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PECULIARITIES OF BULGARIAN UNIVERSITIES DIGITALIZATION DURING THE COVID-19 PANDEMIC*

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Abstract. The COVID-19 pandemic forced the education system to transform quickly from a straightforward traditional process to an online one. Both schools and universities, including their management and administration) were challenged to maintain the quality of the educational service they provided, but this time under completely different conditions and in a new and unfamiliar online environment. In Bulgaria, due to the rules of the systems and the academic autonomy, each university had the opportunity to decide how to deal with these force major circumstances. Along with the technical challenges, professors have to overcome the difficulties related to the motivation and engagement of the students in such a mediated environment. The main objective of the current article is to evaluate the results of the online learning process during the COVID-19 pandemic in Bulgaria. The results from empirical research (N = 140) clearly show that most Bulgarian lecturers prefer face-to-face learning. At the same time, they admit the necessity of specific training for technical skills improvement and different approaches for students' attention and engagement in online learning. According to the professors, the overall assessment for the level of satisfaction from online learning during the COVID-19 pandemic is in the golden mean - 3 on a scale of 1 - "not at all effective" to 5 - "it is effective".

Keywords: online learning; students' engagement; social isolation, universities

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1. Introduction

The COVID-19 pandemic drastically changed our life as individuals and as a part of society. Social isolation as a part of restriction measures imposed different professional systems to adjust quickly to adapt to new challenges. Universities in Bulgaria also faced this new reality – they had to transform from the traditional face-to-face learning process to online to continue obtaining the same quality of learning. This challenge had different dimensions – from different levels of technical skills of lecturers to diverse online platforms used for online classes. At the same time good level of motivation both for students and their professors in an online regime was hard to be achieved – in terms of engagement online learning process still is a great challenge to overcome.

The main objective of the current article is to evaluate the results of the online learning process during the COVID-19 pandemic in Bulgaria. For this purpose, we conducted a specific empirical survey covering representatives of all Bulgaria universities (professors and management staff). Our findings could be helpful for the national academic system to improve the quality of online learning in the future.

2. Literature Review

Online learning, distance learning, and e-education could be considered synonyms. Still, all these different terms have been of great subject of interest both for practitioners and scholars, primarily due to the social restrictions of the COVID-19 pandemic. For a short time, universities, schools and training centres have been forced by circumstances caused by this disease to transform all educational processes. That is the major reason for many different aspects that are already explored in the scientific literature for this type of learning.

For instance, Zhang et al. (2022) focus on the role of visualization in this online learning process. After a comprehensive review, they outline several fundamental challenges for online education: learner isolation, the possibility of predicting learning efficiency, further analysis of the instructor's behaviour and Enhanced Interpretability.

Guo and Wan (2022) explore the quality of online learning in High Schools in China during COVID-19 regarding the digital divide. They found that the digital divide in schools has different dimensions: "It was primarily presented as differences in equipment quantity and network quality, students' adaptability to online teaching, and their offline learning outcomes". They also conclude: "the development of online learning alone cannot eliminate achievement gaps" (Guo & Wan, 2022). The scholars recommend that the promotion of equal access to quality learning processes has to be a result of combined efforts for governmental entities, NGO sectors, different institutions and stakeholders, with particular attention to disadvantaged students. Parallel to such research outlining differences and gaps between students in online learning, there is also research proving that students and professors are satisfied by the level of quality in the online learning process. For instance, Elzainy, El Sadik and Al Abdulmonem (2020) outline the level of satisfaction in terms of achievement and improvement of technological educational skills.

Some scholars explore innovative strategies to build self-awareness in students during the COVID-19 pandemic (Yao et al., 2022). Others focus on students' engagement level in online learning during the pandemic (Zhang et al., 2022). The considerable work of students always accompanies the learning process (both in a traditional and online environment). That is why a research team explores the impact of information-seeking and online learning self-efficacy on students' performance proficiency (Tang, Tseng & Tang, 2022). The authors conclude that information-seeking self-efficacy is a partial mediator and plays a buffering role between online learning self-efficacy and performance proficiency (ibid). From some different points of view, but also in this line of

exploration, Chaker, Bouchet and Bachelet (2022) consider the relationship between learning intentions and learning outcomes. After comprehensive research, the authors admit that socially driven intention could be a significant factor in the online learning process. The level of engagement during online learning seems to be among the leading subjects.

