administrative environment for the establishment and implementation of distance learning, ii) types of tools and platforms for distance learning, iii) lecturers' and students' access to tools and platforms for distance learning, and iv) the impact of distance learning on the quality of curriculum implementation - practical teaching and the overall success of students. The second part of the chapter offers conclusions arising from the previously presented findings; this section also offers an overview of strategic opportunities and shortcomings regarding the use of distance learning platforms and tools.

### 3.1 Findings on the quality of distance learning at Higher Education Institutions

Before pointing out the overall quality of distance education during the pandemic, it is necessary to gain insight into the legislative environment in which this form of education took place and is still taking place, as well as insight into the financing of HEIs.

#### 3.1.1 The influence of the financial, legal and administrative environment on the implementation of classes *The role of laws and ministries in the implementation of distance learning*

Responses to the challenges of the pandemic at HEIs take place within the institutional framework of higher education led by 16 authorities at different levels with laws that regulate the work of HEIs.<sup>10</sup> BiH has a total of 13 laws on higher education (RS, BD, 10 cantons, and the BiH Framework Law on Higher Education). **Reviewing the laws of the competent ministries in the field of higher education regarding distance learning, serious shortcomings are observed in the laws that should enable the implementation of this form classes (Appendix 5).**

The basic shortcoming of all legal solutions is the lack of explicit regulation of this method of education through various articles and positions within the law. This applies to all laws on higher education in BiH. In particular, **distance education is not essentially dealt with in the law, but is only mentioned declaratively.** In most cases, the laws only state that higher education can be obtained "full-time, part-time, through distance learning, or in a combination of these three ways of studying".<sup>11</sup> In most laws, the regulation of distance learning ends there, and the rest of the regulation is transferred to the statutes of the HEI. The laws do not have clear and precise instructions on the

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<sup>10</sup>Ministry of Education and Culture of Republika Srpska a, Ministry of Scientific and Technological Development, Higher Education and Information Society of Republika Srpska, 10 Cantonal Ministries of Education in the Federation of Bosnia and Herzegovina and the Department of Education of the Government of Brčko District of BiH. Also, there are two ministries that have a coordinating role, the Federal Ministry of Education and Science, which coordinates ten cantonal ministries in FBiH, and the Ministry of Civil Affairs of BiH, which is in charge of coordination at the state level.

<sup>11</sup> All laws on higher education.

specifics related to distance learning, e.g. study rules, organization of exams, practical and professional work, knowledge verification and assessment procedure, curriculum, etc.

**In the laws where distance learning is mentioned in more detail, the legal solutions do not favor the implementation of this way of learning** as well as solving the problems in higher education caused by the pandemic. This primarily refers to the laws on higher education of Sarajevo Canton and Tuzla Canton. For example, in the Canton of Sarajevo, the legal solution through Article 52, which refers to the organization of exams, practical and professional work, mandates that: in the headquarters of the organizational unit".<sup>12</sup> The Tuzla canon has an identical text in Article 128 of its law on higher education. These are the only identified examples that, regardless of the fact that certain forms of teaching can be organized by distance learning, **the exams must still be held exclusively at the headquarters of the higher education institution**. Other laws leave the possibility of taking the exam at another location and state that "[i]n exceptional case, a higher education institution can organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it".<sup>13</sup> However, they also do not explicitly state that it is distance learning. **No law on higher education in BiH explicitly states that exams can be conducted via platforms in a virtual environment**. Likewise, it is important to mention that all laws enable written and oral knowledge verification, but again there is no mention of online platforms for knowledge verification.

Regardless of the shortcomings of the legal framework, all HEIs conducted distance learning. **HEIs** have found a foothold for holding classes in the orders, decisions and requests of the competent ministries that classes take place remotely. The Ministry's communication to HEIs under their management specifically requested the postponement of the implementation of the regular teaching-scientific process at all higher education institutions and the establishment of online classes; all ministries sent this communication to the Higher Education Institution. In some cases, the ministries gave recommendations, instructions and instructions on how to implement the teaching. Reasons for switching to remote work due to the COVID-19 pandemic, and how this form of teaching is carried out at HEIs, are available on the official websites of the ministries and HEIs, where the chronology of communications and decisions can be followed. **The ministries** found their bases in the decisions of the entity governments on the declaration of a disaster caused by the emergence of the COVID-19 coronavirus.<sup>14</sup> **Entity governments** together with BD also supported the Decision of the Council of Ministers of Bosnia and Herzegovina on the declaration of a state of natural or other disaster on the territory of Bosnia and Herzegovina.<sup>15</sup>

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<sup>12</sup> Law on Higher Education of the Canton of Sarajevo, ("Official Gazette of the Canton of Sarajevo", number 33/17); available at: <https://www.unsa.ba/sites/default/files/dodatak/2017-10/Zakon%20o%20VO%20august%202017.PDF>

<sup>13</sup> Law on Higher Education of Republika Srpska and the remaining 9 cantons.

<sup>14</sup> Decision of the Government of the Federation of Bosnia and Herzegovina on the declaration of an accident caused by the emergence of the coronavirus (COVID 19) in the territory of the Federation of Bosnia and Herzegovina ("Official Gazette of the Federation of Bosnia and Herzegovina", number: 21/20); and Decision of the Government of Republika Srpska on the declaration of the emergence of a state of emergency ("Official Gazette RS", No. 25/2020).

<sup>15</sup> Decision of the Council of Ministers of Bosnia and Herzegovina on the declaration of a state of natural or other disaster on the territory of Bosnia and Herzegovina ("Official Gazette", number: 18/20); available at: <http://www.sluzbenilist.ba/page/akt/bTsBUE4N5GM>

In accordance with the above and in accordance with their statutes, internal acts and decisions, HEIs regulated the smooth running of classes. The interventions were numerous and covered various aspects of ensuring a continuous teaching process, for example, from the Senate's decision-making on the implementation of the teaching process during the corona virus (COVID-19) pandemic to guidelines for working with library users during the COVID-19 pandemic.

### *The role of the financial environment in which HEIs conduct distance learning*

**The financing of HEIs during the pandemic was reduced** because all governments in Bosnia and Herzegovina carried out budget rebalancing for 2020 in order to respond to the COVID-19 pandemic.<sup>16</sup> The budgets were rebalanced and adopted in order to mitigate the effects caused by extraordinary circumstances where all levels of government tried to establish a balance by strengthening the planned expenditures and finding new revenues, i.e. by rebalancing the budget. The 2020 UN report "Reducing the impact of the COVID-19 pandemic on the learning of children and young people in Bosnia and Herzegovina" states that "[out of 14 educational authorities, only four stated that the education sector in their administrative units will not be subject to budget rebalancing, while two stated that the budget rebalancing plan in their administrative unit has yet to be adopted.<sup>17</sup> The report further states that it is planned that the education sector in eight administrative units will be subject to rebalancing, and it is estimated that the cumulative amount of budget reduction in 2020 may amount to a total of 14,775,853 KM.<sup>18</sup> It is further stated:

*"Budget reductions were mainly made on budget items that were not used during the suspension of classes in schools, namely transportation costs, overhead costs, procurement of small inventory, contract services, renovation and investments in infrastructure, etc. Respondents from Sarajevo Canton stated are that the reductions in the budget for services under the work contract, adopted as part of the first budget rebalancing in May 2020, threaten the realization of the regular school process, since this prevents the financing of some of the necessary preparatory activities (e.g. annual health examinations of teachers and school staff, accounting services, announcing a competition for teaching staff for the new school year, etc.). Accordingly, in the second budget rebalancing adopted in July 2020, the government was tasked with returning funds to the education sector in the amount of about 600,000 KM in order to provide funds for basic consumption as part of preparations for the start of the new school year.<sup>19</sup>*

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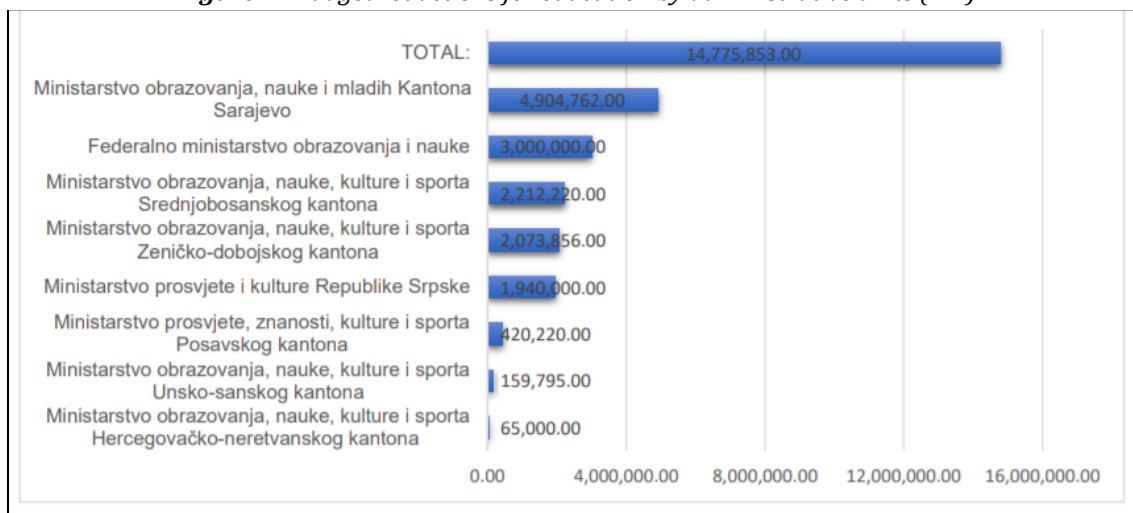
<sup>16</sup>United Nations, "Reducing the impact of the COVID-19 pandemic on the learning of children and youth in Bosnia and Herzegovina: rapid assessment of the situation and needs - education in Bosnia and Herzegovina Phase II"; available at: [https://bosniaherzegovina.un.org/sites/default/files/2020-10/RNA%20%20Faza%20II\\_BHS\\_final.pdf](https://bosniaherzegovina.un.org/sites/default/files/2020-10/RNA%20%20Faza%20II_BHS_final.pdf)

<sup>17</sup>United Nations, "Reducing the impact of the COVID-19 pandemic on the learning of children and young people in Bosnia and Herzegovina", p. 21.

<sup>18</sup> *Ibid.*

<sup>19</sup> *Ibid.*

**Figure 2 . Budget reductions for education by administrative units (KM)**



(Source: United Nations, "Reducing the impact of the COVID-19 pandemic on the learning of children and youth in Bosnia and Herzegovina", p. 21.

### *The role of higher education policies and strategic frameworks for distance education*

With regard to the clear legal obstacles in the smooth implementation of distance learning, the representatives of HEIs were questioned through interviews about the legal prerequisites and strategic orientation when it comes to distance learning and beyond the emergency pandemic situation; this mainly concerned the statute as the umbrella strategic and operational framework of the HEI. The first question concerned the extent to which by-laws (eg statutes) allow the teaching process to be carried out outside the physical location of the HEI. The answers of the HEIs were relatively evenly distributed between the 3 possibilities. **Acts 7 of the HEIs insist on conducting all forms of teaching with mandatory physical attendance, at 5 HEIs they foresee the possibility of partially conducting online classes, while Acts of the 6th HEI foresee the possibility of conducting courses and/or entire study programs remotely.** However, after reviewing the obtained data, it was first established that the only HEI (public university) for which a reply was received from two representatives received contradictory information (that entire programs can be organized, that is, that only combined learning can be organized). A review of the statutes of another public university, which states that all teaching activities must be organized with physical presence, found that there may be ignorance of the HEI statutes among the respondents, which was adopted a few years before the pandemic, which states: "Certain forms of teaching can be organized through distance learning, with the help of appropriate technical and electronic aids, if the faculty/Academy



meets the requirements for that type of education, with the proviso that the exams must be held at the headquarters of the faculty/Academy specified in the work permit. (2) Faculties and the Academy that conduct classes from paragraph (1) of this article will elaborate in their statutes in more detail the necessary conditions, the manner and form of conducting such classes, and other matters of importance". In a conversation with another representative of that institution, it was learned that according to the earlier systematization, there was a position of administrator for distance learning, which was abolished after a few years, because it was considered not to be a priority.

In connection with the above, two more questions were raised, one of which concerned the inclusion of digitization of teaching in the formal strategic documents of the HEI, and the second to what extent the HEI intends to encourage and support the use of distance learning after the epidemiological situation normalizes. The answers to these questions suggest a change in the treatment of distance learning. While digitization is allegedly already included in strategic documents at 8 HEIs, another 8 HEIs stated that they intend to do so in the near future. **Only two HEIs (one public and one private) stated that - despite the obvious new challenges and global trends that**

*Distance learning is a necessary level. It limits students' socialization, and all elements that make up student life. Studying at universities does not only imply listening to lectures. This is a period where one can grow personally, improve self-esteem, responsibility and independence. Studying is a life maturation process, that can only be limited by distance learning.*

*-lecturer at HEI-*

**exist even after the pandemic - they do not consider digitization of teaching as a priority** that needs to be included in strategic documents. The representative of the mentioned private university - s - states that they will insist on returning to the state before the pandemic; such an answer was received from another private university. Also, one public higher education institution states that the time has not yet come to create a picture of whether digitalization of teaching should become a priority. Other HEIs intend to raise the level of preparedness for conducting the teaching process at a distance after the normalization of the situation.

Interview participants state that, both for regular classes and for distance classes, **a major obstacle is the lack of systematic and consistent implementation of the qualification framework** in higher education in Bosnia and Herzegovina. Namely, after the Framework for Higher Education Qualifications in Bosnia and Herzegovina was adopted<sup>20</sup> in BiH currently there are only "Basics of the qualification framework in Bosnia and Herzegovina"<sup>21</sup>, without a systematically implemented Action Plan<sup>22</sup> for implementation, because the Basics of the qualification framework do not have sufficiently elaborated procedures and actors responsible for its further development and

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<sup>20</sup> " Seven key strategies and guidelines for the implementation of the Bologna Process in BiH" , Official Gazette of BiH No. 13/08

<sup>21</sup> For more information, see "Basics of the qualification framework in Bosnia and Herzegovina" ; available at:

[http://fmon.gov.ba/Upload/Dokumenti/553ef086-3d8d-41b3-aa3a-4ec24ff8a1f1\\_Osnove%20kvalifikacijoino%20okvira%20u%20Bosni%20i%20Hercegovini.pdf](http://fmon.gov.ba/Upload/Dokumenti/553ef086-3d8d-41b3-aa3a-4ec24ff8a1f1_Osnove%20kvalifikacijoino%20okvira%20u%20Bosni%20i%20Hercegovini.pdf)

<sup>22</sup> Action plan for the development and implementation of the qualification framework in Bosnia and Herzegovina for the period 2014-2020. year", available at: <https://eqf.ba/wp-content/uploads/2019/03/Akcioni-plan-KOBiH-B.pdf>

implementation. In 2011, the Council of Ministers of BiH adopted the Decision<sup>23</sup> on the adoption of the Fundamentals of the Qualification Framework for BiH, and then a commission was formed with the task of developing an "Action plan for the creation and implementation of the qualification framework in Bosnia and Herzegovina for the period 2014-2020." year"<sup>24</sup>, which the BiH Council of Ministers also adopted. A few interview participants drew attention to this issue, and also stated that the qualification framework should connect previous, current and future learning outcomes, and place them in mutual relations within BiH, but also within the European qualification framework and the European educational space. Therefore, the interviewees emphasize that it is very difficult to determine the quality of standardized learning, and therefore distance learning. They state that it is necessary to establish indicators for learning outcomes for individual qualification standards, which derive from the Fundamentals of the BiH Qualification Framework, and to harmonize the regulations governing the field of higher education in order to adequately assess the quality of any learning.

During the interview, several respondents emphasized the importance of **systematic arrangement of distance learning through the possibility of formal accreditation of the Higher Education Institution for distance teaching**. Here, the accreditation of distance learning would be regulated through the standard accreditation process of HEIs. The respondents stated that it is necessary to organize the basics of the entire distance learning system in a systematic way. In this sense, most of the respondents made remarks during the interview that they are aware that the transition to this way of teaching is a long-term process, and that strategic determinants are necessary for how to do it. All interviewees state that the **lack of a strategic framework for the establishment and development of distance learning is a serious obstacle** in efforts to establish functional and sustainable systems for this way of teaching.

As for internal decisions, acts and regulations at the University of Applied Sciences, all interviewed respondents who are directly familiar with the work of the University of Applied Sciences state that the **University of Applied Sciences has no legal or administrative obstacles to implementing distance learning** and this type of teaching. They state that the University and the competent ministries made it possible for classes to be established relatively quickly when it comes to the legal-administrative

*Honestly, at the beginning, we had no idea how the records would be kept, signatures would be given and so on. We kind of just got into it, you know, work had to go on. Fortunately, we have really proactive people in the administration. They reacted really quickly and gave us clear instructions on how to work in these new unfortunate circumstances.*  
-lecturer -

aspect. Interviewees state that most of the obstacles were removed relatively quickly thanks to highly decentralized higher education as well as the great autonomy of universities and colleges in Bosnia and Herzegovina. However, it is important to emphasize here that there is still no legal basis for unhindered distance teaching at HEIs. The respondents who stated that there are no obstacles in the implementation of classes primarily made the observation that HEI found a way to support the

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<sup>23</sup> For more information, see: [https://www.unsa.ba/sites/default/files/dodatak/2017-10/Osnove%20kvalifici%20okvira%20BiH\\_1.pdf](https://www.unsa.ba/sites/default/files/dodatak/2017-10/Osnove%20kvalifici%20okvira%20BiH_1.pdf)

<sup>24</sup> "Action plan for the development and implementation of the qualification framework in Bosnia and Herzegovina for the period 2014-2020. year", available at: <https://eqf.ba/wp-content/uploads/2019/03/Akcioni-plan-KOBiH-B.pdf>

organization of classes through internal documents and decisions, which was confirmed through the review of several documents at HEI.

