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Higher education in COVID-19 period: Experiences from distance learning

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Abstract

Our work is embedded into current unprecedented situation of pandemic COVID-19. TO be specific, we focus on the concept and experiences with distance learning during massive school closure. We realized questionnaire survey at private college to find out which are experiences of students and lecturers with distance learning solution. The issue is relevant considering quality of higher education, competencies of students, competencies of educators and also the new forms and methods of education in post-COVID era. Our findings support the thesis about overall satisfaction with distance learning, as well as thesis about further needs of improvement.

Keywords: Education, Distance Learning, pandemic COVID-19, Questionnaire Survey

1. Introduction

Current situation around the pandemic COVID-19 can be labelled as unprecedented, affecting severely the whole world. It is the most extensive distortion and interruption of educational process in history (Gyimah, 2020; Korkmaz and Toraman, 2020; Hebebci et al., 2020; Dhawan, 2020). Based on data of United Nations, more than 94 % of student population was affected by the pandemic measures or precautions in more than 190 states. In this sense, it is a huge challenge for education systems and governments or other authorities to ensure the continuity of educational process. The same challenge is ahead of students and lecturers.

Distortion of education will have significant impact on:

- educational disparities (Hebebci et al, 2020; Drane et al, 2020; Dhawan, 2020);
- students´drop-off (United Nations, 2020);
- system of financing (United Nations, 2020);
- competencies of students, but also other stakeholders (Hebebci et al, 2020; Drane et al, 2020; Dhawan, 2020)

- system of education itself, ICT development in education and distance learning engagement (Korkmaz and Toraman, 2020);
- economic and societal arrangements (United Nations, 2020); etc.

School closure and implementation of distance learning represents worldwide reaction on pandemic situation and attempt of authorities to prevent devastating spreading of COVID-19 (Domenici, 2020; Drane et al, 2020; Adnan and Anwar, 2020).

In our work, we focus on evaluation and perception of distance learning during the pandemic by students and lecturers. Private college in the Czech Republic became our case study, so far we focus on higher education. The research is based on questionnaire survey between the two interest groups. We concentrate on the perception of distance learning and its quality and effectiveness, as well as readiness of students, lecturers and school itself. We structured our work in the following way:

- firstly, we briefly introduce the theoretical framework of the topic;
- secondly, we introduce methodology;
- thirdly, we introduce our analysis and its findings;
- fourthly, we conclude.

2. Theoretical framework of distance learning in pandemic COVID-19

Because of massive school closure and distortion of education continuity, the distance learning was introduced in most countries – the Czech Republic is not an exception. Distance learning provide opportunities in education innovations (technological and also methodological), expenditure savings, strengthening of competencies, independence and self-reliance of stakeholders, enhancing participation and engagement of stakeholders etc. (e. g. according United Nations, 2020). On the other hand, distance learning is related to threats of exclusion of vulnerable groups, intensification of educational disparities, disparities in ICT competencies and skills, negative economic and social impacts, more intensive drop-off of particular students or groups, cybernetic safety etc. (e. g. United Nations, 2020; Hebebci et al, 2020; Drane et al, 2020; Dhawan, 2020).

Distance learning, according to Hebebci et al, 2020, is learning method based on ICT, including interaction between lecturer and students from specific central place in situation, when face-to-face learning is not possible. It can be perceived as a tool for minimizing barriers in education accessibility and also as a tool of connectivism (Korkmaz and Toraman, 2020). Korkmaz and Toraman (2020) specify various forms of distance learning (in this way, term "distance learning" is covering term for various types of education and tools of education) – online learning; web-based education; blended learning (combination of face-to-face learning and distance learning); e-learning; massive open online courses; virtual classes and other specific forms of virtual education.

The whole concept of distance learning was introduced firstly via correspondence learning in 19th century and its development continue until nowadays via development and implementation of sophisticated ICT tools and systems (see, e. g., Domenici, 2020; Korkmaz and Toraman, 2020 or Hebebci et al, 2020 for further discussion).

Distance learning is realized in two ways (Domenici, 2020); both types can be combined according to the needs of lecturer or students (this viewpoint could be perceived as preferable):

- synchronic type of distance learning – students are present in real-time at virtual course;

- asynchronic type of distance learning – students are not obliged to be present in real-time. This type of distance learning is perceived to be very flexible, using materials prepared in advance, online quizzes etc.

