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ORIGINAL RESEARCH

The Impact of Social Distancing Measures on Higher Education Stakeholders

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A – Study design;
B – Data collection;
C – Statistical analysis;
D – Data interpretation;
E – Manuscript preparation;
F – Literature search;
G – Funds collection

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Abstract

Background and Aim of Study: *The global CoVID-19 pandemic has affected education systems dramatically. Remote teaching/learning practices have become everyday reality across the globe. The aim of the study: to assess the level of readiness of higher education stakeholders for distance learning/remote teaching, and to evaluate the role of social distancing measures.*

Material and Methods: *594 stakeholders (216 teachers and 378 students) provided anonymous responses to a questionnaire. Teacher did so during the round table discussion during the 6th International Academic Conference "Psychological and Pedagogical Problems of Modern Specialist Formation" (June 2020). Students responded using Viber, WhatsApp, and Telegram. Validation by Pearson method χ^2 produced statistically significant results ($df=4$, $\chi^2_2=22.083$, $p<0.01$; $df=4$, $\chi^2_3=44.389$, $p<0.01$; $df=4$, $\chi^2_4=29.666$, $p<0.01$).*

Results: *62.9% of teachers and 56.6% of students consider educational institutions ready for distance learning. The majority of teachers/students seem to be prepared for it (81.0% and 93.4% respectively). 68.5% of teachers are positive about educational outcomes (contrasted with 90.0% of students). Only 37.0% of teachers and 21.7% of students assess the impact of social distancing measures on physical and mental health positively.*

Conclusions: *The survey results prove that social distancing measures impact on higher education is significant. The respondents assess highly their individual levels of preparedness and of satisfaction, students displaying higher levels of both. However, the view on social distancing measures impact on physical and mental health is more negative, the trend being more visible in student responses.*

Keywords: *higher education, stakeholders, social distancing, emergency remote teaching/learning, physical and mental health*

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Introduction

Novel coronavirus infection (CoVID-19) has affected all spheres of societal life. The first reported illness onset date was 1 December 2019, and the first hospital intake followed on 16 December 2019; in just two months, the World Health Organization declared a Public Health Emergency of International Concern (Huang et al., 2020; Lai, Shih, Ko, Tang, & Hsueh, 2020). The pandemic left very little time, if any at all, for strategic planning or operational deliberation. Transformations have occurred in most sectors of the economy. Education systems have also experienced the impact of the pandemic, one of the major changes being the implementation of remote teaching/learning practices. In simple words, both students and the faculty are now staying away from university premises in many countries, teaching/learning taking place in virtual environments be means of using modern software and/or messaging systems. Most authors underline the common trend in education systems around the world that consists in responding to the crisis with "emergency eLearning protocols" (Murphy, 2020).

It is clear that the pandemic politics will be the object of research for scholars for years and years to come (Williamson, Eynon, & Potter, 2020). So far, they have focused more on "emergency remote teaching", not learning (Hodges, Moore, Lockee, Trust, & Bond 2020). Many authors agree that the current crisis may well become "the biggest educational technology experiment in history" (Anderson, 2020; Daniel, 2020). One aspect of such an experiment is the use of modern digital technologies in education (Melnyk & Pypenko, 2020).

Educators across the globe had to adapt quickly to the new forms of actual teaching (Daniel, 2020; Morgan, 2020). However, smooth such adaptation went, it was (and still is) quite a stressful situation for both teachers and students. The crucial factor in organizing the educational process in conditions of the pandemic is the educators' resilience and stress-resistance, i.e. their psychological readiness for teaching under stress (Melnyk & Stadnik, 2020), as well as the policy of individual health protection and the development of student health culture (Melnyk, 2019).

The aim of the study. To assess the level of readiness of higher education stakeholders for distance learning/remote teaching, and to evaluate the role of social distancing measures on the stakeholders in conditions of the global pandemic.

Materials and Methods

Participants and Research Organization

The present study involved 594 stakeholders (216 faculty members and 378 university students) who participated in the survey during the pandemic-related lockdown. Faculty members provided anonymous responses to a questionnaire introduced during the round table discussion on the Zoom Video Communications platform. It was a part of the program of the 6th International Academic Conference "Psychological and Pedagogical Problems of Modern Specialist Formation" held in June 2020. University students responded to the questionnaire using messenger apps such as Viber, WhatsApp, and Telegram.