In this line, Wang et al. (2022) present research considering the mediating roles of online learning self-efficacy and academic emotions. Scholars reached exciting findings, such as the role of interaction between learner-content, as well as between learner-other learner, but not learner-trainer could be considered as a prerequisite for engagement; online learning self-efficacy from one side and academic emotion from the other are the links between interactions; according to scholars, both learner-content interaction, as well as learner-learner interaction, could influence the learning engagement. Some authors also outline, based on empirical research, the critical factors for a successful online learning process: the ability to communicate, self-motivation, self-discipline, the ability to set a schedule, and vivid engagement with the trainer (Penrod et al., 2022). On the other hand, Theobald and Bellhäuser (2022) consider that online feedback plays an essential role in students' performance in self-regulated learning.

Another way to attract students' attention and improve their performance at universities is proposed by Dietrich et al. (2021). Scholars prove through empirical research that individualized learning design enhances the process of online learning (ibid). A group of scholars came to a similar conclusion regarding the personalized learning methods in online environments claiming that the student's perceptions about the usefulness of learning suggestions, ease of use, goal setting, learning environmental structuring, task strategies, time management, self-evaluation, impact on learning, and attitude toward the learning environment are important predictors of behavioural intention to learn with the self-regulated online learning that integrated with the personalized learning approach (Ingvavara et al., 2022).

On the other hand, Warshawski (2022) proves that resilience and social support could improve students' academic self-efficacy in online environments. Shirish, Chandra and Srivastava (2021) argue that IT mindfulness has significant positive relationships with both productivity- and creativity-in-learning. Research conducted by Malysheva, Tokareva, Orchakova and Smirnova (2022) also proves that online courses improve creativity, critical thinking, strategic thinking and practical skills according to the student's assessment.

When we consider the level of engagement of students in the online learning process, Binali, Tsai and Chang (2021) revealed five types of learners: Highly engaged, self-driven online contributors (with a share of approximately 34% of their recipients), Moderately engaged, self-driven online viewers (12.3% of the sample), Less engaged, self-driven online learners (15.17%); Highly engaged, course-driven online learners (23.39%) and Less involved, course-driven online learners (15.43%). Specific research for the transformation from classical to online learning shows the following exciting finding, which is in total coherence with the already presented results: the changed conditions of the learning environment influenced social interaction in negative ways, but also that team reflection seemed to enable the students to reverse some of the adverse effects and develop practices that supported both the cognitive and socio-emotional dimensions of social interaction (Sjølie, Espenes & Buø, 2022).

Al-Kahtani (2022) conducted similar research to assess students' perception of online learning during COVID-19, this time in Saudi Higher Education Institutions. The author proposes an engaging online learning assessment survey to assess students' perceptions. Specific research dedicated to online learning in Nigerian Universities during COVID-19 is offered by Ogolodom et al. (2022). The scholar team explores the online learning process of Nursing and Radiography Undergraduate Students and finds that most students assess online learning as beneficial to their educational development. On the other hand, some of the challenges the scholars pointed out are financial constraints, internet access, unstable/slow internet access, lack of mobile data, poor communication

with lecturers and peers, and no access to a computer device (Ogolodom et al., 2022). An exciting finding after a discriminant analysis made by Al-Nasa'h, Al-Tarawneh, Awwad and Ahmad (2021) revealed the following: High online learning satisfaction levels occurred with high online self-efficacy, moderate general anxiety, and low fear of COVID-19 (ibid).

Ulla and Perales (2021) researched the relationship between the level of Facebook usage as a supporting tool for students during a pandemic. They found that Facebook is not only perceived as a social network by the students but also as a learning platform where they can easily retrieve academic sources and share them with their classmates for intellectual discussion (ibid). Mulyono, Suryoputro and Jamil (2021) explore the supporting role of WhatsApp in the online learning process, and their findings are similar to those for the use of Facebook. They admit that most students in their research accept social media as a support for online learning. Scholars identified important drivers for learning: students' perceived usefulness, availability of learning support, motivation, and connectedness with their friends (ibid).

Some interesting consequences of the global COVID-19 pandemic in universities are also explored. For instance, in South Korea, some students (Generation Z) from universities “have actioned lawsuits to pursue tuition refunds and have raised the issue of the low quality of university courses through social media” (Kang & Park, 2022). Therefore, as a result of the research, the authors conclude that the university and academics must improve online courses to gain confidence and attract new students. Having the same idea of improving the quality of online learning, Barile, Elliott and McCann (2022) found that the use of open-ended questions along with lecture recordings and slides had a significantly positive impact on academic attainment in the online learning environment. At the same time, online learning develops specific skills for academic professors and their students. Thorough research on this subject is proposed by Gu and Huang (2022). Some of their findings are that students enrich multimodal digital literacies in online learning and communications and expand habitus and capital by utilizing the affordances of digital technologies (ibid).