All interviewed persons from HEI stated that **they did not receive any support from any level of government, but that they did not make the already existing emergency situation any more difficult for them.** The lack of assistance is particularly expressed through financial means for upgrading existing infrastructures and platforms for conducting distance learning, which became particularly emphasized after the reduction of budget items for higher education, through budget rebalancing at all levels of government in 2020. During the interviews, the respondents stated on several occasions that the enthusiasm and resourcefulness of individuals was the key to overcoming the initial difficulties. In the conversation with the respondents, it was stated that the initial administrative problems that arose at the beginning of teaching via electronic platforms created many difficulties and ambiguities, both for lecturers and students. Nevertheless, the initial legal and administrative problems have been overcome at the majority of HEIs, because all institutions that did not have regulations on this form of teaching before the pandemic adapted, and in some cases created acts, ordinances and regulations that regulate the conduct of distance learning and enabled it to proceed smoothly. Several respondents stated that the Framework Law on Higher Education in Bosnia and Herzegovina<sup>25</sup> was not an obstacle for the teaching to continue without interruption, but they are not sure to what extent the cantonal, and in the case of the RS entity law, recognize this form of teaching.

Through the interviews, it was found out that the **HEIs would most likely have a reservation according to the HEI's strategic determination regarding the definition of minimum criteria and specifications for the equipment and the quality of the Internet connection**

*Nobody pays attention to us. We are not asked about anything. When everything started, we had to rely on ourselves.*

*- IT expert -*

*What happens if we insist that one must have a specific phone or a specific laptop, and they simply do not have the money for it? It is difficult for the HEI to provide such equipment without strong donations.*

*-HEI administration -*

through the HEI's internal acts and regulations. Their reservation comes from the potential financial burden that such decisions could bring. If the institution insists on specific equipment that students must have in order to follow the classes, then that equipment would have to be provided by the HEI if the students are unable to do so. Otherwise, the law would be violated by denying the right to education to students in weaker social situations.

### *Previous experiences with distance learning of participants in the educational process*

**Representatives of 8 (namely 3 public universities in FBiH, 3 private HEIs in FBiH and 1 private HEI in the RS) out of 19 HEIs stated that they already conducted complete distance learning programs.** Additional 3 HEIs did not organize complete distance learning programs, but had experience with individual subjects. Representatives of another 3 HEIs (2 public universities in

<sup>25</sup> Framework law on higher education in Bosnia and Herzegovina <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>

FBiH and 1 private HEI in the RS) stated that they had some important prerequisites (legislative or technical) ready, but that they had no direct experience in distance learning. One public and one private university in the RS cited legislative problems as an obstacle to distance learning: "The statute provides for distance learning. There is a lack of general acts that regulate this area.", that is, "All subjects were supported by information systems for distance learning. We had a system that enabled remote access for students, as well as all teaching materials that covered the teaching units. What has caught the HEIs in the RS in the case of the transition to the remote work system, at least when it comes to our school, is the non-compliance of the law. In the Law on Higher Education, it is clearly stated that the exam is taken at the headquarters, which means that students had to come to the institution to take the exam, while the weekly knowledge tests were done online." On the other hand, all public universities in the Federation of Bosnia and Herzegovina had certain experiences with distance learning. Some public universities even have centers and portals dedicated to digital education (SUMIT<sup>26</sup> and SUMARUM<sup>27</sup> at the University of Mostar).

At the same time, students had the opportunity to look back on their personal experience with distance learning at the University before the COVID-19 pandemic. More than half of the students (55.2%) stated that they had no online experience or that they were limited to email communication with lecturers. A quarter of students (26.1%) stated that they attended courses that had a certain number of elements online (eg posting of materials, discussion groups, reference to online content as part of classes). Finally, **18.7% of students indicated that they had already attended courses that were completely conducted online.** In addition to a relatively enviable number, what is interesting is that the number of over 15% of students occurs both among public and private HEIs, as well as in HEIs in the FBiH and the RS, therefore unrelated to the answers of HE representatives. It is not clear whether it is a misunderstood question (which is less likely considering the number of responses) or that the representatives of the HEIs who filled out the survey did not have full insight into what happened earlier at the sub-organizational units.

The lecturer's answers suggest that the second possibility is quite realistic. Namely, 5.8% of the lecturers stated that even before the pandemic they taught subjects that were completely conducted remotely and these lecturers came equally from private and public HEIs from FBiH and RS. In addition, 23.0% of lecturers stated that they taught subjects that had a certain number of elements online (eg discussion groups, specific online content). However, **a significant majority of lecturers (71.1%) had no previous experience with online teaching .**

### 3.1.2 Types of tools and platforms used during the pandemic

Knowledge about the frequency of use of various educational tools and platforms for distance learning was obtained through surveys of all participant groups (representatives of HEIs, lecturers, students), as well as through interviews. All groups of respondents were able to complete the list of platforms and tools that are most frequently used on a global level.

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<sup>26</sup>IT Center of the University of Mostar; <https://sumit.sum.ba>

<sup>27</sup>Portal for e-learning of the University of Mostar; <https://eucenje.sum.ba>

The survey results show that **all surveyed HEIs - except for one public university - preferred the use of certain software solutions**, but these HEIs differed in terms of the freedom left to lecturers to choose specific tools. Six HEIs stated that they insisted that all lecturers use the same range of tools. The majority of lecturers who participated in interview added that their institutions now use unique platforms to conduct classes, while at the beginning of the pandemic, different solutions were used.

**Almost half of the lecturers (47.9%) believe that the HEI has provided them with software that fully meets the needs** of higher education teaching. On the other hand, slightly more than one third of lecturers (36.5%) believe that although the provided software is satisfactory, it lacks some advanced options, while an additional 6.5% believe that the provided software is inadequate for conducting higher education classes. In addition to all that, there were also 9.0% of lecturers who stated that the HEI did not provide a unique software platform that enables communication with students, organization of classes, setting up learning resources and conducting online classes. A more comprehensive analysis found that most of them (57 out of a total of 68) were employed in very different fields of study at the two largest public universities in Bosnia and Herzegovina in terms of the number of students and lecturers, but certain platforms were provided. However, apparently for at least 9.0% of employees, the provision of the platform was insufficiently transparent.

### *Software solutions that are most often used*

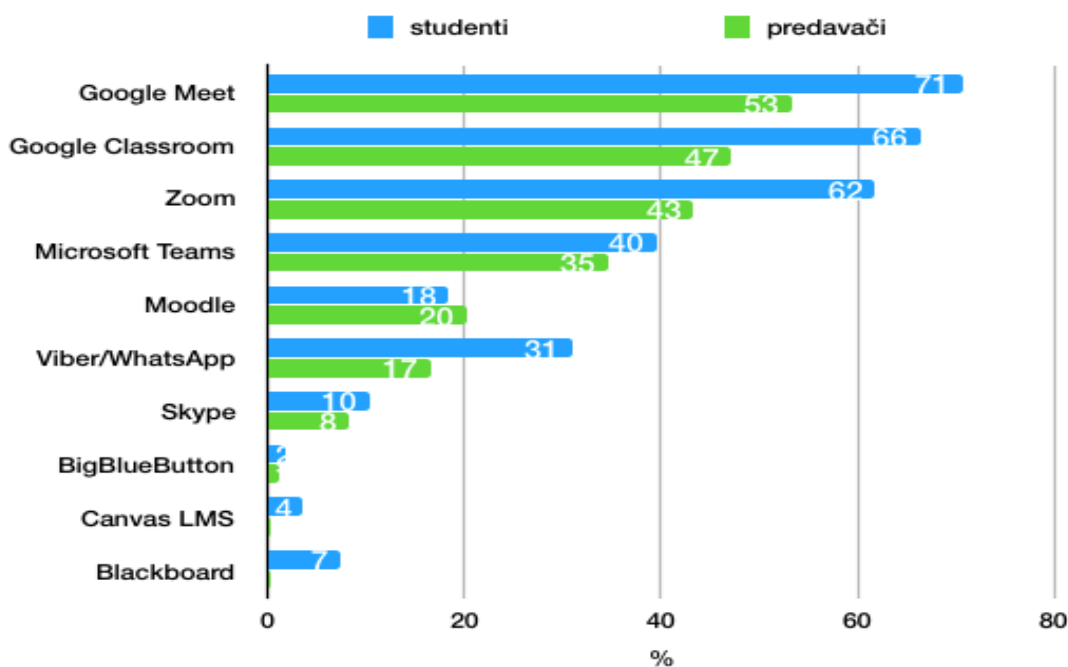
The results just showed that **during the pandemic, the most frequently used platform was Google Classroom**, together with the accompanying video communication software Google Meet (both software are part of the integrated software package Google Workspace, formerly G Suite). Practically half of the surveyed lecturers stated that they used these solutions during the pandemic (53.3% Google Meet, 47.2% Google Classroom). The student survey additionally confirms that this was the most frequently used solution, since 57.9% of them indicated that at least half of the lecturers in the program they were studying used Google Meet, or 51.8% Google Classroom.

Three more software solutions are more widely used: Zoom, Microsoft Teams and Moodle. Video conferencing software Zoom, which has advanced features designed for higher education teaching and is heavily modeled after Google Meet, is reported to have been used by 43.3% of lecturers, while 62.7% of students report that at least one lecturer has used Zoom for lectures (compared to 69.5% who state that at least someone has used Google Meet). Microsoft Teams, the counterpart of the Google Workspace package, is reported to have been used by 34.6% of lecturers, or 39.6% of students. Finally, every fifth lecturer used Moodle, as stated by the lecturers themselves (20.3%), but also by the students (19.4%).

Also, generic communication applications such as Viber and WhatsApp were used for communication between lecturers and students, as stated by 16.6% of lecturers and 30.9% of

students. Other well-known software solutions are much less frequently used. For video communication in real time, these were Skype (8.2%, i.e. according to the students 10.4%), BigBlueButton (1.2% according to the lecturers themselves, i.e. 1.9% according to the students) and Cisco Webex (0.5% according to the lecturers, 1.3% according to according to the students). When it comes to globally popular complete LMS platforms, Blackboard (0.4% or 7.4%, according to students) and Canvas LMS (0.4%, or 3.5% according to students) were also mentioned, while the forum-oriented Piazza platform was mentioned by 0.4% of lecturers, or 0.9% of students. Other software solutions were mentioned sporadically (for example, the Biser platform mentioned by 5 students of the Faculty of Philosophy in Sarajevo, which is actually an adaptation of the Moodle platform). The administrative staff at some HEIs also mentioned the use of other software solutions (eg Adobe Connect) which were not represented in the responses of lecturers and students, while the representatives of three private universities stated that they use their own developed information systems.

**Figure 3 . Comparison of the frequency of use of tools according to the statements of students and lecturers.**



### *Use of different platforms and satisfaction with teaching*

It was also examined whether the use of different software tools is associated with different ratings of teaching quality. Based on the data collected on the students, a correlation analysis was performed between the extent of use of specific software by the lecturers in the study program and the assessment of the quality of teaching given by the students (details in the survey). It is evident from Table 1 that the more frequent use of platforms that were primarily created for higher education teaching (Canvas, Blackboard, Moodle) positively correlated with the assessment of the

general quality of teaching during the pandemic. Due to the relatively small number of students who had experience with the Canvas (n = 98) and Blackboard (n = 207) platforms, the conclusions could not be considered sufficiently reliable. However, the realized correlations with the use of Moodle (n = 513), but also the Microsoft Teams platform (n = 1105), suggest that the choice of specific software could be an important factor. On the other hand, the use of the Google Classroom platform did not correlate with the assessment of teaching quality. Data on differences in perceived quality were also obtained when the opinions of students whose all or most lecturers used one of the mentioned software were compared: Moodle compared to Google Classroom (61.7% vs. 43.6% mostly or very satisfied,  $p < .001$  Cochran-Armitage test) or Microsoft Teams compared to Google Classroom (53.5% vs. 43.1%,  $p < .001$ ).

**Table 1.** Correlation coefficients between the frequency of using the software tool and the student's assessment of the quality of the teaching.

|          | Moodle | Canvas LMS | Blackboard | Microsoft Teams | Google Classroom | Zoom | Google Meet | Skype | Viber/WhatsApp |
|----------|--------|------------|------------|-----------------|------------------|------|-------------|-------|----------------|
| $\gamma$ | 0.17   | 0.48       | 0.29       | 0.15            | -0.03            | 0.07 | 0.08        | 0.14  | 0.13           |

Based on the above, it is clear that half of the respondents said that solutions within the Google Workspace system were used for distance learning. Although it is a system that has significantly improved during the pandemic by including new options, as already mentioned, Google Classroom was primarily designed for lower levels of education, and Google Meet added new options based on the offer of competitors in the class of web conference software (primarily Zoom). Although the great advantage of Google Workspace is the integration of several important components and a special offer in terms of memory space (Google Drive and the possibility of recording lectures conducted in Google Meet) and office applications (Docs, Sheet, Slide, Calendar), in terms of various pedagogical possibilities, Google Workspace can be characterized as an educational platform that is still in the development phase when compared to competitive options. **Representatives of HEIs often stated in surveys that financial reasons played an important role in the process of selecting software tools**, and the following quotes from two public universities illustrate the reason why Google Workspace (formerly G-Suite) was chosen: " *License provided, so financial aspect is in the first place. Of course, it was concluded that the Google G-Suite solution meets all our needs* " and "the Google meet platform [is] free up to a maximum of 100 participants. "

Therefore, the information about a slightly better estimated quality of teaching of those who used specially created software does not mean at the same time that the cause of the lower assessment of the quality of achievement of those who used Google Workspace was solely the lack of relevant options. **The obtained data suggest that the Google Workspace package is recommended due to objective financial conditions, but at the same time due to the familiarity of lecturers and students with existing applications within the package**, and due to ease of use,

i.e. faster learning curve for those who have not had previous experience with distance learning. Also, it is very important to emphasize another important advantage of the Google Workspace tool: high compatibility with different devices and independence from operating systems. Also, lower ratings may be a consequence of lower pedagogical competences for distance teaching of those lecturers who received a recommendation and/or made a decision to use this package, without previously having had the opportunity to conduct distance learning courses. All in all, regardless of certain shortcomings of the choice, the interviews also suggest the advantage of all used platforms and tools in that they improved the preparation and conduct of classes during the pandemic, which is also noticeable from the relatively large number of mostly or very satisfied students.

### 3.1.3 Technical conditions for access to distance learning tools and platforms

Information on the satisfaction of the technical conditions of remote teaching (speed and stability of the Internet flow, hardware equipment, availability of technical support) was assessed by surveys with all interest groups, as well as interview questions. The findings are presented separately for students and lecturers.

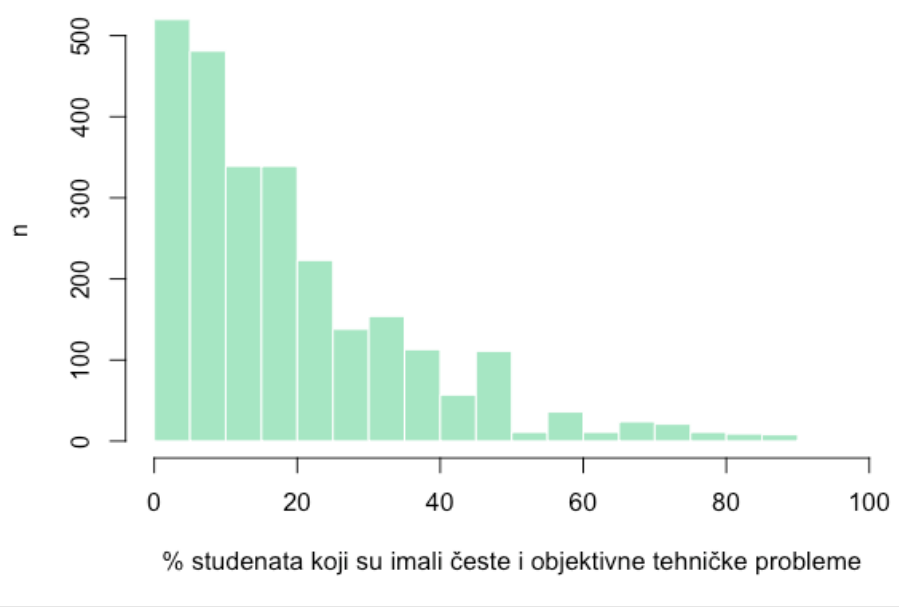
#### Students' point of view

Given that it is almost impossible to give a completely objective assessment of the quality of the internet connection and technical equipment when it comes to individual students, to assume that the closest to the truth is the information that can be given by the students themselves, taking into account their study group. In other words, the students were asked to estimate how many of their colleagues out of the total number in the group had frequent and objective technical problems with following online classes (eg unavailability of computers and/or mobile devices, very frequent problems with internet connection).

Estimates expressed in percentages are presented in Figure 4, where it can be seen that there was an extremely wide range of responses, ranging from 0% to 90%. The mean value of the estimate (median) is 14.7%, and the interquartile range that includes the middle 50% of the responses ranges from 6.7% to 27.8%. In other words, the variety of estimates is really great. Thus, slightly more than a quarter of the students stated that over 25% of their colleagues had frequent and objective difficulties in their work. On the other hand, a large number of students believe that this number was significantly lower in their groups - that is, that a quarter of the surveyed students believe that the number is below 6.7%; which would mean that approximately one in fifteen students had problems with connection and/or hardware. However, taking into account that adequate internet and hardware skills are something without which quality distance teaching cannot be guaranteed, **it is evident that there is a significant number of students - and the best estimate is that it is one in seven students - who are damaged by this situation**, and not by their fault.