During the spring 2020 extensive school closure, mix of tools for distance learning was implemented in particular states or regions. Their categorization is provided below (based on Chang and Yano, 2020; UNESCO, 2020; Garbe et al, 2020; Korkmaz and Toraman, 2020; United Nations, 2020):

- learning in online environment via wide scale of platforms, programmes and technologies. This tool was the most preferred and used in vast majority of states, especially in developed regions of the world;
- TV and radio transmissions of courses, development of educational channels. This tool was preferred mostly in less developed states without sufficient internet coverage and technology equipment;
- distribution of educational packages with printed materials as mostly additional distance learning tool;
- visits of lecturers in families or at intended places, where it was possible to realize individualized education. This tool was not preferred regarding the risk of infection.

Based on experience from spring 2020 school closure and distance learning implementation, there were identified several most problematic points related to education possibilities in crisis (Gyimah, 2020; United Nations, 2020; Korkmaz and Toraman, 2020; Hebebci et al, 2020; Adnan and Anwar, 2020; Alea et al., 2020; Chang and Yano, 2020):

- overall weak readiness of stakeholders – schools, lecturers, students, parents, authorities – on global crisis;
- insufficient internet coverage and connectivity of stakeholders, as well as technological equipment of schools, lecturers and students. This problem is intensified in lagging regions and between vulnerable groups (e. g. low-income families; disabled; socially disadvantaged etc.), and is related to the issue of further deepening of disparities in society;
- lack of ICT competencies and skills for distance learning in case of both, students and lecturers. It is obvious, that the issue is, among others, the challenge for future design of pedagogical education system, respectively general education system, economy and whole society;
- fear and low level of confidence of stakeholders, their negative attitudes and lock-in in obsolete and old-fashioned opinions and approaches;
- lack of effective interaction between students and lecturers. The issue is related to study engagement, reactivity of lecturers to actual needs and problems during courses, unclear interpretation and explanation of the topic, insufficient and inappropriate evaluation tools;
- educational, as well as social and psychological, needs and targets are not met in sufficient quality and on required level.

Of course, there can be identified also many positives and benefits of distance learning, regarding viewpoints of particular stakeholders (based on findings Gyimah, 2020; United Nations, 2020; Korkmaz and Toraman, 2020; Hebebci et al, 2020; Adnan and Anwar, 2020; Alea et al., 2020; Chang and Yano, 2020):

- time flexibility of learning, as well as flexibility related to place of learning, overall higher comfort in learning process;

- availability of education and learning materials to wide portfolio of users, accessibility of education and its sustainability;
- innovations, development and implementation of new technologies and approaches to education, emerging of new market opportunities and establishment of new economic entities;
- intensive and robust strengthening of new competencies and skills, enhancement of learning motivation, self-management and self-control;
- overall effectivity of distance learning;
- remarkable expenditure savings of all stakeholders (public budgets, schools, lecturers and students).

3. Methodology

Our work is primarily based on questionnaire survey between students and lecturers of private college in the Czech Republic. The aim of the survey is to identify opinions of respondents about introduced distance learning system, that was applied during the spring 2020 extensive school closure.

In case of students, we asked about their perception of applied methods of distance learning, its quality and impacts, as well as about their perception of the future of distance learning. In this way, we formulated two hypotheses:

H1: Students perceive applied distance learning system to be appropriate according to its quality and impact on their competencies.

H2: Students perceive distance learning to be one of significant aspect of future educational system.

In case of lecturers, we asked about their readiness to distance learning regarding competencies, their perception of applied methods of distance learning, its quality and impacts, as well as about their perception of the future of distance learning. In this way, we formulated three hypotheses:

H3: Lecturers perceive their competencies and readiness to distance learning sufficient and appropriate.

H4: Lecturers perceive applied distance learning system to be appropriate according to its quality and impact on students´ competencies.

H5: Lecturers perceive distance learning to be one of significant aspect of future educational system.

We collected 516 completely answered questionnaires from students and 68 completely answered questionnaires from lecturers; thus we reached 68%, respectively 74%, return rate. We asked about gender and grade of study, respectively age group of lecturers, to explore potential differences between groups (see table 3.1 for participants´ decomposition). Questionnaire includes questions with 5-grade evaluation scale. Every respondent indicated his or her most appropriate ranking on the scale – strongly agree – agree – neutral – disagree – strongly disagree. The questionnaire included also open question to express respondents´ other opinions and ideas.

Results of the survey were evaluated using tools of descriptive and comparative statistics. T-test was employed to evaluate statistical significance between groups of respondents.

Table 3.1: Respondents´ decomposition

Group of respondents	Gender				
	Male		Female		
Students	65 %		35 %		
Lecturers	42 %		58 %		
Group of respondents	Grade of study / age group				
Students	1	2	3	4	5
	12 %	24 %	18 %	15 %	31 %
Lecturers	< 30	31 - 35	36 - 40	41 - 50	> 50
	18 %	28 %	15 %	22 %	17 %

Source: Own elaboration

4. Empirical results

In this section, we introduce results of our questionnaire survey. Firstly, we introduce results in case of students and their perception of distance learning during spring 2020 pandemic school closure, as well as perception of the future of distance learning. Table 4.1 introduces the results according to particular questions.