After the COVID-19 pandemic, many authors introduce the term "new normal", meaning that the world will never be the same as before. Therefore this new standard and new reality require and impose new learning methods. Al-Kahtani et al. (2022) explore the sustainability methods for such an environment. Staddon (2022) presents the unique role of the supported flipped model over the traditional model for blended and online learning. Other authors propose gamified online learning applications as a valuable tool for improving students` engagement in online courses (Tan & Cheah, 2021).

On the other hand, we could consider the possibilities of Artificial Intelligence. Different algorithms could be used (Ilieva, Anguelov & Nikolov, 2019). Other scholars admit that the future development of university courses will be a good combination of the online and traditional environment (Chang et al., 2021). The variety of online and traditional techniques is also considered to satisfy social needs (Turk, Heddy & Danielson, 2022).

Whenever the future development of online courses in higher education is, it could also be taken into consideration that some of the majors at universities are not so applicable to online courses, such as medicine, sports, arts (partly), national security and others. For instance, the specifics of education in National Security are given by Stoykov (2019).

3. Methodology of the study

The main aim of the research is to evaluate the results of the online learning process during the COVID-19 pandemic in Bulgaria.

The study was conducted as part of a scientific research project funded by the National Science Fund (the Bulgarian National Science Fund within the Ministry of Education and Science supports scientific research) with the number OF-39/2021. The study is based on the collection and analysis of quantitative and qualitative data obtained from the interviews of managers and professors (academic staff) in all Bulgarian universities. The following persons were interviewed: the Rector, Vice Rector responsible for educational activities, Head of the department/directorate for academic activities, and academic staff (including assistants, associated professors and professors).

The first part of the research started on 01.01.2022 with the definition of the research objectives, the research questionnaire, the research methodology and other organizational and methodological issues. Apart from the questions related to and collecting statistical information for the respondents, the questionnaire comprises 20 questions. Most questions - 18 are closed, but an opportunity is provided to make a comment, clarify and/or for the recipient to justify his choice, and 2 of the questions are open. The questionnaire allows not answering all questions, which gives freedom of choice and increases the percentage of reliability of the results. In parallel with the survey preparation, preliminary discussions were held with representatives of most of the Higher Education Institutions (HEIs) in Bulgaria, to whom we explained the idea and purpose of the survey.

With the achievement of the results of the first stage, the questionnaire was sent by email (respondents were invited to participate in a survey). After a particular time, the survey covered all HEIs in Bulgaria. It was conducted in the period from 07 February to 25 March 2022. One month after the start of the study, an interim count of the responses received was made, and reminder emails were sent to all who had not responded. Telephone calls were also made to many of them to detail the project's purpose and check whether the email survey had reached the addressee. The survey was also distributed via social media. One hundred forty responses were received.

Following the deadline mentioned above, a quantitative and qualitative analysis of the results obtained was carried out as a structured analysis of the main trends and indicators outlined within the survey. The work on the study was completed on 01.04. 2022.

The study is conducted where various restrictions related to attending training are associated with national and global COVID containment measures for two years. During these two years, national-level conditions have varied continuously, from no restrictions to attend training to a complete ban on attendance training and its online transformation.

Although Bulgarian universities took every opportunity to conduct in-person training, most of the last four semesters were undertaken in a non-in-person format. Considering this described situation, the research team in the research, as mentioned earlier, seeks with this inquiry to answer the questions related to the quality of the training conducted and the potential challenges that need to be overcome to obtain quality university training. Another important topic related to the survey is identifying possible ways to improve online learning to be more prepared for future restrictive traditional learning measures. Responses to the survey were received from all Bulgarian universities, which indicates that the results obtained indicate Bulgarian university education.

In this respect, the questionnaire is designed to identify the following:

1. The perception of university management and academic staff about the resulting quality of the online learning process;
2. The main challenges to quality online learning;
3. Potential opportunities to increase the quality of online learning.

In this connection, the following two research hypotheses are developed:

Hypothesis 1 (H1): Online learning creates specific challenges that are successfully overcome in Bulgarian conditions

Hypothesis 2 (H2): There are both generally valid prerequisites and those that apply in varying degrees to the different fields of higher education: Pedagogical Sciences, Humanities, Social Sciences, Business and Law, Natural Sciences, Mathematics and Informatics, Engineering, Agricultural Sciences, Veterinary Medicine, Arts, Security and Defense, Sport, Medicine. For some university programmes, the challenges are easily overcome; for others, considerable effort is required; for the third part – the challenges cannot be satisfactorily overcome parallel with the same quality characteristic as the traditional training.