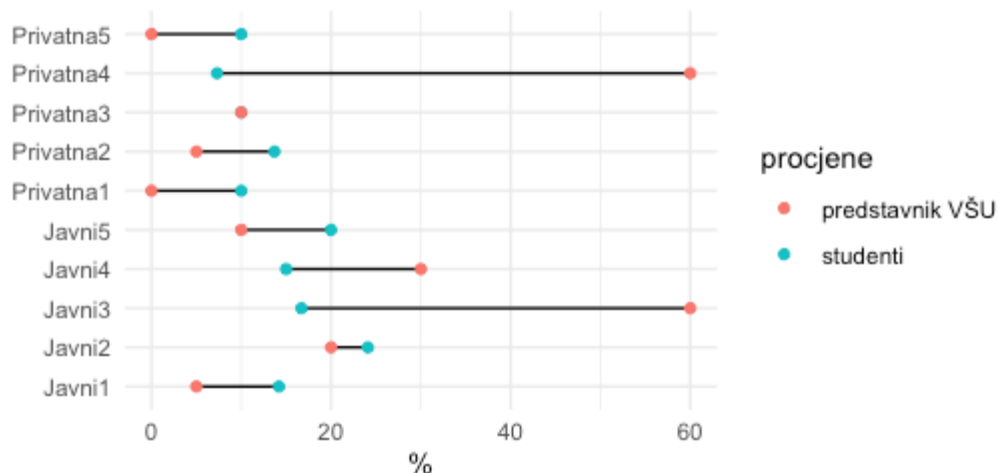
*Figure 4 . Students' assessment of the percentage of colleagues who during the pandemic had frequent and objective technical problems while following classes.*





In order to see to what extent HEIs are aware of the technical problems that students have, the same question was asked to HEI representatives. Their estimates ranged from 0% to 60%. Given that it was about different HEIs, Figure 5 shows the assessment of HEIs compared to the assessments of their students for all those HEIs for which we received at least 30 student responses. In Figure 5, it is first noticeable that the percentage of reported problems at public universities is higher when it comes to student answers (from 14.2% to 20.0%) - which may also indicate that the financial status of students at public universities is somewhat weaker on average. When it comes to the agreement between the assessments of the representatives of the HEIs and the students, the majority of the representatives (six of them) underestimated the problem, but at three institutions the problem was overestimated with very high and obviously unrealistic estimates (15% or more difference compared to the students' assessment). Only the representative of one private HEI gave an assessment that completely agreed with the mean value of the student answers.

**Figure 5 . Comparison of the assessments of representatives of the Higher Education Institution with the assessments of their students.**



When asked about the way to solve these problems, the answers show that the representatives of the Higher Education Institution either **deny the existence of the problem or have a perception of helplessness that the HEI could have done something significant regarding the technical approach**, and there are rare cases that the HEI intervened in this regard or that they are competent ministries reacted. An example of such a positive reaction is the provision of free internet for students, which is cited by both public universities from the Republika Srpska; it was a donation from a mobile operator in cooperation with the competent ministry during the first wave of the pandemic.<sup>28</sup> An illustrative answer that well represents the situation (answer from a public university in the Federation of Bosnia and Herzegovina) is: "The *university has provided equipment for students to a very limited extent. The issue of internet availability has not been addressed by the University.*". An example in the other direction comes from a private university in FBiH, whose representative states: " *To all students who do not have their own equipment (computer, laptop, web camera, etc.), the University issues the necessary equipment on the reverse so that they can follow online classes.*". Of course, it is impossible to expect the same reaction from private and public universities, considering the ways of financing both, which directly affects their financial operation. Besides, the total number of students certainly plays a role.

Students also provided information on whether they could turn to technical support for help if they encountered a problem using some software. Practically half of the respondents (48.4%) stated that they received instructions for use and that they could ask for support for any issues. A quarter (25.0%) of the respondents stated that they were provided with written and/or video instructions, but that they did not have constant support. However, **a quarter of the surveyed students (24.1%) stated that they did not have a systematic introduction to the software, nor did they have anyone to turn to in case of problems.** 2.5% of respondents gave answers beyond the offered three options, in which they most often stated that they had already used the given software before or that the software was easy enough to use, so support was not necessary. It should be noted that it is possible that the HEI or faculty administrations also considered that knowledge of

<sup>28</sup> *Free internet for pupils and students, faster for medical institutions*, Mondo, March 23, 2020; available at: <https://mondo.ba/Info/Drustvo/a944801/Besplatan-internet-za-djake-i-studente-brzi-za-medicinske-ustanove.html>

using the software is implied or that students were not sufficiently transparently informed about the instructions.

When it comes to addressing the problems that students with special needs might have, the **vast majority of representatives of HEI stated that they do not have any students with visual or hearing disabilities in their records.** At the HEI where there were students with special needs, it was left to the sub-organizational units to solve the difficulties (e.g. "*There were minor problems for students with special needs that were solved by the faculties.*" or "*At the organizational units/faculties, the deans or heads of university studies take care of this issue.*"). They also mention the engagement of experts ("*We have professors who are experts in that field (specialization studies) and they managed these processes - in principle, we applied a customized approach, depending on the individual disability of the students.*"), and on two public universities and special offices for supporting students with special needs.

### The lecturer's point of view

Regarding the technical aspects that prevent them from conducting quality teaching at a distance, only **slightly more than half of the lecturers (51.8%) stated that there are no technical problems at all.** The most common problem reported by others was insufficiently fast internet (29.4%), followed by a lack of quality multimedia equipment (cameras, microphones, headphones) (24.0%), while a fifth of the lecturers said they also had problems with not having specialized editing software audio-video recordings (20.5%) or that he has an inadequate computer or outdated hardware (20.4%).

*It is necessary for every educational institution to take into account the standard of living of students and their ability to afford a quality Internet connection and equipment for participating in classes as well as printing materials. Also, a technical failures in online environment are bigger challenge compared to regular education, and there is no possibility of renting computers for either the institution's staff or students.*

*-Lecturer-*

The lecturers also mentioned problems with the working environment (e.g. "*Three of us are working at the same time*" referring to other family members or colleagues at work or "*The Internet is not equally good in all rooms at the University. If there are several colleagues who share an office at the same time for a class, of course one of the colleagues must look for another room, which often has a poor network range and therefore interferes with holding [the class].*"), technical difficulties that the students had (e.g. "*As a professor, I have no [problems] with performance related [to] previously. However, I noticed that students have problems with equipment, the Internet or with real-time attendance.*"), and poor knowledge of the possibilities of other software solutions. A specific problem was emphasized especially by lecturers in domains that have an extremely emphasized visual component (mechanical engineering, physics, visual arts, spatial planning) who complained about the lack of equipment for digital drawing (e.g. "*[lack of] a tablet with a pen that would enable fast and more precise consultations on subjects where communication relies on sketching.*") and who especially emphasized this in addition to the option on auxiliary multimedia equipment.

When it comes to the perception of the technical support they received from the University of Applied Sciences, **slightly more than half of the lecturers (55.1%) claim that in addition to instructions for using the software, they also had constant technical support** in case of problems, while a third of the lecturers (33.3%) stated that they received instructions, but that they did not have the opportunity to turn to a professional in case of a problem. A minority of lecturers (11.7%) reported that they had neither support nor instructions (6.2%) or that they did not know they had it (5.4%).

### 3.1.4 The impact of the transition to distance learning on the quality of curriculum implementation<sup>29</sup>

#### *Assessment of the quality of distance learning during the pandemic*

It has already been emphasized in the methodological part that the quality construct is complex and generally subjective, and that it depends on the assessment of several participants/users/evaluators of the process. In this study, the perception of quality was examined by surveys of students, lecturers and representatives of the Higher Education Institution, and interviews with other persons of interest. Although the wording of the questions and answers in the surveys varied slightly from group to group in order to obtain as valid answers as possible for each of them, Figure 6 provides comparative pictures on the assessment of the overall quality, i.e. satisfaction with distance learning during the pandemic.

*Professors had issues with internet connection, it was difficult to interact, and to follow lectures because it was boring. Distance learning simply cannot replace regular learning, because as a graphic designer, I cannot learn only theory, but be physically present at various exercises.*

*-student graphic design -*

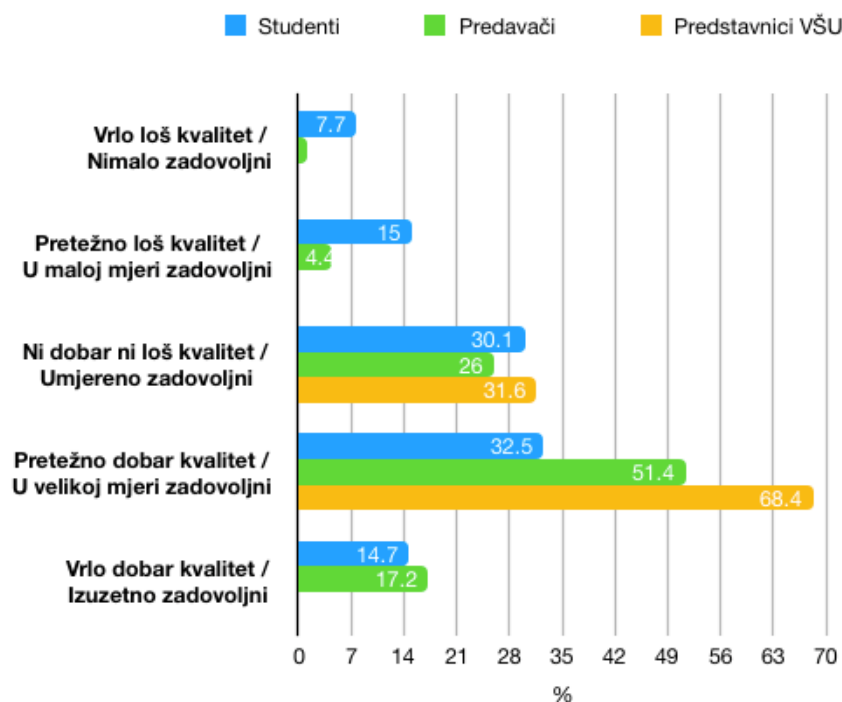
*To me it was great. Distance learning is better than the regular, as I had more time to organize. The only bad thing is the lack of socialization.*

*-student-*

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<sup>29</sup> For more details and a structured analysis of the impact of distance learning on the quality of curriculum implementation, see "Assessment on the Needs of Lecturers in the Distance Learning in Higher Education in Bosnia and Herzegovina during the COVID-19 Pandemic".

**Figure 6 . Assessment of the quality of online teaching (students), i.e. satisfaction with the online teaching (lecturers and representatives of HEI).**



The first result that can be observed is that **slightly less than half of the surveyed students (47.2%) believe that the quality was mostly good or very good, and that practically two-thirds of the lecturers (68.6%) and representatives of the HEIs (68.4%) are satisfied with the teaching in to a great extent or exceptionally.** On the other hand, 22.7% of students believe that the quality of distance learning was predominantly or very poor, while the number of lecturers who are satisfied with their teaching to a small extent or not at all is only 5.5%. There are two possible explanations for this discrepancy in ratings. The first is that the data reveal the real picture of things, i.e. the lecturer's optimistic overestimation of the quality of teaching. Another plausible explanation is that the average motivation for completing the survey was different for the groups of students and lecturers; among the students there could be more who wanted to express their frustrations regarding teaching, while among the lecturers, those who felt more competent regarding distance teaching were more motivated to be more responsible. It is quite possible that both factors played a role in this discrepancy. At the same time, it should be emphasized that it is encouraging that there was a generally positive assessment of the teaching, especially by the students.

In addition to the above, according to the observations of the interviewed persons, **the curriculum was in most cases implemented in an abbreviated form.** This especially applies to programs that had a large proportion of practical classes. Also, in many cases the teaching had a combined character where groups of students in rotation followed the classes in the classrooms and on the platforms. The UN report states that: “[p]ractical teaching as a mandatory part of education and examinations in many higher education programs could not be realized during the suspension of teaching at universities. All administrative units, with the exception of the Central Bosnian Canton,

planned to implement the compensation of practical classes."<sup>30</sup> The report further states that: "[when it comes to the method of carrying out the compensation of practical classes, the educational authorities reported that the academic calendars were revised, and the university units were given the task to schedule make-up classes in accordance with the available capacities and the further development of the epidemic situation (Table 2)]."<sup>31</sup>

**Table 2.** Overview of the organization of compensation for practical classes by administrative units

| <i>Administrativna jedinica</i>        | <i>Planirana nadoknada praktične nastave</i> | <i>Objašnjenje</i>  |
|--|--|---|
| <i>Distrikt Brčko</i>                  | DA   | <i>Revidiran školski kalendar i planirana praktična nastava</i>   |
| <i>Republika Srpska</i>                | DA   | <i>Praktična nastava će se nadoknađivati čim se poboljša epidemijska situacija</i>  |
| <i>Kanton Sarajevo</i>                 | DA   | <i>Sve univerzitetske jedinice treba da sačine rasporede za nadoknadu praktične nastave u skladu s raspoloživim kapacitetima i razvojem epidemijske situacije</i> |
| <i>Tuzlanski kanton</i>                | DA   | <i>Nadoknada praktične nastave je realizovana tokom prve dvije sedmice juna</i>   |
| <i>Unsko-sanski kanton</i>             | DA   | <i>Trenutno se izvodi nadoknada praktične nastave u laboratorijama</i>  |
| <i>Hercegovačko-neretvanski kanton</i> | DA   | <i>Nadoknada praktične nastave će se izvoditi prema akademskim rasporedima fakulteta</i>  |
| <i>Zeničko-dobojski kanton</i>         | DA   | <i>Naučni i univerzitetski odbori i dekani fakulteta dužni su donijeti odluke o nadoknadi praktične nastave i vanrednim ispitnim rokovima, prema potrebi</i>      |
| <i>Srednjobosanski kanton</i>          | NE   | /   |

(Source: United Nations, "Reducing the Impact of the COVID-19 Pandemic on the Learning of Children and Youth in Bosnia and Herzegovina", p. 14)

### *Student achievement compared to the pre-pandemic period*

To assess the effect of the transition to distance learning on student achievement, lecturers who were employed at HEIs before the pandemic were asked to rate student achievement during online classes during the pandemic compared to the pre-pandemic period. The estimated effect is, in principle, negative. Practically **every second lecturer (48.5%) states that the achievement was either significantly weaker (10.9%) or somewhat weaker (37.6%)**. The single most frequently chosen category was "about the same" (39.7%). However, there is also a smaller number of lecturers (11.8%) who rate the achievement as better - slightly better for 8.3%, and significantly better for 3.5%.<sup>32</sup>

<sup>30</sup> United Nations, "Reducing the Impact of the COVID-19 Pandemic on the Learning of Children and Youth in Bosnia and Herzegovina", p. 14.

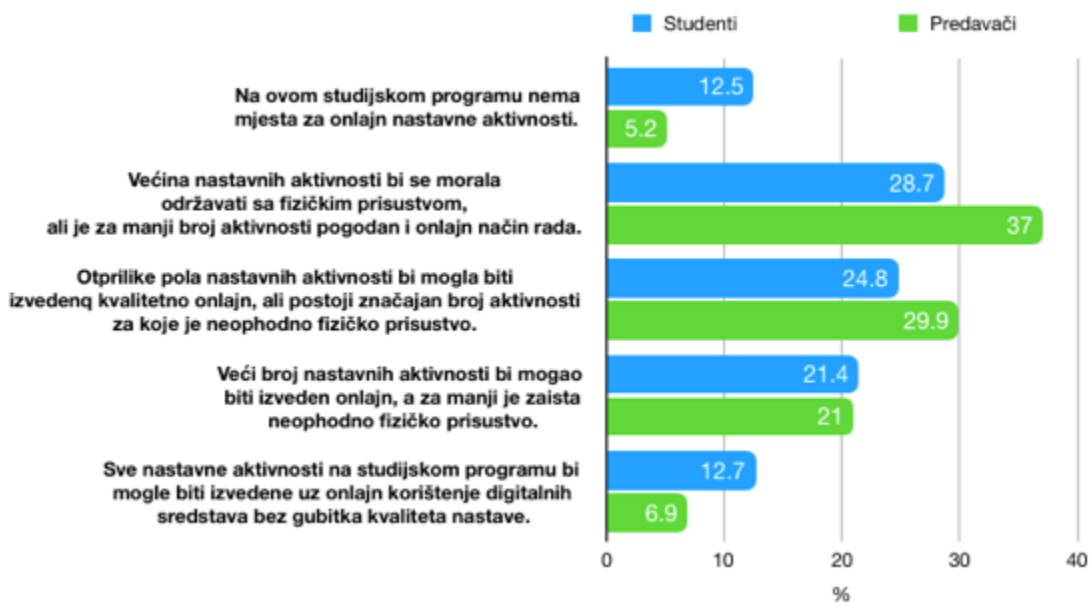
<sup>31</sup> *Ibid.*

<sup>32</sup> At this point, it can be noted that in theory it is possible to obtain more objective evaluations of achievements than those that were collected: (1) by external evaluation of knowledge, for example by employers or independent educational and

### *The applicability of distance learning in the post-pandemic period (lecturers' and students' point of view)*

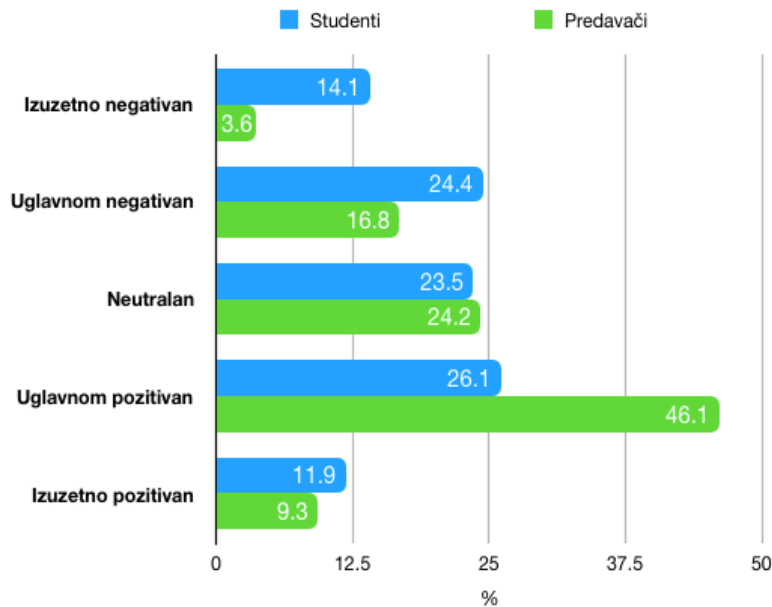
The study looked at the extent to which distance teaching is applicable in the post-pandemic period. Figure 7 shows that a slightly asymmetric distribution of answers was obtained for students, while it is significantly asymmetric for lecturers. Within both groups, the most frequently chosen category when it came to applicability was "Most teaching activities would have to be held with physical presence, but for a smaller number of activities, the online method is also suitable." (37.0% of lecturers, 28.7% of students), while for the **overall attitude towards online classes it was the category "Mostly positive" (46.1% of lecturers, 26.1% of students)**. It is also interesting that the students somewhat more often were of the opinion that "There is no place for online teaching activities in this study program/in this field." (12.4% vs. 5.2%), and that they had an extremely negative attitude towards the inclusion of online activities (14.1% vs. 3.6%). The reasons for this disparity may also lie in the lack of social contacts that studying entails.