Statistical Analysis

The statistical analysis was conducted using Statistical Package for Social Sciences (SPSS) for Windows (SPSS Statistics 26). The data were validated using Pearson method χ^2, which produced statistically significant results (df=4, χ^2_2=22.083, p<0.01; df=4, χ^2_3=44.389, p<0.01; df=4, χ^2_4=29.666, p<0.01).

Results

Overall results of the survey (4 questions) are given in Table 1. As Question 5 presupposed an extended written answer, no scale is applied to analyze it.

Table 1. Overall results of the survey.

Question	Number of respondents' answers according to the scale (n)											
	Very positive/ very high		Positive/ high		Negative/ low		Very negative/ very low		Undecided/ neutral		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
1	183	30.8	167	28.1	141	23.7	48	8.1	55	9.3	594	100.0
2	177	29.8	351	59.1	24	4.0	19	3.2	23	3.9	594	100.0
3	173	29.1	315	53.0	61	10.3	24	4.0	21	3.5	594	100.0
4	33	5.6	129	21.7	244	41.1	78	13.1	110	18.5	594	100.0
5	-	-	-	-	-	-	-	-	-	-	-	-

The Table 1 data show that 58.9% of respondents, when answering the first question, evaluated highly the level of their respective educational institutions' preparedness for emergency remote teaching caused by CoVID-19 pandemic: 30.8% – very high and 28.1% – high. In contrast, 31.8% of respondents consider the above-mentioned level inadequate: 8.1% – very bad, and 23.7% – bad. However, 9.3% of respondents were unable to evaluate the above-mentioned level.

The answers to the second question show that 88.9% of respondents are prepared, as individuals, to conduct emergency remote teaching, which suggests a higher level of individual levels of readiness in comparison with institutional ones (30.0% higher). Specifically, 29.8% were very well prepared, and 59.1% were well prepared. In contrast, 7.2% rated their level of preparedness as inadequate: 3.2% said it was "very low", and 4.0% said it was "low". A group of respondents was unable to provide the answer to the second question (3.9%).

The answers to the third question show that the majority of educators (82.1%) are satisfied with the educational outcomes of emergency remote teaching practices (29.1% highly satisfied, and 53.0% just satisfied). A smaller fraction of respondents (14.4%) are not content with the educational outcomes during the pandemic

(10.3% of respondents rated the satisfaction level as "low", and 4.1% as "very low"). Only 3.5% of respondents are unable to evaluate the level of their satisfaction with emergency remote teaching outcomes.
The answers to the fourth question dealing with the effect of social distancing measures on physical and mental health demonstrate a different trend. The positive evaluation of the effect was given by 27.3% of respondents (5.6% said it was "very positive", and 21.7% said it was "positive"). However, 54.2 % of respondents evaluated the effect as "negative" (13.1% said it was "very negative", 41.1% said it was "negative", and 18.5% were undecided).
Table 2 contains statistical data concerning the differences between two groups of stakeholders – teachers and students.

Table 2. Data on the individual level of preparedness for emergency remote teaching during CoVID-19 pandemic according to teachers/students.

Question	Data grouped according to Stakeholders and Level of preparedness (people/%)										Total (people)	
	Very positive/ very high		Positive/ high		Negative/ low		Very negative/ very low		Undecided/ neutral			
	teachers	students	teachers	students	teachers	students	teachers	students	teachers	students	teachers	students
1	72/33.3	111/29.4	64/29.6	103/27.2	45/20.8	96/25.4	13/6.0	35/9.3	22/10.2	33/8.7	216/100	378/100
2	56/25.9	121/32.0	119/55.1	232/61.4	16/7.4	8/2.1	12/5.6	7/1.9	13/6.0	10/2.6	216/100	378/100
3	48/22.2	125/33.1	100/46.3	215/56.9	40/18.5	21/5.6	16/7.4	8/2.1	12/5.6	9/2.4	216/100	378/100
4	16/7.4	17/4.5	64/29.6	65/17.2	74/34.3	170/45.0	14/6.5	64/16.9	48/22.2	62/16.4	216/100	378/100