The questionnaire has been made in three major parts:

1. Respondent statistical information related to what role/ capacity the respondent filled in the questionnaire and from which Bulgarian university the respondent is.
2. Closed questions with a predefined, most often placed in-answer scale:
 - 2.1. Do you think online learning is more effective than traditional face-to-face learning?
 - 2.2. Do you think the lecturer requires more specific skills in an online environment?
 - 2.3. Do you think online learning is more accessible in time and space than traditional face-to-face learning?
 - 2.4. Do you admit that online learning can attract international students?
 - 2.5 Do you believe that reduced financial costs characterize online learning compared to traditional face-to-face learning?
 - 2.6 Do you believe online learning is characterized by increased attendance compared to traditional face-to-face learning?
 - 2.7. Do you believe more diverse learning styles characterize online learning than traditional face-to-face learning?
 - 2.8 Do you think focusing on the screen is a severe challenge in online learning?
 - 2.9. Do you believe additional training is needed for lecturers delivering online training focusing on their ability to hold student attention in an online environment?
 - 2.10. Do you consider internet connectivity a severe challenge in online learning?
 - 2.11. Do you think there is an increased sense of isolation in online learning?
 - 2.12. Do you think it is necessary to work with professors to increase their motivation to teach online?
 - 2.13. Do you think there are specific tools you could use to get students actively involved in the online environment?
 - 2.14. Do you think there is a greater need for time management in online learning?
 - 2.15. Do you think there is a greater need to train the lecturer to use new technologies in online learning?
 - 2.16. How do you think the lecture material is better understood?
 - 2.17. Do you feel satisfied with your work teaching online?
 - 2.18. How would you rate online learning in Bulgaria?
3. Open questions to identify missing factors of influence:
 - 3.1. What are the biggest challenges for a lecturer conducting online training?
 - 3.2. What are your recommendations for improving online learning?

4. Summarized survey results and comments

Statistical data and distribution of respondents

The completed questionnaires included respondents from each of the Bulgarian universities representatives of the two major groups: the university management, the teaching and learning process, and the teaching staff. There were more respondents from prominent universities. The respondents are also divided into several other groups according to the fields of higher education in which the specialities of their universities fall: Pedagogical Sciences, Humanities, Law, Economic and Social Sciences, Natural Sciences, Mathematics and Informatics,

Engineering Sciences, Agricultural Sciences, Veterinary Medicine, Arts, Security and Defense, Sports, Medicine. In Bulgaria, specialized and classical universities are grouped according to the present methodology. This fact is taken into account by the methodology when processing the survey results.

Closed questions with predefined answers

The first question is related to the direct answer to the question of whether, according to the respondents, online learning is more effective than traditional face-to-face training.

81.4% indicated that they did not think online training was more effective (Fig. 1). This high percentage presents, on the one hand, the willingness of lecturers to continue their work in a normal learning environment and, on the other hand, that lecturer-student interaction is more fruitful in face-to-face teaching.

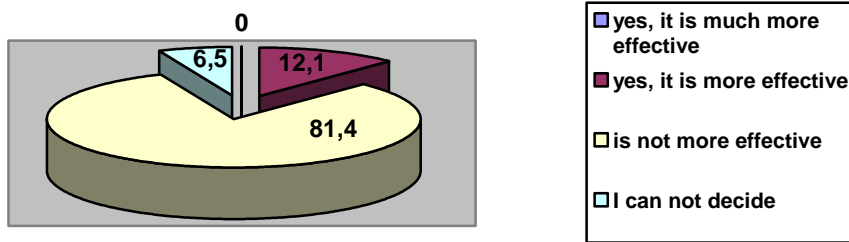


Figure 1. Effectiveness of online training compared to traditional face-to-face training (in %)

The second question concerns the need for a lecturer's specific skills when delivering online training. Respondents gave a clear answer: 84.3% of them think that particular skills in the process of providing online training are necessary (Fig. 2). We can assume that in a digital environment, lecturers should not only adapt the teaching material to be in an accessible format, but also change their attitude in terms of teaching as well in terms of their listeners' students. Learners' interest in lecture material in a digital environment should be constantly maintained; lecturers should improve or refine specific technical competencies, be able to help learners when they need assistance with technical malfunctions, etc.

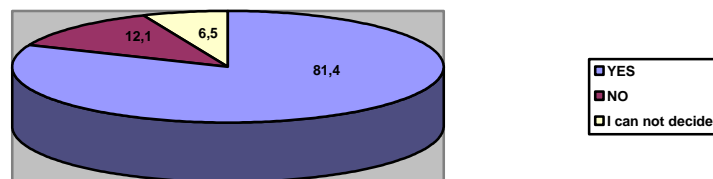


Figure 2. The need for specific skills from the teacher when delivering online training (in %)

The third question relates to respondents' perceptions of the potential better accessibility of online learning in terms of time and space compared to traditional face-to-face learning. Regarding accessibility, 58.6% of respondents felt that e-learning was more accessible. The rest of the respondents are in both poles 20.7% think it is much more accessible, while 18.6% think it is not more accessible. A substantial minority of respondents could not decide (Fig 3).