*Figure 7. The attitude of students and lecturers about the suitability of online teaching activities in their field*



professional bodies - but it does not take place in a systematic way anyway; (2) by comparing the average grades given by teachers in the same subjects before and during the pandemic. The second option, although feasible in principle, was not practical for this report due to the complexity of data collection (see Limitations).

**Figure 8 . General attitude towards online classes in their field.**



As could be expected, lecturers who considered that distance teaching is adequate for the field in which they teach clearly tended to evaluate the achievement of their students more positively (and vice versa) ( $\gamma = 0.52$ , gamma correlation coefficient between two categorical ordinal variables) and to be more satisfied with distance learning ( $\gamma = 0.47$ ). An almost identical correlation ( $\gamma = 0.51$ ) was obtained within the group of students when the relationship between the degree of adequacy of distance learning in the field they are studying and the assessment of the quality of the delivered teaching was assessed. Logically, the more strongly online teaching was assessed as adequate for a given field, the more positive was the attitude towards the inclusion of distance teaching in that field:  $\gamma = 0.67$  among lecturers and  $\gamma = 0.70$  among students.

***Especially the positive and negative aspects of distance learning during the pandemic***

When talking about the assessment of the quality of teaching, it is necessary to take into account the various elements that the participants of the teaching process stated as significant. The received answers were grouped into categories in accordance with the principles of thematic content analysis, and then each answer was coded. It should be noted that the relative number of

*The inclusion of part-time students, who rarely or never participated in lectures organized at the faculty, while they regularly participated in online classes.*

-lecturer-

*I travel to the University 50 km one way, so big savings. Possibility of better contact with professors. I study more interestingly, more relaxed, easier and I have more time for studying...*

-student-

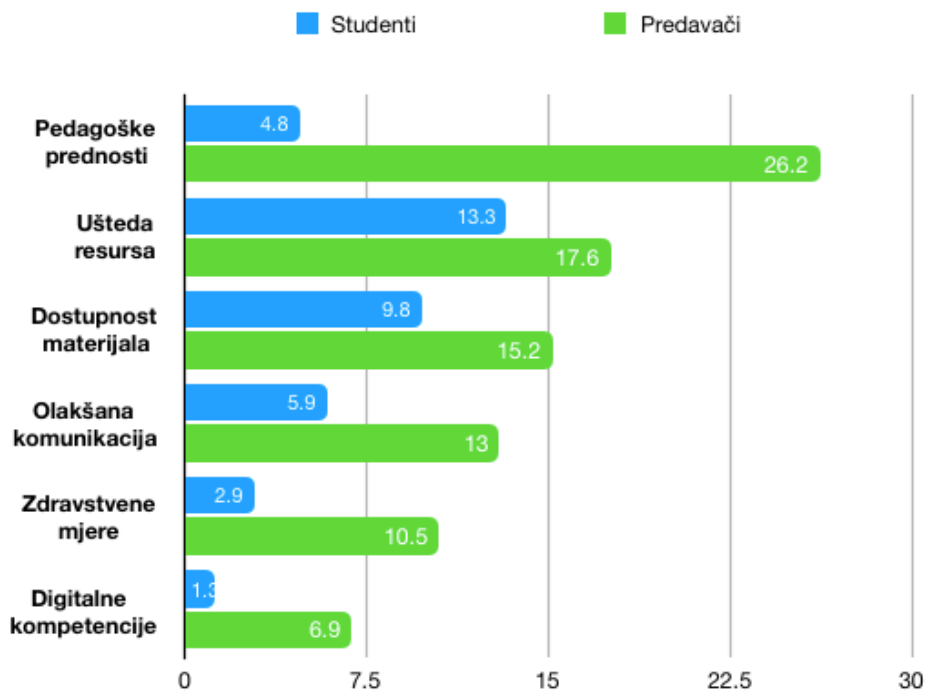


responses for individual categories is not completely comparable. Namely, in the pilot study, it was recommended that open-ended questions should not be mandatory for a group of students, as this could reduce the response rate. On the other hand, these questions were mandatory for lecturers, although for a significant number of them (eg 31.0% for positive aspects - compared to 69.1% for the group of students for the same questions) we did not receive answers that would be classified in at least one category.

The content and number of categories was the same for students and lecturers when it comes to the positive aspects of online teaching. The six categories were related to: (1) increasing the digital competences of lecturers and/or students, (2) savings in time and financial resources, (3) easier availability of learning materials, (4) more tangible pedagogical advantages of remote work, (5) better communication between students and lecturers, (6) epidemiological usefulness. **More than a quarter of lecturers (26.2%) singled out aspects related to the improvement of pedagogical work**, which made this category the most frequently mentioned in that group. On the other hand, **students most often mentioned the saving of resources (13.3%)**, while it was the second most common advantage of online teaching as seen by lecturers (17.6%). Availability of materials was also frequently mentioned in both groups (15.2% lecturers, 9.8% students). Positive aspects of communication were mentioned somewhat less (13.0% lecturers, 5.9% students).

In the interviews, it was emphasized as a particular advantage that the focus of the entire process is on the students and that the entire process takes place very efficiently, for example, the administration is largely excluded, which makes it possible to quickly make agreements on changes, because it communicates directly with the students. It was also stated that the exchange of information between the student and the lecturer is much more dynamic and practical, for example the lecturer or the students would share links with material that was not previously included in the syllabus during the lecture.

*Figure 9 . Advantages of distance learning as seen by students and lecturers.*



...learning materials are always available in Google Classroom. Recording of lectures and exercises allows students to pause and return the recorded material when learning.

-lecturer-

Impossibility of 'face to face' communication, which contributes to significance and serves as feedback. The professor cannot see the student and cannot conclude on the basis of gestures whether the student has understood the material or not.

-pharmacy student-

The number and content of negative aspects differed for students and lecturers. Again, six themes were common to these groups: (1) problems with conducting practical classes, (2) increased amount of obligations, (3) weaker communication between students and lecturers, (4) low level of pedagogical competence of lecturers for distance learning, (5) weaknesses in work organization related to time structuring and/or lack of rules, (6) reduced motivation of students and/or lecturers for the teaching process. In addition to the above, students often mentioned (a) problems with technology, which included problems with the Internet, but also with hardware, (b) unavailability of learning materials, and (c) problems of a motivational, emotional, social and/or health nature. The lecturers additionally emphasized (a) problems with the Internet as a separate category, (b) problems with the lack of adequate hardware and multimedia equipment, (c) lack of adequate software, (d) disputed ethical aspects such as copying, plagiarism and absenteeism from classes, (e)

lack of technical and pedagogical support from the HEI, (f) problems with evaluating student achievement.

*Technical issues, too much time spent on a computer (my eyes, head and back hurt), too many things cannot be taught this way (I am at the technical faculty, where I draw a lot).*

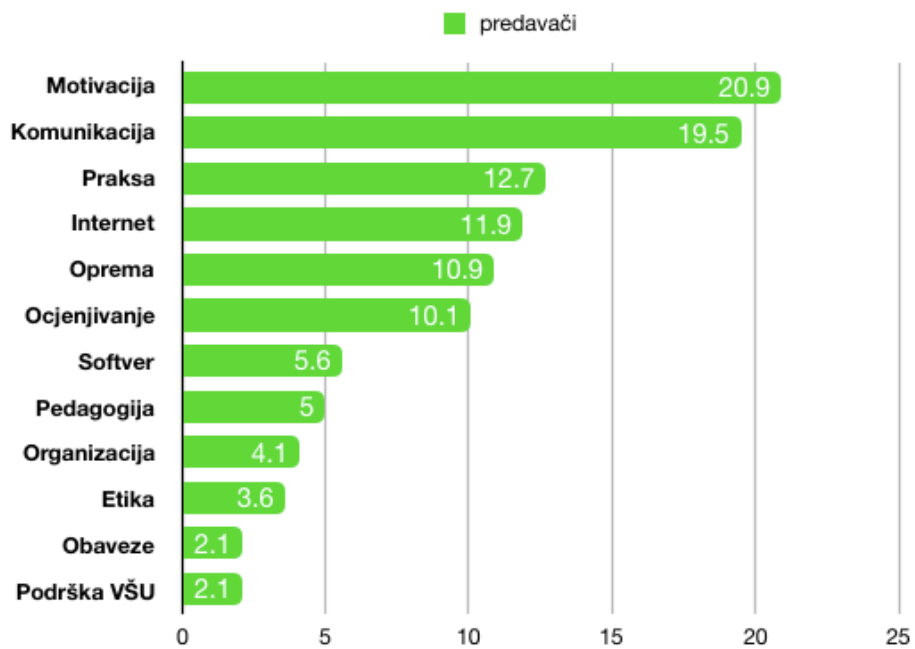
*-student-*

**Two of the three most frequently cited negative aspects are the same for the group of lecturers and students: problems in conducting practical classes (12.7% of lecturers, 11.6% of students) and problems in communication between students and lecturers (19.5% of lecturers, 8.7% of students) . In addition, lecturers most often cite the **problem of low motivation (20.9%), which primarily refers to the reduced motivation of students to attend classes** .**

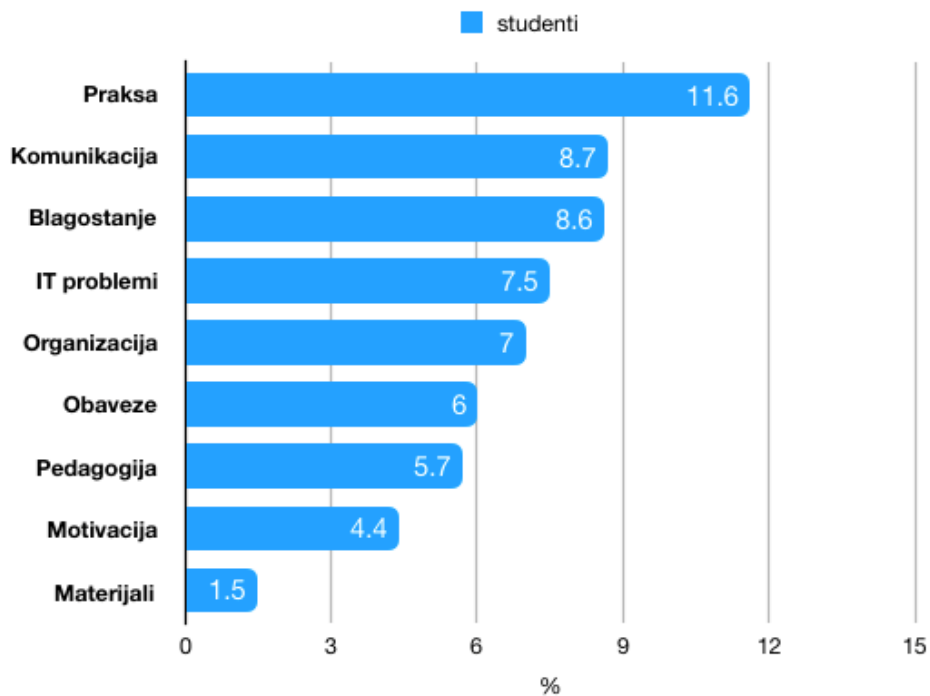
Complementary to that, 8.6% of students mention problems related to impaired mental and physical health, which are undoubtedly reflected in the motivation to fulfill obligations, but which stem from various emotional, social and physical problems they face during the pandemic. In this context, it is important to note that students more often than lecturers mention the problem of poor organization of the teaching process (7.0%) and the excessive workload they have (6.0%). On the other hand, lecturers somewhat emphasize the existence of technical difficulties concerning the speed and stability of the Internet (11.9%), the hardware and multimedia equipment they own (10.9%), and the lack of adequate software (5.6%), which stems from the need to create teaching content and performance of classes in real time and/or by recording lectures. An equal percentage of students (5.7%) and lecturers (5.0%) single out the pedagogical disadvantages of remote work. It can only be assumed that this category is somewhat less pronounced when it comes to students, because they had the opportunity to evaluate the pedagogical competence of their lecturers in a survey at an earlier point. **A third of the students (35.2%) estimated that a minority or even none of the lecturers in their program taught interesting and efficient classes** , with an additional quarter (25.9%) who believed that approximately half of the lecturers succeeded. Among the other categories, difficulties with the evaluation of student work faced by lecturers were particularly highlighted (10.1%). The remaining categories are mentioned in less than 5% of cases.

A large number of interviewees stated that the main advantages are the availability of teachers/lecturers, all materials are in one place, and logistics were significantly facilitated for both students and lecturers. However, according to the observations of the respondents, **the reduced level of curriculum implementation can also be found in the fact that lecturers have become managers and administrators of the teaching process**, and could not fully devote themselves only to teaching. In the pandemic era of distance teaching, most lecturers and teachers entered without or with minimal knowledge of organizing classes via digital platforms and were initially focused on starting classes and had the impression that they were more involved in administrative tasks than teaching.

*Figure 10 . Negative aspects of distance learning from the lecturer's perspective.*



*Figure 11 . Negative aspects of distance learning from the perspective of students.*



### *Evaluating teaching during a pandemic*

Supervision/monitoring and evaluation of teaching performed by HEIs itself and the participants in the teaching process represent key elements of the systematic guarantee of the quality of the delivered teaching even under normal circumstances. The need for continuous monitoring and listening to challenges, threats and positive opportunities created during the pandemic due to the sudden transition to online mode became even more important. Interviews and surveys with all groups (lecturers, students, representatives of HEIs) examined the ways in which the evaluation was carried out in reality.

Unfortunately, when asked about the sources of feedback on the quality of distance teaching during the pandemic, practically every fourth surveyed lecturer (23.5%) exclusively chose the answer "I did not receive feedback on the quality of my online teaching during the pandemic," while another 17.7 % of lecturers marked only the answer "Formal student survey in which online teaching is not distinguished in relation to teaching conducted live in the premises of the institution". This means that even **41.2% of lecturers did not receive clear feedback at all about how they conducted distance learning**. This number is supplemented by 23.7% of lecturers who independently initiated exclusively oral evaluation of classes with students, which is something, but cannot be considered a systematic treatment of such an important issue. Only a third of lecturers (33.6%) received feedback from students based on surveys organized either by the University of Applied Sciences (11.4%) or the faculty/study program (15.5%), while a very small percentage of those who received feedback on more occasions.

Student answers give a slightly more positive picture. Namely, 40.5% of students claim that they were in a situation to do what they should be able to do: to give reflections on the taught classes anonymously so that as users of the service - which they also pay for in a large number of cases - they honestly express their opinion, which can improve the teaching process. Slightly more than a quarter of students **(28.7%) stated that they could give feedback on the lecturer's work during online classes**, but they were not convinced that it was an anonymous evaluation where they could freely express their opinion. Although this is a better situation than not giving feedback, it is clear that due to the situation of power on the lecturer-student line and possible repercussions on criticism, students cannot give a completely honest opinion, although there is a possibility to give constructive criticism if it is needed. However, as many as **30.9% of students claim that they did not have the opportunity to communicate their impressions of the remote teaching**, and their experience of online teaching was simply ignored in the teaching process.

However, these findings are in complete contrast to the statements of the representatives of HEIs, who stated in the surveys how they monitored and evaluated the performance of online classes during the pandemic (the seven options offered included 3 types of surveys, focus groups and/or interviews with lecturers and students, reporting to responsible persons and engagement of external experts, with the possibility of adding some other options). Except for the representatives of two private universities who mentioned other forms of evaluation and whose number of examined students represented 2.3% of the total sample, which cannot explain the much higher percentage of students who state that they could not give feedback on online classes, absolutely all representatives stated that surveyed students during the pandemic, most of which indicated that these were surveys that were used to specifically evaluate online teaching. A frequent form of teaching supervision (14 out of 19 responses) was reporting to the managers of sub-organizational units. In addition, 5 representatives of HEIs stated that students were questioned (focus groups and/or interviews), 7 representatives stated that lecturers were surveyed, and 6 representatives that focus groups and/or interviews were also conducted with lecturers.

### *The effect of opportunities during the pandemic on the mental health and motivation of students*

Numerous researches around the world have already clearly established that there has been a significant deterioration of mental health among students, which in particular leads to difficulties for a person to motivate and concentrate on classes.<sup>33</sup> It has already been mentioned that 20% of lecturers single out the weaker motivation of students as the most visible negative aspect of online teaching, which can be for different reasons. Therefore, within the framework of the study, the students were enabled to state the emotional and motivational problems that were present among them, as well as to what extent the lecturers showed understanding for these emotional and psychological challenges, and whether the HEI offered a free online psychological counseling service to which the students could address. **More than one third of students (37.7%) stated that**

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<sup>33</sup> eg Browning MHEM, Larson LR, Sharaievska I, Rigolon A, McAnirlin O, Mullenbach L, et al. (2021) Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. PLoS ONE 16(1): e0245327. <https://doi.org/10.1371/journal.pone.0245327> ; Savage, Matthew J., et al. "Nine months into the CoViD-19 pandemic: a longitudinal study showing mental health and movement behaviors are impaired in students in the UK." International journal of environmental research and public health 18.6 (2021): 2930.