When responding to the first question, 62.9% of teachers and 56.6% of students assessed positively the level of institutional preparedness for remote teaching/learning conditions caused by the pandemic: very high – 33.3% of teachers and 29.4% of students; high – 29.6% of teachers and 27.2% of students. However, 26.8% of teachers and 34.7% of students assessed the level of institutional preparedness negatively: low – 20.8% of teachers and 25.4% of students, very low – 6.0% of teachers and 9.3% of students. Notably, 10.2% of teachers and 8.7% of students were unable to assess the level of institutional preparedness.
When responding to the second question, 81.0% of teachers and 93.4% of students assessed positively their own level of preparedness for teaching/learning in conditions of the pandemic: very high – 25.9% and 32.0%, high – 55.1% and 61.4% respectively. Nevertheless, 13.0% of teachers and 4.0% of students assessed their own level negatively: low – 7.4% and 2.1%, very low – 5.6% and 1.9% respectively. Moreover, no responses came from 6.0% of teachers and 2.6% of students, which shows their lack of certainty.
When responding to the third question, 68.5% of teachers and 90.0% of students were positive about being satisfied with teaching/learning outcomes: 22.2% of teachers and 33.1% of students reported "very high" level of satisfaction, and 46.3% of teachers and 56.9% of students reported "high" level of satisfaction. At the same time, 25.9% of teachers and 7.7% of students responded negatively: low level –18.5% and 5.6%, and very low level – 7.4% and 2.1% respectively. Notably, 5.6% of teachers and 2.3% of students failed to identify their level of satisfaction.
The effect of the pandemic-caused social distancing measures on teachers and students' physical and mental health is reflected in the fact that 37.0% of teachers and 21.7% of students assessed those positively: very high – 7.4% of teachers and 4.5% of students, high – 29.6% of teachers and 17.2% of students. That means teachers seem to enjoy a greater measure of physical and psychological comfort that students do, the teachers' level of satisfaction being 15.3% higher. However, 40.8% of teachers and 61.9% of students assess the above effect negatively: low – 34.3% of teachers and 45.0% of students, very low – 6.5% of teachers and 16.9% of students. Characteristically, 22.2% of teachers and 16.4% students failed to assess the effect of the pandemic-caused social distancing measures. It can be emphasized that the negative attitude is more pronounced in student responses (21.1% more such responses compared with those given by teachers).
Thus, the trends observed in the survey testify to the absence of marked differences in responses of teachers and students to the first question only, which means that both categories of stakeholders are prepared well for the educational "emergency". In contrast, the responses to the second, third and fourth question demonstrate marked differences in attitudes. Moreover, one can draw a conclusion that it is the faculty but the student body that is affected more negatively by the social distancing measures introduced during the pandemic.
To estimate the discrepancy validity, we have used the Pearson method χ^2 in this research. The study sample consisted of 594 responses obtained from 216 teachers and 378 students. The differences were analyzed between the observed values (the existing ones) and the expected values (the mathematically predicted as a hypothesis) that follow the square distribution. The expected values were determined based on group values according to the null hypothesis. The statistical analysis was conducted using SPSS Statistics 26.
Tables 3–6 show the results of the calculations of the expected values based on the observed ones, according to each of the four questions.
The statistical analysis of responses to question one reveals an insignificant difference between the expected and the observed values (χ^2 values are not at a critical level). The null hypothesis stating the absence of differences has been confirmed. When dealing with the responses to questions 2-4, marked differences have been observed (χ^2 values have achieved a critical level for a fixed number of degrees of freedom df = (2-1) × × (5-1) = 4, so the null hypothesis has been rejected, which leads to the conclusion that statistically significant differences have been observed.

Table 3. Data on expected values based on the observed distributions in the levels of institutional preparedness for emergency remote teaching in conditions of the CoVID-19 pandemic.