Most of the students think that methods applied for distance learning were appropriate and provide user friendly environment. Unclear is self-assessment of students´ competencies and knowledge in the way of using the tools for distance learning, based mostly on online platforms and instruments – majority of students wasn´t able to precisely evaluate themselves. The overage and hardware or software equipment of students was mostly sufficient. Relatively positively was assessed the quality of information about distance learning and particular lectures, but it is also true that quarter of students disagree with such thesis. Most of students can´t adequately assess the impact of distance learning on competencies and knowledge or think that the impacts are worse than in case of face-to-face learning. Communication and the quality of feedback during distance learning was assessed as not fully sufficient, flexible and effective. Finally, majority of students see distance learning or its particular tools to be the future of education. Presented results don´t indicate statistical significance between genders or between students from different grades.

Table 4.1: Results of survey between students

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Methods of distance learning were appropriate and user friendly	2 %	6 %	14 %	63 %	15 %
I have sufficient competencies and knowledge how to use tools of distance learning	8 %	21 %	35 %	33 %	3 %
I have sufficient coverage and equipment for distance learning	6 %	11 %	7 %	22 %	54 %
I have sufficient information about distance learning from school and lecturer	6 %	25 %	16 %	38 %	15 %
I gained knowledge and competencies in high quality during distance lectures	11 %	23 %	41 %	18 %	7 %

I was able to sufficiently communicate with lecturer and gained relevant feedback	18 %	37 %	15 %	28 %	2 %
Distance learning is one of the mainstreams of future education	0 %	3 %	14 %	35 %	48 %

Source: Own elaboration

Based on open-question answers of students it is possible to identify following findings about their perception of distance learning during spring 2020 school closure:

- The system of distance learning was introduced relatively briefly and fluently, regarding overall unease situation.
- Distance learning provided relatively high level of comfort and possibility to customize learning to students´ individual needs and preferences (time, place, design of study etc.).
- The quality of communication and feedback was problematic point of the system of distance learning.
- Students are not able to assess the impact of distance learning on their future competencies and knowledge, but they usually think that the impact is weaker, compared to face-to-face learning.
- Students are aware of future development of distance learning, but they are afraid of other long-term school closures in context of their skills, competencies and knowledge for future career.

Following text introduces result of the survey in case of lecturers (table 4.2). Ambiguous is the assessment of methods applied for distance learning during the school closure – almost one third of lecturers disagree with its appropriateness and user-friendliness; slightly more than a third of lecturers indicates opposite opinion. Majority of lecturers see themselves not to be fully ready for distance learning (especially in unexpected situation) and is not really sure about their competencies and knowledge in this regard (almost one half of respondents). The coverage and technical infrastructure for distance learning was assessed to be sufficient in most cases. Overall, methodological support of lecturers was assessed to be mostly sufficient. Unclear is the issue of teaching itself, its impact respectively – lecturers are not really sure about the ability to give knowledge and competencies in high quality to students. The possibilities and quality of communication and feedback were mostly assessed to be appropriate. Most of lecturers agree that distance learning is one of the mainstreams of future education, but the percentage is lower than in case of students. Statistically significant differences between particular groups of lecturers were not indicated.

Table 4.2: Results of survey between lecturers

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Methods of distance learning were appropriate and user friendly	9 %	27 %	18 %	29 %	17 %
I was ready to provide education in appropriate quality via distance learning	18 %	31 %	9 %	27 %	15 %
I have sufficient competencies and knowledge how to use tools of distance learning	3 %	22 %	20 %	37 %	18 %
I have sufficient coverage and equipment for distance learning	0 %	23 %	5 %	29 %	43 %
I have sufficient methodological support for distance learning from school	7 %	27 %	13 %	45 %	8 %

I was able to give knowledge and competencies in high quality to students	17 %	34 %	16 %	28 %	5 %
I was able to sufficiently communicate with students and provide relevant feedback	14 %	21 %	5 %	43 %	17 %
Distance learning is one of the mainstreams of future education	3 %	23 %	6 %	44 %	24 %

Source: Own elaboration

Based on open-question answers of lecturers it is possible to identify following findings about their perception of distance learning during spring 2020 school closure:

- Lecturers are not fully self-confident about their competencies in distance learning and would invite extensive methodological support as well as better preparation during their studies at universities or during professional trainings.
- The readiness and reactive ability of the college and other authorities was assessed as relatively satisfying.
- Lecturers are not sure about the way, how to evaluate students and their study results during distance learning.
- Lecturers stress the importance of competencies and knowledge enhancement on both sides – students and themselves. The distance learning should be a part of traditional education system and work with ICT during lessons should be more progressive.