**they had motivational and emotional difficulties during the pandemic to a great extent (26.6%) or extremely (11.1%)**. This in itself is an extremely large number, to which can be added practically one third (32.7%) of those who state that these problems were moderately difficult for them. Only one in ten students (10.4%) stated that they had no such problems at all. Likewise, practically half of the students (49.4%) stated that all lecturers (22.6%) or that most of them (26.8%) showed understanding of the situation. On the other hand, 18.4% of students state that approximately half of the lecturers showed this, 22.3% of them state that it was shown by the minority, and exactly 10.0% of students state that none of the lecturers had an understanding of the situation.

The above data suggest that there was a need for psychological counseling for a significant number of students. However, **only 8.6% of students state that they know that the HEI has provided free online counseling. 60.3% state that they have no information, while 30.7% claim that there is no such counseling center.** The representatives of HEIs state that two public universities have counseling centers, as well as another private university, and that one private university has a mentoring system. Also, students from two public Universities state that they personally addressed lecturers in the field of psychology, and mention that there are certain services with this purpose at sub-organizational units. From the above data, it is obvious that the HEIs that have counseling centers failed to inform their students about them. The majority of interview participants confirmed the above, claiming that students in most cases did not have psychological support from the institutions, which will ultimately, among other things, affect their general achievement.

## 3.2 Conclusions

The impact of the COVID-19 pandemic on higher education in BiH and elsewhere was dramatic and transformative. At the beginning of the pandemic, the systems of higher education in Bosnia and Herzegovina joined the global trend of forced digitization<sup>34</sup> of teaching at universities. The main characteristic of this sudden transition is the rapid transition from 'live' lectures to lectures via digital platforms. This transformation is deep and rooted and can even be characterized as a revolution in <sup>35</sup> higher education. In this transition, HEIs face the challenge of a sudden

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<sup>34</sup> For more information see: Giorgio Marinoni, Hilligje van't Land and Trine Jensen, "The impact of COVID-19 on Higher Education around the World: IAU Global Survey Report", International Association of Universities, May 2020, available at: [https://www.iau-aiu.net/IMG/pdf/iau\\_covid19\\_and\\_he\\_survey\\_report\\_final\\_may\\_2020.pdf](https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf); Shazia Rashid and Sunishtha Singh Yadav, "Impact of Covid-19 Pandemic on Higher Education and Research", *Indian Journal of Human Development*, 23 August 2020, available at: <https://journals.sagepub.com/doi/full/10.1177/0973703020946700>

<sup>35</sup> Wadim Strielkowski, "COVID-19 pandemic and the digital revolution in academia and higher education", Prague Business School, 17 April 2020, available at: <https://www.preprints.org/manuscript/202004.0290/v1>; Author emphasizes that the COVID-19 pandemic has launched a digital revolution in the academic community and higher education. Social distancing, months-long quarantine, as well as economic shutdown, in the author's opinion, will help most people working in academia and higher education not only to complete their personal transition to fully functional and operational online classes, but also to understand that network defense, network gateway and final exams, and that online academic work is just as effective and meaningful as that done "in real life". He further states that due to the crisis caused by the coronavirus epidemic, innovations in the academic community and higher education that would normally take several years or even

transformation of teaching in order to better adapt to the new circumstances. In order to ensure the continuation of high-quality teaching in higher education of BiH, this transition in BiH and elsewhere does not only entail the selection of the right technologies, tools and platforms for teaching, but also the professional development of lecturers.<sup>36</sup>

It is evident that HEIs will have to pay serious attention to the training and equipment of teachers and institutions for a smooth teaching process both during the COVID-19 pandemic and in the post-pandemic era. Governments in BiH, which represent the public sector that is in charge of creating mechanisms and establishing policies, will have to be more actively involved in these processes and commit the Higher Education Institution to continuous professional development programs to strengthen the ability of teachers and lecturers for this form of teaching.

### 3.2.1 Legal, financial and administrative environment

**The previous experience of teaching at a distance was of great importance for the transition of HEIs to this type of teaching.** Higher education institutions that had previous experience with conducting distance learning programs adapted to the new situation more easily and made the necessary transition because they already had the internal legislative and technical prerequisites for conducting this form of lectures. The transition must have been massive because 71.1% of lecturers had no previous experience with online lectures and only 18.7% of students had that experience. Considering the lack of previous experience, it can be stated that distance learning was truly neglected in the pre-pandemic period. Likewise, it is clear that in the coming period, HEIs Institution will have to invest a lot of effort in order to fully prepare for this form of teaching in a systematic and orderly manner. It is obvious that the changes made were under duress, so the solutions made by HEIs for distance learning are in most cases minimal and for the purpose of carrying out any kind of teaching.

**There are significant legal obstacles in all laws in higher education in BiH for the implementation of distance learning.** Higher education institutions managed, some better than others, and all organized distance learning. However, it is clear that there is no legal basis for the unhindered development of this form of teaching at the Higher Education Institution. There are no obstacles at first sight if you look at all laws on higher education, because they all have provisions on distance learning. All laws have an article that is also in the Framework Law on Higher Education in BiH, where it is stated: "[higher education can be obtained full-time, part-time, by distance learning, or by combining these three ways of studying, as provided by the statute of higher education institutes".<sup>37</sup> At the same time, this is the only provision in this law that explicitly touches on distance learning. Other laws, in most cases as well as the framework law, do not have distance learning

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decades are now being introduced immediately in a few days. According to the authors, the pandemic will forever change *the status quo* in the academic community and higher education.

<sup>36</sup> For more details and a structured analysis on the professional development of teachers and lecturers in the implementation of distance learning, see "Overview study on the needs of lecturers in the implementation of distance education in higher education in Bosnia and Herzegovina during the COVID-19 pandemic".

<sup>37</sup> Article 9; Framework Law on Higher Education in Bosnia and Herzegovina, *Official Gazette of BiH*, number 59/07, 59/09; available at: <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>



elaborated through other articles of the law (e.g. study rules, place of examination, method of examination, organization of examinations, practical and professional work, procedure for checking knowledge and evaluation, curriculum , etc.). To conclude that the laws recognize the right to distance learning, but not the obligations and rules according to which this method of education takes place from the legal point of view.

**The basic legal shortcoming is the impossibility of conducting exams on online platforms** because no law on higher education has adequately regulated this and leaves room for different interpretations and speculations. The framework law on higher education in BiH has no provisions for exams on online platforms and only states that, in accordance with the provisions of this law, HEIs "have the right to determine the methods of teaching and testing students' knowledge"<sup>38</sup> and that "[apart from this, the HEI enjoys the freedom the organization of its plans and programs, knowledge verification and assessment schemes, through rules that are transparent, fair and easily accessible to students"<sup>39</sup>. In relation to this, it can be concluded that RS, DB and cantonal laws on higher education do not have an obstacle to regulate the implementation of knowledge tests on online platforms through refinements of already existing laws. Currently, all laws, when it comes to knowledge testing at HEI, state the following, with minor variations, through their Articles and Positions: "(1) The exam is unique and is taken orally, in writing, or practically; (2) The exam is taken at the headquarters of the higher education institution, that is, in the facilities specified in the work permit; (3) Exceptionally, a higher education institution may organize classes and exams outside its headquarters. Higher education institutions used Paragraph 3 and interpreted that exams can be organized on online platforms. Paragraph 3 of the laws on higher education of Posavina Canton, Zenica-Doboj Canton and Bosnia-Podrinje Canton stipulates that approval must be obtained from the competent ministry, and in the case of BD from the Senate of the Higher Education Institution. However, it is clear that this attitude can be interpreted so that it refers to some other physical location and not to a virtual space.

**Legal and administrative frameworks within HEIs for distance learning are far from ideal solutions** due to legal deficiencies. Namely, all laws, including the Framework Law on Higher Education in Bosnia and Herzegovina, require that the statutes of the Higher Education Institutions be drawn up according to these laws.<sup>40</sup> Accordingly, most HEIs have regulated this way of teaching as best they could through their statutes. However, a few HEIs do not intend to adapt the internal acts for this type of teaching, even through legal provisions, because they believe that this way of teaching is wrong and unnecessary in the long run. It is similar with the strategies of HEIs, where the majority of HEIs, if this has not already been done, intend to be strategic towards distance learning and make the necessary administrative and technical prerequisites for distance learning to take place even after the pandemic. Through the primary research, it is noticeable that strategic reflection on the modalities of using platforms and tools for distance learning is fermenting at most HEIs even after

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<sup>38</sup> Article 22; Framework Law on Higher Education in Bosnia and Herzegovina, *Official Gazette of BiH* , number 59/07, 59/09; available at: <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>

<sup>39</sup> Article 53; Framework Law on Higher Education in Bosnia and Herzegovina, *Official Gazette of BiH*, number 59/07, 59/09; available at: <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>

<sup>40</sup> Article 12 of the Framework Law on Higher Education in Bosnia and Herzegovina states that "The Statute of every higher education institution must be in accordance with this law"; more at <http://hea.gov.ba/Dokumenti/Zakoni-propisi/?id=105>

these extraordinary circumstances. It is also important to emphasize that part of the teaching, administrative and management staff would prefer that this form of teaching be stopped after the pandemic. This momentum of the transition of the HEI should be accompanied by activities from the public sector, which is in charge of creating mechanisms and establishing policies in the near future. However, decision-makers have yet to take the first concrete steps towards establishing a strategic framework for the improvement of distance learning.

**HEIs are not able to financially respond to the needs of a higher degree of digitization.** If we take into account the trend of decreasing budget funds for HEIs, it is difficult to imagine how they will produce a greater degree of readiness and equipment for distance learning. This does not only apply to the purchase of licenses for software solutions and equipment, but also to the staff that would support such a teaching process. If the need for better network connections as well as the individual needs of teachers and students are taken into account, it is clear that budget funds should have a growing trend, rather than a decreasing one.

**HEIs lacked models and methods for crisis communication** in addition to unadapted statutes as well as deficient strategic frameworks for this form of teaching. At the moment of transition to online teaching, students, teachers and administration had a lack of information about specific details and decisions related to the transition, which ultimately resulted in confusion in the initial period. However, despite the obvious need for efficient and well-organized models of crisis communication, some HEIs did not see the need to develop them and are waiting for the extraordinary circumstances to pass in order to return to the usual teaching methods. It can be argued that many HEIs will have similar communication problems for all future emergency situations.

**Regarding the key strategic determinants and action frameworks regarding distance learning, in Bosnia and Herzegovina there is no strategy for the digitization of higher education <sup>41</sup>, nor systematic and consistent activities related to the implementation of the qualification framework for higher education**, i.e. "The basis of the qualification framework in Bosnia and Herzegovina" and the Action Plan. Regarding the strategic reflection on the digitization of higher education, it is in its infancy and driven by external factors (international organizations, development agencies and diplomatic missions) and is mainly related to various aspects of media

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<sup>41</sup> This area is regulated to some extent through other strategic documents. Thus, for example, part of the education strategy in BiH recognizes the need to change the approach to lectures in the classroom, by shifting the focus from "teachers" to "students", and implicitly refers to media and information literacy competencies such as searching for and accessing information, evaluating sources information and critical thinking. The policy of the development of the information society of BiH refers to the low level of digital literacy and skills and emphasizes the need to develop activities that will result in guidelines for promoting digital literacy together with the creation of a framework for identifying ICT skills. Laws related to young people and their issues emphasize the rights of young people to education, organizing and volunteering, and the right to employment. This means that young people have the right to good living conditions, as well as the right to be involved in issues that affect their lives, their local environment and the development of society in general. The Law on Gender Equality in Bosnia and Herzegovina specifies that everyone has the right to access the media regardless of gender, and prohibits the public portrayal of any person in an offensive, belittling or humiliating manner with regard to gender, as well as that the media are obliged to develop through programming concepts awareness of gender equality (Assessment on media and information literacy in Bosnia and Herzegovina (2018) FPN UNSA).

and information literacy.<sup>42</sup> The reasons for the lack of greater involvement of domestic actors can be attributed to many factors related to the institutional and political environment in which strategies related to this issue have yet to be made. However, one of the reasons is that this form of teaching, despite the obvious need, is not yet recognized by decision makers as essential for the necessary paradigm shift in the approach to education in the context of the digital transformation of society, nor for the long-term democratization of society and a prerequisite for sustainable economic development. Although the element of urgency surrounding the digitization of higher education imposes itself on HEIs, although most HEIs recognize the opportunity to move from forced to systematic digitization of education, they need systematic support from different levels of government. Currently, thinking about strategic frameworks for guiding and guiding this process in BiH is still in its infancy and is primarily of interest only to external actors (international development agencies, diplomatic missions, etc.).

**At the same time, at the level of the higher education system in BiH, there are no activities related to the systematic and consistent implementation of the Fundamentals of the Qualification Framework**, which is an extremely important strategic framework and one of the umbrella documents not only for higher education.<sup>43</sup> This shortcoming does not only apply to the accreditation of HEIs, but also to the potential accreditation of distance learning. Therefore, some qualifications are not in accordance with the times (both during the pandemic and before the pandemic) and international standards, nor do they correspond to the needs of the market. This primarily refers to the issue of accreditation of HEIs and study programs that offer qualifications that must be based on learning outcomes. The process has started, but currently the activities are not carried out at the system level, but within the framework of individual HEIs, as well as EU and other donor projects. It is also noticeable that the HEIs have adapted to this shortcoming and that there is no element of urgency to solve this important issue. Nevertheless, it is important to determine the indicators for learning outcomes for individual qualification standards that derive from the Fundamentals of the Qualification Framework of BiH, the Action Plan and those developed within EU projects<sup>44</sup>, and to harmonize the regulations governing the field of higher education in order to adequately assess the quality of any learning. Therefore, in the absence of systematic and consistent implementation of the qualification framework, it is difficult to determine indicators that would

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<sup>42</sup>The UNESCO principle for media and information literacy is that it is a process and not a state that needs to be socially integrated in order to ensure continuity of development and sustainability. UNESCO, through its decades-long approach of global commitment to the development of education and media and information literacy, has developed recommendations for different models and strategies for the integration of media and information literacy;

For principles of media and information literacy development, see: Grizzle, Alton et al. (2013) "Media and Information Literacy: Policy and Strategy Guidelines". Paris: UNESCO; available at: <https://unesdoc.unesco.org/ark:/48223/pf0000225606>;

For UNESCO concrete efforts and initiatives on the development and integration of media and information literacy in higher education in BiH, see: Institute for Social Research, Faculty of Political Sciences, University of Sarajevo at: <https://fpn.unsa.ba/b/medijska-i-informacijska-literacy/#>

<sup>43</sup>The Council of Ministers of BiH adopted the decision on the adoption of the "Action plan for the development and implementation of the qualification framework in Bosnia and Herzegovina for the period 2014 - 2020"; available at: [http://mcp.gov.ba/attachments/bs\\_Migrirani\\_dokumenti/Va%C5%BEni\\_dokumenti/Va%C5%BEno-Strategije/Akcioni\\_plan\\_za\\_radu\\_i\\_vervedbu\\_kvalificiranih\\_okvira\\_u\\_Bosni\\_i\\_Hercegovina\\_za\\_period\\_2014.-2020.\\_\(2\).pdf](http://mcp.gov.ba/attachments/bs_Migrirani_dokumenti/Va%C5%BEni_dokumenti/Va%C5%BEno-Strategije/Akcioni_plan_za_radu_i_vervedbu_kvalificiranih_okvira_u_Bosni_i_Hercegovina_za_period_2014.-2020._(2).pdf)

<sup>44</sup>Joint project of the EU and the Council of Europe "Strategic development of higher education and qualification standards"; EU project "Development of the qualification framework in general education"

monitor positive and negative trends in higher education and learning outcomes that would result from the qualification framework.

**The opportunity to improve higher education in Bosnia and Herzegovina through the networking of HEIs will most likely only be partially used**. It is unquestionable that the majority of HEIs see the potential and opportunity in a greater dedication to the digitization of education in the post-pandemic era and intend to take the necessary steps in the coming period. Within the framework of the same steps, unique communication platforms are mentioned that would connect HEIs and make the entire system of online teaching more robust and resilient. However, ultimately these decisions will depend on the decisions of government representatives, responsible for initiating work on strategies and approving the budget for education. As in most matters where there is a great influence of politics and less participation of the profession, there is a higher probability of networking of HEIs in BiH according to the principle of the administrative organization of BiH than according to the actual needs of teachers and students, and in the end we can expect some kind of networking of all institutions of all levels of education based on administrative organization of BiH.

### 3.2.2 Learning tools and platforms were used during the pandemic at BiH Higher Education Institution

**Tools and platforms that were used during the pandemic can be improved.** At the beginning of the transition to online teaching, HEIs used different tools and platforms, where most HEIs gave recommendations to lecturers for the use of certain software solutions. Although, on the one hand, the use of only one environment and tool reduces the problems of getting students accustomed to the technical aspects of using the software, it is still not clear whether certain solutions insisted on by administrations can satisfactorily meet the needs of online classes. This is especially questionable when it comes to domain-specific solutions such as Google Classroom, a platform that was originally designed for teaching at lower levels of education, unlike some other popular distance learning management systems that have a proven history of use at the higher education level. (eg Moodle, Canvas LMS, Blackboard). In any case, it can be concluded that teaching can be improved with better software solutions, because more than half of the lecturers definitely believe that the HEI did not provide them with software that fully meets the needs of higher education teaching.

**HEIs predominantly used generic platforms and tools due to prior knowledge of these software solutions and/or because they did not entail additional financial costs**. As for the link between the use of different platforms and satisfaction with distance learning among students, it is obvious that the obtained data indicate that Google Workspace package recommended due to objective financial conditions, but at the same time due to the familiarity of lecturers and students with the existing applications within the package, and due to ease of use, i.e. faster learning curve for those who have not had previous experience with distance learning.

### 3.2.3 Technical conditions for access to distance learning tools and platforms

**Despite the initial technical problems, classes continued to be organized at the beginning of the pandemic.** The most demanding part must have been to transfer all students and lecturers to the platforms provided by HEIs after the initial use of various software solutions. Despite this, internet connections are still inadequate. Poor Internet connection is especially pronounced in the rural areas of BiH. In the initial phase of resolving access to tools and platforms, the IT sector was overwhelmed by the demands of both students and teachers, so HEIs without adequate IT support had greater challenges in dealing with the needs of students and lecturers.