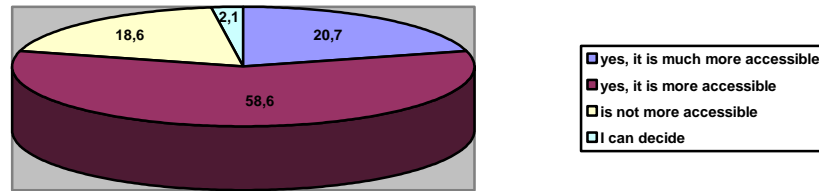


Figure 3. Comparison of the accessibility of online training versus traditional face-to-face training in terms of time and space accessibility (in %)

The fourth redefined question relates to the possibility of attracting international students when offering online university education. Most respondents (67.6%) believed that more international students could be attracted through online learning. It is important to note that 20.1% of respondents strongly disagreed with the majority (Fig. 4). The comments used to explain the responses are also of interest: In general terms, perhaps, yes, but if we are referring to Masters courses, online learning is a compromise there, not a solution. I don't see a viable option where distance learning is taught entirely in medicine, dentistry or pharmacy. This is possible for some courses or parts of the practices in the different specialities, but not completely. In this line of consideration, for many specialities, online learning should not be accepted as an attractive tool for the involvement of international students.

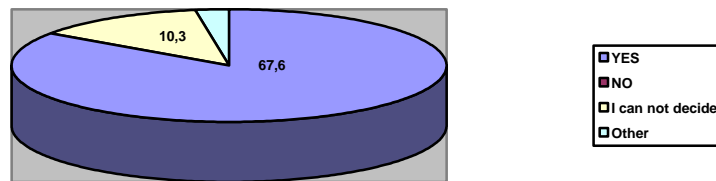


Figure 4. Online learning as a tool to attract more international students (in %)

The fifth question compares online training with traditional face-to-face training regarding the costs needed for the process. 15.1% of the respondents believe that much fewer costs characterize e-training; 48.2% believe that it has lower financial costs, and 26.6% are of the opposite opinion (Fig. 5). The main finding here is again related to the type of training in different groups: training that can be easily transformed from traditional into electronic format, and those for which this transformation is difficult or even impossible (e.g. medicine).

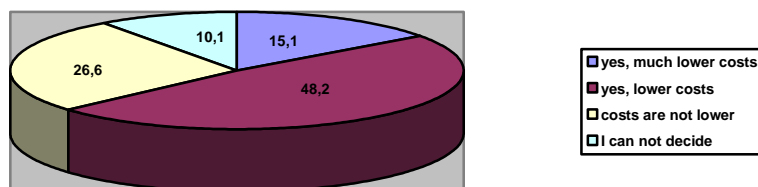


Figure 5. Comparison of online versus traditional face-to-face training in terms of costs (in %)

The sixth question compares student attendance at e-classes to traditional face-to-face lectures. 62.6% did not find attendance to be higher in the online environment compared to face-to-face (Fig. 6). This high percentage of responses reinforces the overall belief from the first survey question, namely that online learning is not more effective than traditional face-to-face learning for the majority of professors. On the other hand, it shows that

students who want to attend lectures and seminars do so regardless of how the learning process is carried out - face-to-face or online.



Figure 6. Comparison of online versus traditional face-to-face training in terms of class attendance (in %)

The seventh question concerns comparing learning styles in online and traditional face-to-face learning. It is noteworthy that almost half of the respondents consider that more diverse styles characterize online learning. Here the answers provided by respondents from university majors that are difficult or nearly impossible to deliver online significantly influence the final results. 35.3% indicated that more diverse styles are possible. Still, these responses were primarily from representatives of specialities that could easily be transformed from traditional to online learning (Fig. 7). There was very little coverage of educational and social sciences, indicating many untapped opportunities in this area. At the same time, business and computer science majors perform very well.

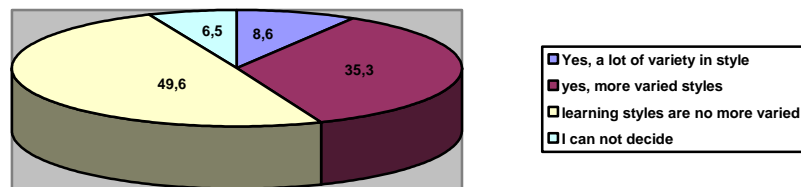


Figure 7. Comparison of online versus traditional face-to-face training in terms of learning styles (in %)

The eighth question concerns concentration on the screen in online learning. The vast majority of respondents consider that the environment through which the training is conducted is inevitably linked to concentrating on the monitor screen and therefore is a serious challenge; respectively, it is an inevitable feature of online training. 27.3% of respondents find it a severe challenge, and 44.6% find it a serious challenge (Fig. 8). Almost a quarter of respondents, 23.7%, do not find it a hindering factor. Such responses came mainly from IT and engineering-related majors and respondents with good technical and pedagogical knowledge. It is evident from the survey that the difficulties are different in the case of technical sciences.