5. Conclusions and hypotheses evaluation

In this section, we would like to conclude some main ideas and findings from our work, as well as evaluate our hypotheses (formulated in section 3).

Students´ perception of distance learning during the spring 2020 school closure in accordance with pandemic COVID-19 is mostly positive. They think that the distance lessons were worthy and beneficial according to their future career competencies and knowledge – in this regard, they conclude that introduced way of learning is "better than nothing". Students usually appreciate flexibility of the distance learning and possibility to design the study according to their needs, lifestyle and preferences. Distance learning system, according to students, strengthens their competencies in self-management, self-control, motivation and time-management – such competencies could be exploited in future career. Accordingly, students usually didn´t indicate severe lack of competencies and knowledge about distance learning tools use, or lack of coverage or equipment (these results could be different in case of lagging regions or vulnerable groups of students). On the other hand, negative aspects of introduced distance learning system were embedded in (1) communication possibilities and feedback quality and sufficiency; (2) lower possibility of flexible and immediate problem solving; (3) uninteresting lessons and lack of commitment; (4) absence of social environment and interactions. Altogether, students relatively fluently and successfully accommodated unpredicted situation. They believe that distance learning is very important part of future of education system and they would welcome more extensive utilization of distance learning tools in traditional learning.

Regarding above-introduced findings, there is not unambiguous evidence to support H1, but there exists evidence to support H2.

Lecturers´ perception of distance learning during the spring 2020 school closure in accordance with pandemic COVID-19 is relatively positive, but there were identified some problematic points. Distance learning system was, according to respondents, successful and useful, regarding the crisis situation and time pressure. Lecturers concluded that there was no better alternative, how to ensure continuity of learning. Introduced distance learning system

was assessed to be sustainable, using appropriate and user-friendly ICT instruments. Lecturers appreciate the possibility of enhancement of competencies and knowledge in ICT, distance learning concepts, self-management (on both sides – students and lecturers). Unclear is perception of readiness of the lecturers to the new concepts in education, based on distance learning – relatively high share of lecturer is not confident about their skills and are aware about own limits in effective distance-teaching. Lecturers see the distance learning to be important part of future education system but stress, that this trend needs to be in accord with design of pedagogical education. Negative aspects of distance learning include mostly (1) lack of interaction with students and learning productivity; (2) threat of unequal access to distance learning and possible enhancement of disparities in education; (3) inappropriateness of distance learning for some fields or topics, or for some competencies and skills adoption; (4) lack of social contact, socialization, psychological risks related to isolation.

Regarding above-introduced findings, there is evidence to reject H3, not unambiguous evidence to support H4, but there exists evidence to support H5.

Regarding the situation in education during pandemic crisis worldwide, it is possible to anticipate extensive changes in national educational systems. These changes include also more intensive introduction and utilization of distance learning or its tools (especially online platforms, virtual classes etc.). Additionally, scenarios and better crisis management in education and at schools themselves could be anticipated. Thus, governments, authorities and schools should:

- provide effective frameworks and methodologies for distance learning;
- ensure financial framework for both, investments into ICT infrastructure and coverage, and for education, development of human resources, as well as rewarding of human resources in education;
- change and customization of pedagogical education system (e. g. in sense of ICT competencies and skills, competencies for distance learning and others);
- prepare tools for effective, flexible and valuable communication and feedback, as well as for assessment of study results of students during distance learning;
- strengthen overall readiness of schools and educational system for crisis situations, and its adaptability and flexibility;
- strengthen and intensify mutual communication and cooperation of education system stakeholders.

Although the distance learning is undoubtedly the future of education, it can´t fully substitute face-to-face learning, among other regarding the opinions of students and lecturers themselves, from various reasons (e. g. socialization of individuals, suitability for some sectors, possibilities to engage students, coverage and ICT equipment etc.). On the other hand, it is flexible, practical, widely applicable, modern and relatively effective way of education. Thus, distance learning is one, but not the only, way of educational system development.

We feel limitations in our work mainly in sense of the research sample – we recommend realizing similar surveys at other colleges and universities from both, private and public sector, to capture relevant picture about the distance learning perception in time of crisis. Secondly, it is possible to employ more advanced statistical methods of result evaluation, as well as evaluate statistical differences according to other criteria (e. g. socio-economic status of students; fields of study; lecturers´ approbation etc.). In this regard, we truly invite colleagues to extend the research.

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