**Technical conditions for access to distance learning tools and platforms for both students and lecturers were not satisfactory.** It is unquestionable that the objective technical problems for monitoring online classes (e.g. unavailability of computers and/or mobile devices, network access) of teachers and students had a negative impact on the distance teaching process. A significant number of students (every seventh student) had problems of this kind, partially or completely, through no fault of their own. In addition to the technical conditions, the space where students follow online classes should also be taken into account, for example, a larger number of household members follow online classes and/or work. At the same time, in the face of this obvious lack of equipment and access, representatives of the Higher Education Institution leave the impression of helplessness or even denial of the existence of the problem. Only a few isolated reactions of the Higher Education Institution in cooperation with donors, the private sector and ministries have been recorded. In this situation, the students managed on their own so that they could follow the lessons. At the same time, HEIs did not receive additional financial support in order to optimally respond to the technical conditions, but solved the problems themselves. These problems were, and still are, significantly expressed through the lack of financial resources for upgrading the existing infrastructure and platforms for distance learning. Both for individual students and for individual HEIs, enthusiasm and resourcefulness made it possible to overcome difficulties related to technical conditions for access to distance learning tools and platforms. Lecturers at HEIs also had similar difficulties of a technical nature that prevented them from conducting high-quality distance learning, so almost half of them stated that they had some kind of technical problems.

**Technical support in the process of implementing distance learning was not adequate.** Even when they provided technical conditions and network connection, students and lecturers had difficulties with technical support. One fourth of the surveyed students stated that they did not have a systematic introduction to the software, nor did they have anyone to turn to in case of problems. It follows from this that the HEIs assumed that the students would solve these challenges themselves in the same way that they provided equipment and connections. It is possible that the HEI and/or faculty administrations also considered that knowledge of using the software is implied. When it comes to the perception of the technical support they received from the HEI, slightly more than half of the lecturers believe that in addition to instructions for using the software, they also had constant technical support in case of problems.

**There was no adequate review or planned and implemented activities related to the specific needs of students with special needs.** The representatives of HEIs were also asked a question about addressing the problems that students with special needs might have. The vast majority of representatives stated that they do not have any students with visual or hearing disabilities in their records. Therefore, the teaching was not adapted to students with special needs. HEIs were guided by the principle that this category of students, through individual enthusiasm and resourcefulness, will enable themselves to overcome the difficulties related to the technical conditions for accessing distance learning tools and platforms. Or they believe that students with special needs, even before the start of classes in extraordinary circumstances, make extensive use of various software solutions and tools in order to follow the lectures more easily, so that they will find their way around more easily.

### 3.2.4 Quality of curriculum implementation - practical teaching and overall success of students<sup>45</sup>

**The quality of curriculum implementation has been reduced,** but students, lecturers and representatives of HEIs have different opinions on how much it has been reduced. Almost half of the students and a third of the lecturers as well as representatives of HEIs are of the opinion that the quality was mostly bad or very bad. The analysis in the previous chapter indicated that the data reveal the real picture of things, i.e. the lecturers' optimistic overestimation of the quality of teaching, as well as that the average motivation for completing the survey was different for the groups of students and lecturers. Likewise, there are certainly more among students who wanted to express their frustrations regarding teaching, while among lecturers, those who felt more competent regarding distance learning were more motivated to be more responsible. However, if we take into account the evaluation of student success in comparison with the period before the pandemic, it is clear that the result is certainly worse because practically every other lecturer states that the achievement was weaker compared to the pre-pandemic period.

**The overall attitude towards online classes is the "Mostly positive" category .** Despite the poorer results of distance teaching, lecturers, students and representatives of HEIs have a positive image and experience of distance teaching. From this, it can be asserted that there is a positive momentum for a more extensive and systematic digitization of higher education. Lessons learned and work modalities from forced digitization can be used in the coming period. It is important to emphasize here that students should be involved in future decision-making processes in the direction of designing the systematic digitization of higher education, as they were during forced

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<sup>45</sup>It is unquestionable that this aspect of distance teaching must also be seen through the needs of teachers and lecturers in conducting distance education. Adapting to this way of teaching requires critical and creative didactic thinking, i.e. intensive work and training with the teaching staff. The inevitable contribution of the current political government and the most prominent educational and technological experts must also be taken into account, both in the framework of strategic reflection and development planning, and at the level of implementing concrete measures with the aim of building a flexible higher education system suitable for the current and future needs of society. . For more details and a structured analysis of the impact of distance learning on the quality of curriculum implementation, see "Overview study on the needs of teachers and lecturers in the implementation of distance education in higher education in Bosnia and Herzegovina during the COVID-19 pandemic".

digitization. Not only should they be involved, but this involvement must be essential and not a mere formality, because the lesson from the pandemic period is that the system will not work if the students are not asked if it can work.

**The new way of teaching for teachers has many advantages and also provides more tangible pedagogical advantages of the work.** The pedagogical work of lecturers is an essential link to the success of any teaching method and according to the opinion of more than one quarter of lecturers, when it comes to the positive aspects of online teaching, the aspect related to the improvement of pedagogical work is rated as the most positive. Teachers also emphasize the saving of resources as well as the availability of materials as significant elements that affect the quality of the entire process.

**The new way of teaching for students has many advantages and offers saving of resources.** Taking into account the material and financial possibilities of the student, online classes seem to be more profitable than those that take place with a physical presence at the University. Like lecturers, the student population sees the advantages of readily available materials as convenience in the process of their education and improving the quality of the entire process.

**Practical teaching in teaching and motivation in distance learning are negative aspects of this way of teaching .** Students and lecturers agree that the negative aspect of online teaching is particularly pronounced in terms of practical teaching as well as communication problems between students and lecturers. Also, lecturers most often cite the problem of weakening students' motivation to follow classes. Related to this, a significant segment of the student population (8.6%) faces problems related to impaired mental and physical health, which undoubtedly affect the motivation to fulfill obligations, but which stem from various emotional, social and physical problems they face during pandemics. To state that these negative aspects significantly affected the overall quality of distance learning.

**The activities of HEIs in terms of supervision/monitoring as well as valuation/evaluation are far from ideal ways of working.** Supervision/monitoring and evaluation/evaluation of teaching performed by the HEI itself and the participants in the teaching process represent key elements of the systematic guarantee of the quality of the delivered teaching even under normal circumstances. In order to ensure the quality of teaching, it is necessary to continuously monitor and identify challenges, threats and positive opportunities. This is especially important during the sudden and forced transition to the online mode that was created during the pandemic. However, despite the emphasized need, unfortunately, there is no continuous monitoring and identification of challenges, threats and positive opportunities by HEIs. Even basic information was not collected, so 41.2% of lecturers did not receive clear feedback at all about how they conducted distance learning. Likewise, more than a quarter of the students state that they were able to give feedback on the lecturer's work during online classes , but claim that they were convinced that it was not an anonymous evaluation where they could freely express their opinion. At the same time, absolutely all representatives of HEIs claim that they surveyed students during the pandemic.

**Opportunities during the pandemic had a negative impact on the mental health and motivation of students.** More than one third of students state that they had motivational and emotional difficulties during the pandemic to a great extent or extremely, and one third state that they had moderate problems. Only one in ten students stated that they had no such problems at all. To assert that this dynamic had a negative effect on the quality of distance learning.

**Support for students' mental health and motivation was largely absent** . Half of the students state that all the lecturers are or that most of them showed an understanding of the situation. It is clear that there was a need for psychological counseling for a significant number of students, however, only a fraction of students (8.6%) stated that they knew that the University of Applied Sciences provided free online counseling. The representatives of HEIs state that two public universities have counseling centers, as well as another private university, and that one private university has a mentoring system. In their free answers, students from two public faculties state that they personally addressed lecturers in the field of psychology, and also mention that there are certain services with this purpose at sub-organizational units. From the above data, it is obvious that the HEIs that have counseling centers failed to inform their students about them.

## 4. Recommendations

Taking into account the data collected from various relevant sources, as well as global educational principles and trends in higher education, as well as UNESCO principles within the framework of global priorities for the development of education <sup>46</sup>, the following recommendations are given for raising the quality of the future work of HEIs in BiH, not only when it comes to distance teaching in the narrower sense of the word, but also digitally supported teaching. The proposed recommendations are not just a wish list because they are designed so that each of them is implementable and sustainable and at the same time ensures: i) effect (learning outcome of teachers and students); ii) price (investment that must be undertaken for digitally supported learning to take root in education systems); iii) workload (involvement of HEIs, students and teachers); iv) time (necessary timeframe for implementing the recommendation); iv) sustainability of the intervention. The proposed recommendations follow the format in which the data and conclusions from the study are presented and are not ranked in any way (important or irrelevant):

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<sup>46</sup>The basic principles are contained in the document *UNESCO ICT Competency Framework for Teachers* (ICT CFT) and consist of 18 competencies organized according to six aspects of teachers' professional practice, at three levels of pedagogical use of ICT by teachers. The basic idea is that teachers who have the competence to use ICT in their professional practice will provide quality education and ultimately be able to effectively guide the development of students' ICT competences. The six aspects of teacher professional practice addressed are: 1) understanding ICT in education policy, 2) curriculum and assessment, 3) pedagogy, 4) application of digital skills, 5) organization and administration, and 6. professional teacher learning. For more information see "UNESCO ICT Competency Framework for Teachers (Version 3)", available at: <https://en.unesco.org/themes/ict-education/competency-framework-teachers>



## Legal, financial and administrative environment

- Governments in BiH should make amendments and changes to the law on higher education, where they would define clear and precise instructions on the specifics related to distance learning and especially the determination of students' knowledge on online platforms; to ensure that the laws that now symbolically recognize the right to distance learning essentially resolve the obligations and rules for distance learning in higher education.
- HEIs should harmonize their statutes with the very flexible RS, BD, and cantonal laws on higher education that enable them to determine the methods of teaching and testing students' knowledge as best suits them; HEIs should adopt more precise legal frameworks - acts, decrees, regulations - when it comes to the inclusion of teaching activities at a distance in order to regulate this area of education in detail at their institutions.
- Agencies, ministries and HEIs should make an analysis and then consider the possibility of a systematic legal-administrative solution to this type of learning through a distance learning accreditation system that would be an integral part of the current HEI accreditation process; the HEI accreditation criteria and especially "Criterion 3: Student-centered learning, teaching and evaluation" and "Criterion 6: Learning resources and student support" would be upgraded in order to be able to evaluate distance learning at the HEI and accredit the HEI for distance learning.
- Governments in BiH should stop the trend of reducing budget funds for higher education and initiate a process in which the needs of HEIs would be individually mapped for the establishment of complete digitization of all teaching processes.
- In order to follow global trends and be ready for the challenges of the future and outside of pandemic circumstances, HEIs must set further digitization of teaching activities in strategic documents. This does not mean that there is an insistence on the development of some specific forms of activities online (e.g. lectures), but there are a number of advantages of digital activities that can and must be included in the curricula in 2021 and the future. For example, achieving highly functional general critical media and information literacy, as well as digital literacy in a given scientific-professional domain, must be an outcome found in every study program.
- For the purpose of taking advantage of the positive attitude towards distance learning and capitalizing on the already taken strategic and financial steps of their institutions, HEIs should use existing mechanisms, for example the Rectors' Conference of BiH, and communicate the need for the establishment of strategic frameworks that will offer clear guidelines and financial support for this type of education (strategy on digitization of education, media and information literacy strategy, action plan for qualification framework).
- HEIs should consider the need to redefine the duties of teachers in terms of working relationship and obligations in view of the new circumstances of teaching.
- HEIs should create models and methods for crisis communication.

- HEIs must be strategically and operationally oriented towards students with special needs and accordingly must have clearly regulated protocols and competent services to support these students who would take care of their individual needs and regarding distance learning.
- Donors, international organizations and development agencies should support the efforts of all participants in the process in order to implement these recommendations; help is clearly needed in the activities of strategic planning and raising awareness of all participants in the process because it is obvious that despite the obvious need for digitization of education, media and information literacy of teachers and students are still not recognized as an essential factor for the necessary paradigm shift in the approach to education in the context of digital transformation society, nor for the long-term democratization of society and a prerequisite for sustainable economic development by decision-makers.

### **Tools and platforms for learning that were used during the pandemic at BiH Higher Education Institution**

- HEIs in cooperation with donors, international organizations and development agencies should make an analysis and then consider the possibility of a universal specification of equipment and a network connection that meets the minimum conditions for distance learning.
- HEIs should undertake activities to improve already existing tools and platforms that were used during the pandemic and make a transition from generic platforms and tools to versions that ensure better learning outcomes.
- Donors, international organizations and development agencies should help the Higher Education Institution through expert and financial support in order to provide adequate tools and platforms for distance learning; this particularly applies to marginalized groups and students with special needs, and it is suggested that HEIs make separate action plans to ensure that this is resolved.

### **Technical conditions for access to distance learning tools and platforms**

- HEIs must establish adequate technical support in the process of implementing distance learning; they must strengthen the administrative service of all HEIs (especially public ones) by establishing assistance centers for distance learning. In addition to hiring professional staff specialized in distance learning (it is not enough that it is only IT staff), use platforms that are proven to serve teaching at the higher education level, which will be available to all employees and students. At the same time, allow some flexibility in the use of teaching strategies, but with the definition of minimum work standards.
- When it comes to providing technical working conditions, HEIs should take responsibility to internally adopt a clear plan at the beginning of the school year to ensure minimum resources for students with weaker social situations and for emergency situations such as pandemic

situations; this applies both to the provision of the Internet (eg in cooperation with ministries and/or teleoperators), and to the provision of minimal hardware.

- Set clear, detailed and constantly available instructions (e.g. in the form of text or video) on the use of distance learning tools.
- HEISs in cooperation with donors, international organizations and development agencies, should make an analysis and then clearly address the specific needs of students with special needs.

### Quality of curriculum implementation - practical teaching and overall success of students

- HEIs must provide supervision and evaluation of the quality of online teaching activities, which should be the focus of attention of each HEI. It is necessary to receive open and honest information from all participants in the teaching process, as well as externally engaged experts; Accreditation bodies must include in their minimum criteria - both for online and live classes at physical locations - that it is necessary for the HEI to ensure that students can give anonymous impressions of the teaching (e.g. peer-to-peer data collection where students lead focus groups with students or anonymized delivery of evaluations that are not related to student orders within the e-system). Insist on the triangulation of data on the quality of teaching so that teachers will be able to self-evaluate the process and point out its strengths and weaknesses, and by engaging independent experts who will assess challenges and opportunities for improving work. In the ideal case, it would be necessary to systematically define internal and external quality evaluation instruments that should eliminate unacceptable differences in quality, currently present in BiH. It is especially important to equally involve all social partners of education and other relevant interested parties in all activities.
- HEIs must conduct continuous and systematic training of teaching staff for distance learning activities, which includes increasing motivation to participate in them (specific recommendations on this issue are given in a special written report, the subject of which is the needs of lecturers at HEIs in BiH - "Assessment on the Needs of Lecturers in Distance Learning in Higher Education in Bosnia and Herzegovina during the COVID-19 Pandemic").
- HEI should provide a clear, transparent channel of information (eg centralized mailing lists) through which every student and all members of the academic staff at HEI will be informed of important notifications. Establish the obligation to use official e-mail at HEIs where this has not already been introduced.
- At least on an annual level, HEIs should exchange good practice with other HEIs and within HEIs when it comes to the technical and pedagogical-methodical aspects of distance learning; Concepts of good examples are the Practice Library <sup>47</sup>and Lectures on Education (Step by step).
- HEIs should have a regular practice of consulting with students in decision-making processes.

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<sup>47</sup><https://www.unsa.ba/en/node/4674>

- Provide professional psychological counseling - at least in all public HEIs; the problems faced by students are specific and they can also use group counseling where such a service would also have preventive activities.

## 5. Supplements

### Appendix 1: Interview protocol

#### Interview protocol for the UNESCO "Assessment on the Quality of Distance Learning in Higher Education in Bosnia and Herzegovina during the COVID-19 pandemic"

Thank you for your participation.

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

Can I make an audio recording of this conversation?

**Q1 .** What are the advantages and disadvantages of the current distance learning system in BiH, and to what extent the quality of the current system supports positive learning outcomes; What is the current system like in comparison with the countries of the Western Balkans and the practices in the EU member states in terms of distance learning?

1. How would you describe the current distance learning system at higher education institutions in Bosnia and Herzegovina?

PROBE: What is your direct experience?

PROBE: What are your institution's practices?

PROBE: Do you know of any good practices?

2 . In your opinion, to what extent does the current system support positive learning outcomes?

PROBE: Why yes/no?

PROBE: In your opinion, what should be an indicator of an expected learning outcome?

PROBE: What are the main obstacles to a good system?

PROBE: How can the situation be improved?

**3 . Are you familiar with any other distance learning systems, for example in the countries of the Western Balkans, and/or countries in the EU?**

[ If, YES]

PROBE: How did you become familiar with these systems ?

PROBE: Why is that system better/worse?

PROBE: What would be necessary for this system/practice to be applied in Bosnia and Herzegovina?

**Q2 . Which dimensions within the current legal, financial, and administrative systems favor the implementation of distance learning at higher education institutions in Bosnia and Herzegovina?**

**1 . How familiar are you with the current i) legal, ii) financial), and administrative frameworks within which e-learning takes place at higher education institutions?**

[If yes for each system]

PROBE: What are the main obstacles/deficiencies/obstructions?

PROBE: How can that segment be improved?

**2 . Can you give us some documents/instructions/decisions that we should consult in making these studies?**

**Q3 . To what extent the current models for distance learning (tools and platforms), which are currently used by higher education institutions in Bosnia and Herzegovina, meet the standards that ensure quality; what are the main features and modalities of all types of distance learning at institutions of higher education in Bosnia and Herzegovina?**

**1. What tools and platforms does your institution use for distance learning?**

TESTS: Do they meet quality standards?