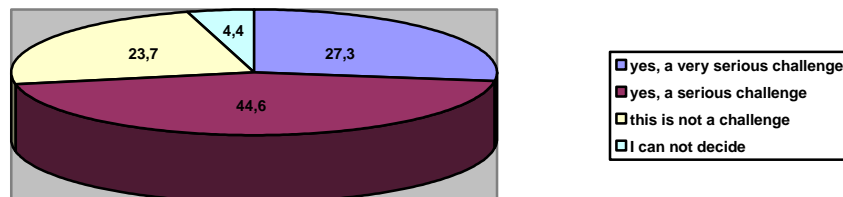


Figure 8. Impact of on-screen concentration in online learning (in %)

The ninth question relates to the need for further qualification of lecturers to work in an online environment, mainly focusing on student attention retention skills. As expected, a majority of 71% found a need for such

qualifications (Fig. 9). Largely, the respondents are not those who, in response to the previous question, do not find concentrating on a screen a severe challenge, i.e. these are representatives mainly of IT and technical majors.

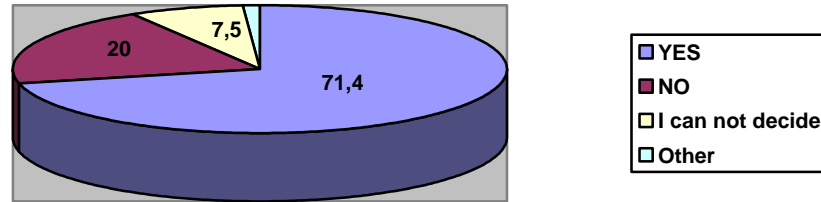


Figure 9. Need for additional training of lecturers to work in online environments, especially related to student attention retention skills (in %)

The tenth question assesses the need for a secure internet connection for online learning and its provision in a Bulgarian environment. Bulgaria is one of the countries with excellent internet connectivity. This applies to both universities' and students' home internet. However, respondents appreciate the need for secure and fast internet connectivity. The answers are mainly distributed between "Yes, a severe challenge" (48,9%) and " Yes, serious challenge ... " (29,5%) (Fig. 10).

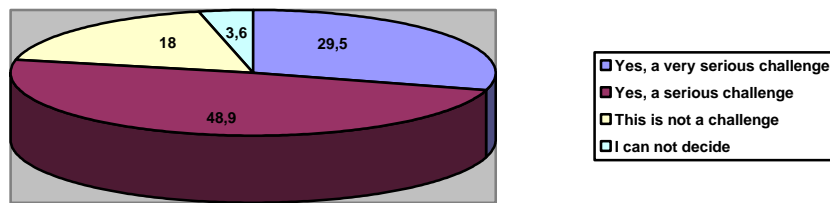


Figure 10. The need for a secure and fast internet connection for online learning (in %)

The eleventh question seeks to establish the extent to which the computer creates a sense of increased isolation in online learning. As expected, most identified communication through a mediator (computer)/ indirect communication as a serious challenge to overcome in online learning. Responses were, for the most part, split between "Yes, a strong sense of isolation" (41%) and "Yes, much stronger ..." (26.6%). Only 15.1% felt that there was no increased sense of isolation (Fig. 11). These responses were mainly from technical and information science majors.

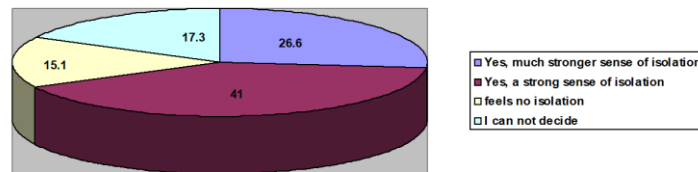


Figure 11. Self-assessment on the creating a sense of isolation in online learning (in %)

The twelfth question assesses the extent to which additional efforts are needed to enhance lecturers' motivation in an online environment. Almost half of the respondents gave a high priority to extra motivation (47.9%), while one-third (33.6%) did not (Figure 12). According to the surveys, the need for additional motivation was widely felt in the humanities, education, social sciences, law and natural science. Conversely, majors are related to the exact sciences, engineering, security, and defence. Respondents from medicine and sports refrained from answering the question en masse, another sign that these majors do not generally embrace online learning.

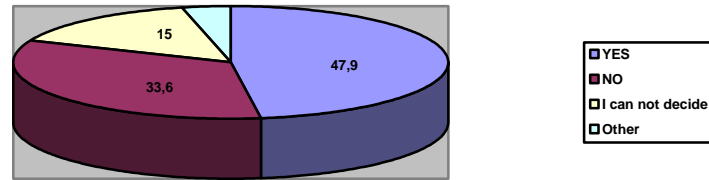


Figure 12. Assessing the extent to which additional efforts are needed to increase lecturers' motivation to teach online (in %)

The thirteenth question refers to the respondents' perception of the need for specific tools, including those that will have features through which student activity in the online environment can be enhanced. This question relates directly to the different educational platforms used in online learning. Since the topic of the specific characteristics, strengths and weaknesses of the other educational platforms used in Bulgaria goes beyond the study's objectives, we will not comment on this issue.

Lecturers are overwhelmingly in favour of specific tools - 67.8%. Those who answered "no" (9.6%) in the survey are both from majors where they generally deny the online form of learning, and one can foresee such majors that are more "static" when communicating with students in the online environment. A large number of respondents (22.6%) responded "not sure" - among these responses should be looked for opportunities to increase student-lecturer interaction in the online environment (Fig. 13).

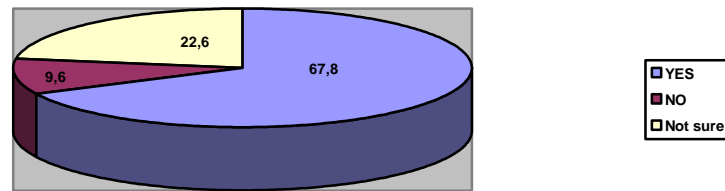


Figure 13. Respondents' perceived need for specific online learning tools (in %)

The fourteenth question attempts to establish the extent to which there is a greater need for time management in online learning. The technological solutions that are applied and the specific methodologies of online training require much more concentration on time management: 16.4% of respondents believe that there is a much greater need for time management in online training compared to traditional face-to-face training, and 41.4% believe that the last one is important. Nearly a third (32.9%) did not find a greater need for time management in the online environment compared to the face-to-face learning process (Fig. 14). Again, respondents from engineering and science majors predominantly answered this way.

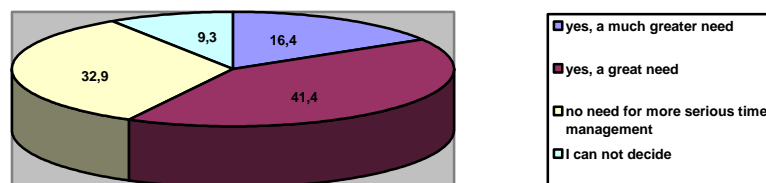


Figure 14. Respondents' perceived need for time management in online versus traditional face-to-face training (in %)

The fifteenth question relates to respondents' views on whether there is a greater need for lecturer training to use new technologies in online learning. The majority of respondents answered that such a necessity exists to a "much

greater extent" (30%) or a great extent (50.7%). Only 15% believe that no such need exists (Fig. 15). When comparing the profiles of those who responded in this way, it can be assumed that these are mainly from degree courses where the lecturer staff are generally familiar with the possibilities of information and communication technologies and, by their professional profile, quickly and painlessly find their way around them.

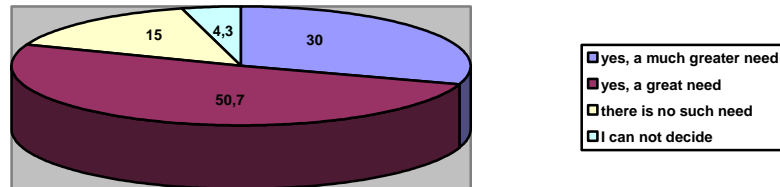


Figure 15. Respondents' perceptions of the need for lecturer training in the use of new technologies for online learning (in %)

A direct question concerning the quality of training is the sixteenth. In this question, respondents give their opinion when the learning material is better understood: in an online environment or face-to-face training. A unanimous percentage of respondents consider that the face-to-face environment facilitates a better way of learning (71.7%). Only 5.1% indicated online learning as a better option for learning the lecture material (mainly informatics-related majors), and 16.7% considered the two forms equivalent to this indicator (Fig. 16).