[If, YES]

PROBE: Why do they meet the standards?

**2. To what extent do current distance learning models and (tools and platforms) meet standards?**

[If, No]

PROBE: How can the situation be improved?

**3. What are the main features and modalities of the tools and platforms used by you/your institution?**

PROBE: How can I improve?

**Q4 . To what extent are the needs of students and lecturers addressed regarding access to distance learning and platforms (connection and availability of equipment); special focus on students with special needs and marginalized groups?**

**1.** Is ICT equipment available to students?

[If, NO]

PROBE: Why not?

PROBE: Who should deal with this issue and how?

**2.** According to your knowledge, is the internet connection available to students?

[If, NO]

PROBE: Why not?

PROBE: Who and how should this deficiency be addressed?

**3.** According to your knowledge, do students who belong to vulnerable groups (Roma, minorities, single parents) and students with special needs have more problems with connections and the availability of ICT equipment?

[If, YES]

PROBE: Why yes?

PROBE: Who and how should be dedicated to solving this issue?

**Q5 .** What is the quality of curriculum implementation in distance learning , including practical lectures, and the general success of students ?

**1 .** According to your knowledge, please evaluate the quality of the implementation of the curriculum in distance learning, including practical lectures, and the general success of students?

PROBE: How can this be improved?

PROBE: Are you familiar with the good results of some of your colleagues or some other institutions?

[If, YES]

PROBE: Why yes?

**2 .** To your knowledge, do institutions intend to create/use some kind of strategic framework for integrating digital learning in the future?

[If YES or NO]

PROBE: Please clarify.

**3 .** What would an adequate strategic framework for the integration of digital learning look like?

**4 .** What are the main lessons that you can extract from your experience and the experience of your colleagues from this "COVID" episode?

## Appendix 2: Survey for students



**United Nations**



COVID-19 Response



UN COVID-19 Response  
and Recovery Fund

### **Survey on the quality of distance learning and the needs of lecturers in performing distance learning on higher education institutions in Bosnia and Herzegovina**

Dear students,

we kindly ask you, by filling out the survey on your impressions of the online/distance learning, to become a part of the survey conducted by UNESCO, within the project which purpose is to create more quality education during and after COVID-19 crisis (partners on the project being UNICEF and ILO - International Labour organization). We are aware you participated in multiple surveys throughout this period, and having this in mind filling out this questionnaire will not take more than 10 minutes.

Each of your responses are significant and important, due to the fact that conducting online classes differs in each higher education institution and each study program with its own specific requirements. This survey is **anonymous**, and gathered data will be used exclusively for the purposes of analysis of the conditions and creating strategies for more quality education in a healthier future.

#### *Institution information*

*At which higher education institution do you study? (answers offered)*

*Which study program are you studying?*

*Which study cycle are you studying at?*

*What year are you studying?*

#### *Assessment of the general quality of online teaching during the pandemic*

*Based on your personal experience, and taking into account that you had different subjects, lecturers (professors and assistants) and activities, how would you rate the general quality of online teaching in your study program in the period since the start of the COVID-19 pandemic?*

**1 - very bad, 2 - mostly bad, 3 - neither good nor bad, 4 mostly good, 5 very good**

*Different aspects of lecturers' work for which student evaluations are relevant (the response scale from 1-5 describes the relative number of lecturers from "none" to "all", except in cases where another type of scale is specified)*



*(type of software and distribution) Which of the mentioned software solutions did your lecturers use as part of online teaching activities in your study program?*

*Moodle, Canvas, Blackboard, Microsoft Teams, Google Classroom, Zoom, Google Meet, Skype, Viber, WhatsApp, 3 additional fields (something else, specify what)*

*(IT competence) The lecturers gave the impression that, overall, they are good with digital technologies.*

*(technical competence in using DELT tools) The lecturers gave the impression that they competently use specialized online platforms for teaching and learning.*

*(perception of specific pedagogical knowledge) The lecturers demonstrated objective pedagogical knowledge that made online lectures and other online teaching activities interesting and effective.*

*(perception of lecturers' motivation) Lecturers were visibly motivated to invest energy in conducting online classes.*

*(use of additional materials) In addition to lecturing and delivering materials, the lecturers also used additional online materials and activities that helped in acquiring knowledge (eg additional educational video/audio materials, online quizzes, invitations to discussion on specially created online forums).*

*(recorded lectures) Lecturers delivered recorded video or audio lectures that could be viewed/listened to again later.*

*(availability of literature) The lecturers provided the necessary literature online, which was easily accessible to everyone.*

*(use of online grading system) In addition to classical grading, lecturers conducted grading of online activities (eg online colloquia, assessment of discussion group activities, assignments that were significantly related to materials available online).*

*(organization) When it comes to the dynamics of online classes, the lecturers were well organized and followed a plan that suited the students as well, taking into account all the circumstances.*

*(communication) Online communication with lecturers was professional and correct.*

*(workload) The lecturers gave us an adequate amount of duties, taking into account the specificity of the situation and the total duties we had in all subjects.*

*(mental health of students) The lecturers showed an understanding of the complexity of the situation and the special emotional and psychological challenges that befell us.*

*(counseling) Our higher education institution offered/offers online psychological counseling that students can refer to. (yes/no/don't know)*

*(technical problems) Estimate what percentage of your colleagues from the study program had frequent and objective technical problems with following online classes (eg unavailability of computers or mobile devices, very common problem with internet connection).*

*(support) If you used software that was unknown to you until then, did you receive detailed and clear instructions on how to use it and support from the institution in case you do not manage?*

*\*answer scale : 0- No, 1- Yes, but we received only basic instructions, without the option to turn to someone for help 2- Yes, we received instructions and/or support from the competent service that we could turn to for any problems.*

*(QA) As students, we were invited to point out to the responsible persons at our study program/faculty what were the good and bad sides of online teaching as it was implemented in our study program.*

*Not at all; Yes, but those were the initiatives of individual professors/assistants; Yes, students had the opportunity to adequately point out the good and bad sides of the entire study program*

### **Previous experiences with distance learning**

*Which of the following describes your personal experience with online teaching at the university before the COVID-19 pandemic?*

- I attended courses that were conducted entirely online.*
- I attended courses that had a significant number of online elements (eg posting materials, discussion groups, specific online content).*
- No online experience or only email communication with lecturers.*

### **Current motivation for DELT**

*Please assess to what extent the online use of digital technologies should be included in the teaching of your study program considering the nature of what is being studied:*

- There is no room for online teaching activities in this study program.*
- Most of the teaching activities would have to be held with physical presence, but for a smaller number of activities, the online mode is also suitable.*
- About half of the teaching activities could be done online, but there is a significant number of activities that require physical presence.*
- A larger number of teaching activities could be carried out online, and for a smaller number physical presence is really necessary.*
- All teaching activities in the study program could be carried out online using digital resources without losing the quality of teaching.*

*Overall, what is your attitude towards the inclusion of online activities (distance learning) in teaching?*

*Extremely negative, Mostly negative, Neutral, Mostly positive, Extremely positive*

*Finally, we would like to ask you to provide additional comments regarding the implementation of distance learning in your study program.*

- Three aspects that you would single out as particularly negative. (open answer)*
- Three aspects that you would single out as particularly positive. (open answer)*

## Appendix 3: Survey for lecturers



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COVID-19 Response



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### Survey on the quality of distance learning and the needs of lecturers in performing distance learning on higher education institutions in Bosnia and Herzegovina

Dear lecturers

we kindly ask you, by filling out the survey on your impressions of the online/distance learning, to become a part of the survey conducted by UNESCO, within the project which purpose is to create more quality education during and after COVID-19 crisis (partners on the project being UNICEF and ILO - International Labour organization). We are aware you participated in multiple surveys throughout this period, and having this in mind filling out this questionnaire will not take more than 10 minutes.

Each of your responses are significant and important, due to the fact that conducting online classes differs in each higher education institution and each study program with its own specific requirements. This survey is **anonymous**, and gathered data will be used exclusively for the purposes of analysis of the conditions and creating strategies for more quality education in a healthier future.

#### *Institution information*

*At which higher education institution are you employed?*

*In which scientific field do you teach?*

#### *General self-assessment of work quality*

*All things considered, to what extent are you satisfied with how you conducted online classes during the COVID-19 pandemic?*

*To what extent do you think that online activities are suitable for conducting quality teaching when it comes to your scientific field?*

*(software) The institution where I work has provided an adequate software platform for the comprehensive organization and execution of online classes.*

- *0-No*
- *1-Yes, but it is not optimal software for the needs of university teaching*
- *2-Yes, it is software that fully meets the needs of university teaching*

**What software solutions did you use to perform teaching activities in your courses? (Multiple answers are possible)**

Moodle, Canvas, Blackboard, Microsoft Teams, Google Classroom, Zoom, Google Meet, Skype, Viber, WhatsApp, 3 additional fields (something else, specify what)

*(technical conditions) To what extent did you have the necessary technical conditions for conducting quality online classes (eg high-speed internet, computer equipment)?*

*(support software) To what extent has the higher education institution provided content instructions for using specialized software for online teaching?*

*(DELT software competence) To what extent do you consider yourself technically competent for the use of specific software solutions intended for teaching at higher education institutions?*

*(DELT competence) To what extent do you consider yourself pedagogically competent to perform quality distance learning?*

*(support from colleagues) To what extent has your institution worked on the development of professional pedagogical competences when it comes to conducting online classes (eg organized exchange of experiences among colleagues, specialized training with engaged experts, available video courses or specialized literature)?*

*(DELT policy university) To what extent does your higher education institution emphasize the use of digital technology and distance learning in teaching activities?*

*(motivation for DELT) Which of the following do you think best describes you when it comes to distance learning?*

*(used the benefits of DELT) Which of the following did you use when it comes to teaching activities during the pandemic period?*

- *led live lectures with the help of conference software,*
- *delivered recorded lectures to students, delivered necessary study materials to students,*
- *graded online activities (quizzes, discussion groups, online colloquiums, digital portfolios),*
- *used specialized virtual environments (e.g. digital simulations) in classes*

*(evaluation of online teaching - management) In what way were your online teaching activities evaluated by the management of the higher education institution?*

*(evaluation of online teaching - students) How did you get evaluative information from students about the online teaching activities you conducted?*

*(knowledge of digital security, licenses) To what extent do you know the relevant aspects of digital security for teaching?*

*(knowledge of digital ethics)* To what extent do you know relevant aspects of digital security (e.g. the possibility of hacking your teaching-related account) and ethics (e.g. licenses to use online materials) for teaching?

*(organization)* To what extent do you think that you have set a good work plan that both you and the students were satisfied with?

**Which of the following describes your personal experience with online teaching at the university before the COVID-19 pandemic?**

- *Conducted courses that were conducted entirely online.*
- *Led courses that had a significant number of online elements (eg posting materials, discussion groups, specific online content).*
- *No online experience or only email communication with students.*

**Please assess the extent to which the online use of digital technologies should be included in the teaching of your scientific field, given the nature of what is being studied:**

- *There is no place for online teaching activities in my field.*
- *Most of the teaching activities would have to be held with physical presence, but for a smaller number of activities, the online mode is also suitable.*
- *About half of the teaching activities could be done online, but there is a significant number of activities that require physical presence.*
- *A larger number of teaching activities could be carried out online, and for a smaller number physical presence is really necessary.*
- *All teaching activities could be carried out online using digital resources without losing the quality of teaching.*

**Overall, what is your attitude towards the inclusion of online activities (distance learning) in teaching?**

Extremely negative, Mostly negative, Neutral, Mostly positive, Extremely positive

**Finally, we would like to ask you to provide additional comments regarding the implementation of distance learning in your area.**

- *Three specific suggestions for the necessary professional support to make your online teaching better. (open answer)*
- *Three aspects that you would single out as particularly negative when it comes to online teaching and how they could be solved. (open answer)*
- *Three aspects that you would single out as particularly positive when it comes to online teaching. (open answer)*

## Appendix 4: Survey for representatives of higher education institutions



United Nations



COVID-19 Response



UN COVID-19 Response and Recovery Fund

### Survey on the quality of distance learning and the needs of lecturers in performing distance learning on higher education institutions in Bosnia and Herzegovina

Dear HEI representatives,

we kindly ask you, by filling out the survey on your impressions of the online/distance learning, to become a part of the survey conducted by UNESCO, within the project which purpose is to create more quality education during and after COVID-19 crisis (partners on the project being UNICEF and ILO - International Labour organization). We are aware you participated in multiple surveys throughout this period, and having this in mind filling out this questionnaire will not take more than 10 minutes.

Each of your responses are significant and important, due to the fact that conducting online classes differs in each higher education institution and each study program with its own specific requirements. This survey is **anonymous**, and gathered data will be used exclusively for the purposes of analysis of the conditions and creating strategies for more quality education in a healthier future.

#### Basic information

*At which higher education institution are you employed?*

*What administrative position do you hold at your institution?*

*(Previous experiences with distance learning) Which of the following best describes your institution when it comes to distance learning before the pandemic?*

- *We have already organized complete study programs that are carried out remotely.*
- *We did not organize complete study programs, but we know that there were courses that were conducted entirely remotely.*
- *So far, we have had neither study programs nor subjects that were conducted entirely remotely.*

*(administrative frameworks) Without taking into account the state of emergency due to the pandemic here, which of the following best describes your institution when it comes to administrative frameworks related to distance learning.*

- *All teaching activities must be conducted at the institution's physical location or other designated locations with physical presence.*

- *Our acts provide for the possibility of partially conducting online classes (e.g. blended learning) on different study programs.*
- *Our acts provide for the possibility of conducting entire courses or study programs remotely.*

***(digitalization strategy - formal) Which of the following best describes your institution in terms of formal strategies for the digitalization of the teaching process after the epidemiological situation normalizes?***

- *Currently, we do not consider digitization of the teaching process to be a priority strategic plan, and we have no plans to include it in our strategic documents (vision/mission/strategy).*
- *Digitization of the teaching process is not included in our official strategic documents (vision/mission/strategy), but we are actively working to include it in the priorities.*
- *Our strategic documents (vision/mission/strategy) already clearly emphasize that further digitization of the teaching process is an important priority of our institution.*

***(digitalization strategy - realistic) To what extent does your institution intend to encourage and support the use of distance learning after the epidemiological situation normalizes?***

- *Not at all, we will insist on returning to the situation before the pandemic.*
- *We're not sure yet.*
- *We will encourage a certain increase in distance learning activities compared to the period before the pandemic.*
- *We will strongly encourage greater digitization of the teaching process.*

***(Promotion of MOOCs) What is the current status of your institution regarding the introduction of massive open online courses (MOOCs)?***

- *We already offer or have offered MOOC courses.*
- *We have not yet offered MOOC courses, but there are preparatory plans to do so.*
- *We still have no plans to organize MOOC courses.*

***(used software) Which of the listed software solutions for conducting online classes did your institution provide to its lecturers and students during the pandemic? (Multiple answers are possible, options: - for all students and lecturers- for certain study programs)***

*Moodle, Canvas LMS, Blackboard, Microsoft Teams, Google Workspace/G Suite (Classroom, Meet, Drive), Zoom, 3 additional fields (something else, specify what)*

***(software reasons) Please indicate the main reasons why you decided to use the selected software package (eg financial, pedagogical)? (open answers)***

***(software, flexibility) How much do you insist that all lecturers use identical software solutions?***

- *all study programs and lecturers would have to use the same software*
- *it is recommended that all lecturers use the same software, but flexibility in choice is allowed*
- *we do not insist on uniformity at all and we fully believe that the flexibility of choice is an advantage*

***(students' IT issues) According to your estimates, what percentage of students at your institution had frequent and objective technical problems with following online classes (eg unavailability of computers and/or mobile devices, very common problem with internet connection)? (0 to 100)***

***(students' IT issues - solutions) How did you address the problems students had with technology problems (ie lack of devices, internet problems)? (open answer)***

***(students with disabilities, issues - solutions) Please describe how your institution addressed issues in online classes in respect to students with special needs (eg students with visual or hearing impairments)? (open answer)***

***(satisfaction) Overall, to what extent are you satisfied with the delivery of online classes during the pandemic at your institution?***

1. *Not at all*
2. *To a small extent*
3. *Moderately*
4. *To a greater extent*
5. *Completely*

***(QA) Which of the following methods did you use to evaluate the delivery of online classes during the pandemic? (multiple answers possible)***

- *Survey of students, where online teaching is not distinguished from teaching conducted live in the premises of the institution.*
- *Surveying students, with special treatment of online teaching.*
- *Survey of lecturers, in which online teaching was specially treated.*
- *Focus groups and/or interviews with student representatives.*



- *Focus groups and/or interviews with lecturers.*
- *Reports of managers at sub-organizational units and/or study programs (deans, vice-deans for teaching, heads of study programs, quality control services).*
- *Hiring evaluators who are experts in distance learning.*
- *Some other way (describe)*

***(technical support) Which of the above have you managed to undertake so far at the level of the institution in order to improve the technical conditions for conducting online classes? (multiple answers possible)***

- *fast internet is provided to all lecturers*
- *it is ensured that all lecturers have the necessary equipment for conducting online classes (computer hardware, auxiliary multimedia equipment such as cameras, microphones, headphones)*
- *basic instructions in written or video form on the use of the software have been provided*
- *distance educations were organized for employees on the use of software for conducting online classes*
- *constantly available technical support is provided in case of problems with the use of the software*
- *something else (describe)*

***(pedagogical support) Which of the above have you been able to undertake so far at the level of the institution in order to improve the pedagogical-methodical competences of lecturers for conducting online classes? (multiple answers possible)***

- *training sessions led by distance learning experts were organized*
- *we made easily available specialized literature and educational video materials on the topic of quality delivery of online classes*
- *we organized the exchange of good practices among employees on our study programs*
- *something else (describe)*

***(student mental health) Has your institution so far offered free online counseling for students experiencing emotional or work difficulties during the pandemic?***

- *Yes, such a counseling center is already functioning*
- *Still not*

- (Other)

**(digital security)** In what ways have you informed your colleagues about the relevant aspects of digital security in teaching (eg the possibility of a hacker attack on accounts related to teaching, secure data archiving)? (open answers)

**(digital ethics)** In what ways have you informed your lecturers and students about teaching-relevant aspects of digital ethics (eg rights and licenses for using online materials and sharing personal information, using software to check plagiarism)? (open answers)

**(open comments)** Finally, we would like to ask you to provide additional comments regarding the implementation of distance learning.

Please indicate here what would help your institution to perform better distance learning (eg what kind of education, procurement of certain software, provision of some specific technical conditions). (open answer)

List three aspects that you would single out as **particularly negative** when it comes to online teaching during the pandemic at your institution and how they could be resolved. (open answer)

Name three aspects that you would single out as **particularly positive** when it comes to switching to online classes at your institution during the pandemic. (open answer)

## Appendix 5: Distance learning and exams in laws on higher education in BiH

### Review of the laws of the competent ministries in the field of higher education regarding distance learning and the method of taking exams

| Constitutional units | Name of the law | Articles and positions of the law | Official Herald |      |
|----------------------|-----------------|-----------------------------------|-----------------|------|
|                      |                 |                                   | Number          | Name |
|                      |                 |                                   |                 |      |

|                                      |                 |  |   |  |
|--------------------------------------|-----------------|--|---|--|
| REPUBLICA SRPSKA                     |                 | <p>Article 34 (Method of attending studies)</p> <p>(3) The method of conducting extracurricular studies is regulated by the statute of the higher education institution, with the obligation to acquire ECTS points, as well as in regular studies.</p> <p>(4) Certain forms of teaching can be organized by distance learning, but the exams must be held at the headquarters of the higher education institution specified in the work permit.</p> <p>(5) More detailed conditions and methods of distance learning are regulated by the decree from Article 14, paragraph 13 of this law and the general act of the higher education institution. (Article 15. (13) The Government of Republika Srpska (hereinafter: the Government) issues a decree on the conditions for the establishment and start of work of higher education institutions and on the procedure for determining the fulfillment of the conditions.)</p> <p>Article 46. (Forms of knowledge assessment)</p> <p>(1) The exam is taken at the headquarters of the higher education institution where it is stated in the work permit.</p> <p>(2) The higher education institution may, in accordance with the study program and the statute, organize the taking of an exam outside the headquarters only if it is an exam from a subject whose nature requires it.</p> | 73/10, 104/11, <a href="#">84/12</a> , <a href="#">108/13</a> | "Official Gazette of Republika Srpska" |
| FEDERATION OF BOSNIA AND HERZEGOVINA | Una-Sana canton | <p>Article 9 (Method of attending studies)</p> <p>Higher education can be obtained full-time, part-time, through distance learning, or in a combination of these three ways of studying, as provided by the statute of the higher education institution.</p> <p>Article 54 (Forms of knowledge assessment)</p> <p>(1) Knowledge tests are performed in writing, orally and practically. As a rule, the knowledge test is written.</p> <p>(2) Written verification of knowledge is usually done through a test or a written work.</p> <p>(3) Exams and all forms of knowledge testing are public.</p> <p>(4) Examinations in art subjects are usually taken by committee. (5) The results of written exams are kept until the next academic year.</p>   | 8/09, <a href="#">09/10</a> , <a href="#">04/11</a>           | "Official Gazette of Una Sana Canton"  |

|  |                 |   |  |   |                                       |
|--|-----------------|---|--|---|---------------------------------------|
|  | Posavina Canton | <a href="#">Law on Higher Education</a> | <p>Article 19 (Decision on meeting the conditions for the work of a higher education institution)</p> <p>(7) The higher education institution enrolls students based on the enrollment decision. The decision on enrollment is made by the higher education institution with the consent of the competent ministry. The enrollment decision determines for each study:</p> <ul style="list-style-type: none"> <li>- the number of full-time students studying with the support of the ministry,</li> <li>- the number of full-time students who pay for their studies themselves,</li> <li>- number of part-time students (distance learning),</li> <li>- the number of foreign students.</li> </ul> <p>Article 118 (Method of studying)</p> <p>(1) Higher education can be acquired regularly, part-time, by distance learning or by combining these three ways of studying, in the manner determined by the statute.</p> <p>Article 119 (Organization of lectures for students) The higher education institution is obliged to organize lectures and other forms of teaching for all students in accordance with the general act of the higher education institution.</p> <p>Article 128 (Test of knowledge in a higher education institution)</p> <p>(1) The exam is unique and is taken orally, in writing, or practically.</p> <p>(2) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.</p> <p>(3) Exceptionally, a higher education institution can organize classes and exams outside its headquarters, with the consent of the competent ministry.</p> | <a href="#">1/1</a><br><a href="#">0,</a><br><a href="#">4/1</a><br><a href="#">1</a> | "Official Gazette of Posavina Canton" |
|--|-----------------|---|--|---|---------------------------------------|

|  |              |   |  |                                    |
|--|--------------|---|--|------------------------------------|
|  | Tuzla canton | <p><a href="#">Law on Higher Education</a></p> <p>Article 2 (Basic Terms)<br/> t) A student is a person enrolled in a licensed higher education institution, who attends full-time, part-time, distance learning or combining these three study models in the manner determined by the statute of the higher education institution;<br/> bb) Distance learning is a formalized education system for self-financing students, which provides access to teaching processes through the use of computer technologies and interactive teaching materials, and is more precisely regulated by the statute of the higher education institution;</p> <p>Article 119 (Method of studying)<br/> (1) Higher education can be acquired full-time, part-time or by distance learning, or by combining these three ways of studying in accordance with the statute of the higher education institution.</p> <p>Article 120 (Organization of lectures and classes for students)<br/> (1) The higher education institution is obliged to organize lectures and other forms of teaching for all students.<br/> (2) The distance learning program is organized in accordance with the statute of the higher education institution.</p> <p>Article 128 (Organization of exams, practical and professional work in certain forms of teaching)<br/> (1) When classes, or certain forms of classes, are organized in the form of "distance learning", exams are usually held at the headquarters of the organizational unit.</p> | 8/0<br>8,<br><a href="#">11/09</a> ,<br><a href="#">13/12</a> ,<br><a href="#">16/13</a> | "Official Gazette of Tuzla Canton" |
|--|--------------|---|--|------------------------------------|

|  |                     |   |  |                             |   |
|--|---------------------|---|--|-----------------------------|---|
|  | Zenica-Doboj canton | <a href="#">Law on Higher Education</a> | <p>Article 111. (Method of studying)<br/> (1) Higher education can be acquired full-time, part-time, by distance learning or by combining these three ways of studying, in the manner determined by the statute.</p> <p>Article 112 (Organization of lectures for students)<br/> (1) The higher education institution is obliged to organize lectures and other forms of teaching for all students, except when organizing a distance learning program, in accordance with the general act of the higher education institution.<br/> (2) The detailed conditions and method of organizing the study program at a distance shall be prescribed by the minister.</p> <p>Article 121 (Test of knowledge)<br/> (1) The success of students in mastering a particular subject is continuously monitored during classes, in the manner provided by the curriculum and study program, and is expressed in points.<br/> (2) Forms of knowledge assessment can be written, oral and practical. As a rule, knowledge verification is written and is done by a test or a written work.<br/> (3) The general act of the higher education institution regulates the manner of taking exams and grading students, as well as the manner and procedure of objecting to the obtained grade.</p> <p>Article 122. (Place of knowledge assessment)<br/> (1) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.<br/> (2) Exceptionally, a higher education institution may organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.<br/> (3) The exam and all forms of knowledge testing are public. (4) The higher education institution is obliged to organize the exam dates so that the student does not have to take more than one exam on the same day.</p> | 6/09, <a href="#">13/13</a> | "Official Gazette of Zenica-Doboj Canton" |
|--|---------------------|---|--|-----------------------------|---|

|  |                         |   |   |          |   |
|--|-------------------------|---|---|----------|---|
|  | Bosnian-Podrinje canton | <a href="#">Law on Higher Education</a> | <p>Article 112.</p> <p>(1) The higher education institution is obliged to organize lectures and other forms of teaching for all students, except when organizing a distance learning program, in accordance with the general act of the higher education institution.</p> <p>(2) The detailed conditions and method of organizing the study program at a distance shall be prescribed by the minister.</p> <p>Article 122 (Place of knowledge assessment)</p> <p>(1) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.</p> <p>(2) Exceptionally, a higher education institution may organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.</p> <p>(3) The exam and all forms of knowledge testing are public.</p> <p>(4) The higher education institution is obliged to organize the exam dates so that the student does not have to take more than one exam on the same day.</p> | 2/1<br>0 | "Official Gazette of the Bosnian-Podrinje Canton" |
|--|-------------------------|---|---|----------|---|

|  |                       |   |  |          |  |
|--|-----------------------|---|--|----------|--|
|  | Central Bosnia Canton | <a href="#">Law on Higher Education</a> | <p>Article 2 (Meaning of expressions)<br/> 1) A student is a person enrolled at an accredited and licensed higher education institution who attends studies regularly, part-time, by distance learning or by combining these three study models in the manner determined by the statute of the higher education institution.</p> <p>Article 24 (Decision on the fulfillment of the conditions for the establishment and start of work of a higher education institution and the performance of higher education activities)<br/> (8) The enrollment decision determines for each study program:<br/> a) number of full-time students studying with the support of the Ministry;<br/> b) the number of full-time students who pay for their studies themselves;<br/> c) number of part-time students;<br/> d) number of distance learning students;<br/> e) number of foreign students.</p> <p>Article 118. (Method of studying)<br/> (1) Higher education can be acquired full-time, part-time, by distance learning or by combining these three ways of studying in the manner determined by the statute.</p> <p>Article 127 (Test of knowledge in a higher education institution)<br/> (1) The exam is unique and is taken orally, in writing, or practically.<br/> (2) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.<br/> (3) As an exception to paragraph (2) of this article, a higher education institution may organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.</p> | 4/1<br>3 | "Official Gazette of the Central Bosnian Canton" |
|--|-----------------------|---|--|----------|--|



|  |                            |   |  |          |  |
|--|----------------------------|---|--|----------|--|
|  | Herzegovina-Neretva Canton | <a href="#">Law on Higher Education</a> | <p>Article 85 (Student status)</p> <p>(1) Enrollment can be done as a full-time and part-time student, as well as a student studying via distance learning.</p> <p>(4) Students who study by distance learning study according to a special program, determined by the statute of the higher education institution. The study costs of these students are financed with the financial support of the Ministry or they are paid by the students themselves.</p> <p>Article 98 (Method of studying)</p> <p>(1) Higher education can be acquired regularly, part-time, by distance learning or by combining these three ways of studying, in the manner determined by the statute.</p> <p>Article 109 (Forms of knowledge assessment in a higher education institution)</p> <p>(1) The exam is unique and is taken orally, in writing, or practically.</p> <p>(2) The exam is taken at the headquarters of the higher education institution, that is, in the facilities specified in the work permit.</p> <p>(3) Exceptionally, a higher education institution can organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.</p> | 4/1<br>2 | "Official Gazette of Herzegovina-Neretva Canton" |
|--|----------------------------|---|--|----------|--|

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|  | West Herzegovina Canton | <a href="#">Law on Higher Education</a> | <p>Article 19 (Decision on meeting the conditions for the establishment and start of work of a higher education institution)</p> <p>(7) The higher education institution enrolls students based on the enrollment decision. The decision on enrollment is made by the higher education institution with the consent of the competent ministry. The enrollment decision determines for each study:</p> <ul style="list-style-type: none"> <li>- the number of full-time students studying with the support of the ministry,</li> <li>- the number of full-time students who pay for their studies themselves,</li> <li>- number of part-time students (distance learning),</li> <li>- the number of foreign students</li> </ul> <p>Article 120 (Method of studying)</p> <p>(1) Higher education can be acquired regularly, part-time, by distance learning or by combining these three ways of studying, in the manner determined by the statute.</p> <p>Article 130 (Examination)</p> <p>(1) The exam is unique and is taken orally, in writing, or practically.</p> <p>(2) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.</p> <p>(3) Exceptionally, a higher education institution can organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.</p> | 10/09 | "Official Gazette of West Herzegovina Canton" |
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|  | Canton of Sarajevo | <p><a href="#">Law on Higher Education</a></p> <p>Article 3 (Basic concepts)<br/> 24) A student is a person enrolled at an accredited and licensed higher education institution, who attends studies full-time, part-time, by distance learning or by combining these three study models in the manner determined by the statute of the higher education institution;<br/> 26) Distance learning is a formalized education system for self-financing students, which provides access to teaching processes through the use of computer technologies and interactive teaching materials, and is more precisely regulated by the statute of the higher education institution;</p> <p>Article 47 (Organization of studies)<br/> (1) Study for all three cycles of higher education can be organized in the full pool of hours provided by the curriculum (regular study) or in the pool of hours adapted to students who are unable to attend regular studies (part-time study and as distance learning).<br/> (3) The study program can also be organized through distance learning.</p> <p>Article 52 (Organization of exams, practical and professional work in certain forms of teaching)<br/> (1) When teaching or certain forms of teaching are organized in the form of "distance learning", exams must be held at the headquarters of the organizational unit.</p> <p>Article 57 (Procedure of knowledge verification and assessment)<br/> (11) In each semester, the higher education institution is obliged to organize classes "in the classroom" for part-time students and distance learning students, at least on the first, eighth and fifteenth week of each semester, and to keep proper records of this, in as much detail as possible regulated by the study rules of the higher education institution.<br/> (12) Part-time students and distance learning students are required to attend forms of knowledge assessment as provided for in the implementation plans of the higher education institution, which, as a rule, are carried out during those working weeks in which classes for these students are also organized, and which is regulated in more detail by the study rules of the higher education institution.</p> | , <a href="#">33/17</a> , | "Official Gazette of Sarajevo Canton" |
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|  | Canton 10 | <a href="#">Law on Higher Education</a> | <p>Article 24<br/> (7) The higher education institution enrolls students based on the enrollment decision. The decision on enrollment is made by the higher education institution with the consent of the competent ministry. The enrollment decision determines for each study:</p> <ul style="list-style-type: none"> <li>- the number of full-time students studying with the support of the ministry,</li> <li>- the number of full-time students who pay for their studies themselves,</li> <li>- number of part-time students (distance learning),</li> <li>- the number of foreign students.</li> </ul> <p>Article 123.<br/> (1) Higher education can be acquired regularly, part-time, by distance learning or by combining these three ways of studying, in the manner determined by the statute.</p> <p>Article 133.<br/> (1) The exam is unique and is taken orally, in writing, or practically.<br/> (2) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.<br/> (3) Exceptionally, a higher education institution can organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.</p> | 9/09 | "Official Gazette of Herceg-Bosnia Canton" |
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| <p style="text-align: center;">BRČKO DISTRICT BIH</p> | <p style="text-align: center;"><a href="#">Law on Higher Education BDBIH</a></p> | <p>Article 65 (Method of studying)<br/> (1) Higher education can be acquired regularly or through distance learning, or by combining these two ways of studying as provided by the statute of the higher education institution.</p> <p>Article 66 (Organization of classes for students)<br/> (1) The higher education institution is obliged to organize lectures and other forms of teaching for all students.<br/> (2) The distance learning program is organized in accordance with the general act of the higher education institution.<br/> (3) More detailed conditions and method of organizing the study program at a distance shall be adopted by the senate.</p> <p>Article 84 (Procedure of knowledge verification and assessment)<br/> (5) The higher education institution is obliged to organize classes "in the classroom" every semester for students who study via distance learning and to keep proper records of this, which is regulated in more detail by the act of the higher education institution.<br/> (6) Students who study at a distance are obliged to attend forms of knowledge assessment as provided for in the implementation plans of the higher education institution, which is regulated in more detail by the act of the higher education institution.</p> <p>Article 86 (Examination)<br/> (1) The exam is taken at the headquarters of the higher education institution, i.e. in the facilities specified in the work permit.<br/> (2) Exceptionally, a higher education institution may organize an exam outside the headquarters only if it is an exam in a subject whose nature requires it.<br/> (3) The exam and all forms of knowledge testing are public.<br/> (4) The higher education institution is obliged to organize the exam dates so that the student does not have to take more than one exam on the same day.<br/> (5) Written works of students are kept until the end of the academic year.</p> | <p style="text-align: center;">30/<br/>09</p> | <p style="text-align: center;">"Official Gazette of BD BIH"</p> |
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## Appendix 6: Data on respondents

As part of the primary research, data were collected from the following institutions :

1. BiH Agency for the Development of Higher Education and Quality Assurance
2. BiH Ministry of Civil Affairs
3. International Business and Information Academy Tuzla
4. International Burch University
5. International University Brčko
6. International University of Sarajevo
7. International University of Travnik
8. Canton of Herzegovina-Neretva Ministry of Education, Science, Culture and Sports
9. Sarajevo Canton Ministry of Science, Higher Education and Youth
10. Una-Sana Canton, Ministry of Education, Science, Culture and Sports
11. Canton of West Herzegovina Ministry of Education, Science, Culture and Sports
12. Independent University of Banja Luka
13. APEIRON Pan-European University
14. RS Agency for Higher Education
15. RS Ministry for Scientific and Technological Development, Higher Education and Information Society
16. Sarajevo School of Science and Technology
17. University of Herzegovina
18. University in Mostar
19. "Knight" University/University
20. "Bijeljina" University
21. University of Modern Sciences CKM, Mostar
22. Džemal Bijedić University in Mostar
23. University of Sinergija
24. University of Banja Luka
25. University of Bihać
26. University of East Sarajevo
27. Sarajevo University
28. University of Travnik
29. Tuzla University
30. University of Zenica
31. University of Business Studies
32. University of Business Engineering and Management
33. Medical College Prijedor
34. College "CEPS-Center for Business Studies" in Kiseljak
35. Banja Luka College
36. College of Finance and Accounting Tuzla (FINRA)
37. College of Information Technologies, Economics and Entrepreneurship
38. Government of the Brčko District of Bosnia and Herzegovina