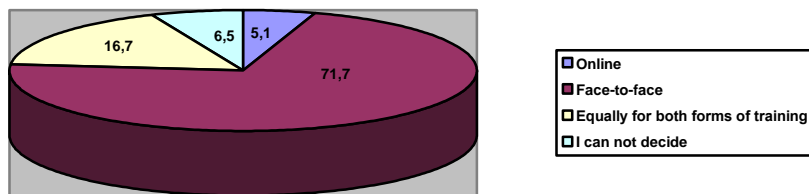


Figure 16. Comparison for better understanding of learning material between face-to-face and online learning (in %)

The seventeenth question identified satisfaction with teaching online. Most lecturers felt dissatisfied, with 46% answering NO and 36.5% answering YES. Some of the YES respondents explained, "Satisfaction is only for a few per cent of the learners ..." or "Yes, but the passive resistance of some students affects their final results because, through online learning, they cannot actively engage in the process" (Fig. 17). Unfortunately, the answers to this question do not support the thesis of being able to obtain the same quality of learning online as with traditional face-to-face learning.

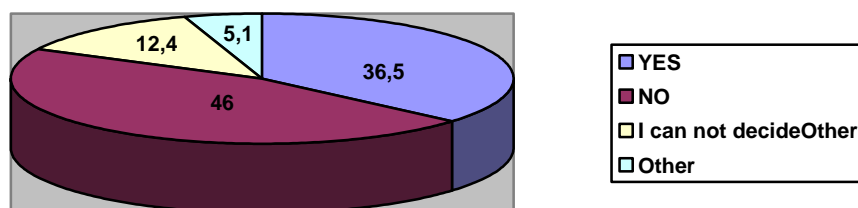


Figure 17. Satisfaction with the online training process (in %)

The last eighteenth predefined question is related to the final evaluation of the online learning conducted during the COVID-19 restrictions in Bulgaria. Here the majority of responses are in the golden mean - 3 on a scale of 1 - "not at all effective" to 5 - "it is effective" (Fig. 18).

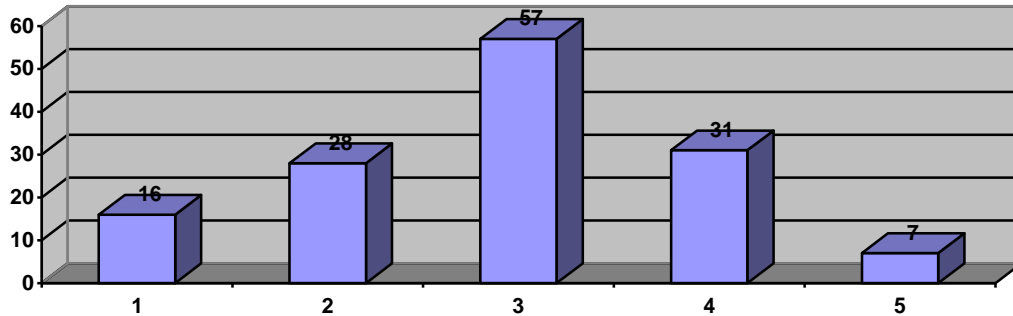


Figure 18. Satisfaction with the online training process (in number)

4.3. Comment on the results of open questions to identify missing influential factors

The following two questions are open, allowing the respondents to answer freely in their own words.

The first question is, "What are the biggest challenges for a teacher when delivering training in an online environment?"

The answers to this question allow us to reflect on the difficulties and draw conclusions about the factors that would improve online learning. We could group the responses into two main lines: technical (equipment, internet connection, online tools, etc.) and pedagogical (preparation of interactive content, lack of live contact, motivation, feedback, attention, passivity).

The last question collects recommendations directly connected to the online learning process at Higher education institutions in Bulgaria. The central part of the recommendations is related to the idea that face-to-face interaction between lecturers and students could be considered social significance. Therefore online learning could be integrated only as a tiny part of overall education. At the same time, there are recommendations related to the training for technical skills and training for more students' engagement in online learning.

Conclusions

The COVID-19 pandemic and the challenges associated with the restriction of social isolation have met Bulgarian universities with varying degrees of readiness to cope with a rapidly evolving reality. During the pandemic, online learning became the only possible form of continuing education at universities, with lecturers, students and university management facing many emerging difficulties: from the most fundamental problems of availability of appropriate equipment and high-speed internet to issues of student attention retention and lecturer motivation.

The results of our empirical study highlight that, according to educators, online learning satisfaction scores lie in the golden mean - 3 on a scale of 1 - "not at all effective" to 5 - "it is effective". At the same time, the central part of lecturers admits that interaction between students and lecturers has social significance. Therefore, online learning could only be a tiny part of overall education. In terms of improving the online learning process, most recommendations are in the line of training for technical skills and activities for more effective student engagement in online learning.

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