Parameter	Observed and expected values grouped according to respondents' answering scale										Total
	Very positive/ very high		Positive/ high		Negative/ low		Very negative/ very low		Undecided/ neutral		
	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	
Teachers	72	67	64	61	45	51	13	17	22	20	216
Students	111	116	103	106	96	90	35	31	33	35	378
Total	183	183	167	167	141	141	48	48	55	55	594
H0-hypo-thesis, %	31		28		24		8		9		100

Table 4. Data on expected values based on the observed distributions in the levels of individual preparedness for emergency remote teaching in conditions of the CoVID-19 pandemic.

Parameter	Observed and expected values grouped according to respondents' answering scale										Total
	Very positive/ very high		Positive/ high		Negative/ low		Very negative/ very low		Undecided/ neutral		
	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	
Teachers	56	64	119	128	16	9	12	7	13	8	216
Students	121	113	232	223	8	15	7	12	10	15	378
Total	177	177	351	351	24	24	19	19	23	23	594
H0-hypo-thesis, %	30		59		4		3		4		100

Table 5. Data on expected values based on the observed distributions in the levels of satisfaction/dissatisfaction with individual educational outcomes in conditions of the CoVID-19 pandemic.

Parameter	Observed and expected values grouped according to respondents' answering scale										Total
	Very positive/ very high		Positive/ high		Negative/ low		Very negative/ very low		Undecided/ neutral		
	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	
Teachers	48	63	100	115	40	22	16	9	12	8	216
Students	125	110	215	200	21	39	8	15	9	13	378
Total	173	173	315	315	61	61	24	24	21	21	594
H0-hypo-thesis, %	29		53		10		4		4		100

Table 6. Data on expected values based on the observed distributions in the measure of the impact of social distancing procedures caused by the CoVID-19 pandemic on the respondents' self-assessment of physical and mental health.

Parameter	Observed and expected values grouped according to respondents' answering scale										Total
	Very positive/ very high		Positive/ high		Negative/ low		Very negative/ very low		Undecided/ neutral		
	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	Obser-ved	Expec-ted	
Teachers	16	12	64	47	74	89	14	28	48	40	216
Students	17	21	65	82	170	155	64	50	62	70	378
Total	33	33	129	129	244	244	78	78	110	110	594
H0-hypo-thesis, %	5.6		21.7		41.1		13.1		18.5		100

The critical value χ^2_{cr} for df=4: χ^2_{cr}=9.448 by p=0.05; χ^2_{cr}=13.277 by p=0.01. The calculated value χ^2 is bigger than the critical value (>13.277) in responses to the second question (22.083), to the third question (44.389), and to the fourth question (29.666). It confirms that the differences in the compared aggregates of data are statistically significant (df=4, χ^2 =22.083, p<0.01; df=4, χ^2 =44.389, p<0.01; df=4, χ^2 =29.666, p<0.01).

Thus, the statistical analysis has proved that responses from teachers and students demonstrate no difference of opinion when answering the questions dealing with the level of institutional/individual preparedness for emergency remote teaching in conditions of the CoVID-19 pandemic.

Both categories of stakeholders reported high levels of individual preparedness for emergency remote teaching/learning, the students displaying a slightly higher level of self-confidence in dealing with the situation. In contrast, the marked differences in responses observed during the survey suggest the idea that the students are affected more by the social distancing measures, which testifies to the negative effect of social distancing on the physical and mental health of this category of stakeholders.

Discussion

In general, the results comply with a number of findings obtained previously. In the first months of the pandemic, remote teaching practices were analyzed by researchers (Liguori & Winkler, 2020; Maslov, 2020; Ozer, 2020). It has been emphasized that the global-scale emergency called for the creation of a crisis-driven teaching/learning environment rather than complex institutional planning. As such, it may have become "the biggest educational technology experiment in history" (Anderson, 2020; Daniel, 2020). It seems that humankind has been presented with an opportunity to view the world more holistically and realistically (Xafis, Schaefer, Labude, Zhu, & Hsu, 2020). The authors have also described various aspects of using modern digital technologies in education (Melnyk & Pypenko, 2020).

In the present paper, we focus on the crisis response by institutions of higher education that varied from country to country. In the digitally advanced countries, the transition was swift. For instance, top-25 U.S. universities discontinued face-to-face schooling at about the same time in March 2020, and every university declared emergency eLearning policies (Murphy, 2020). Consequently, educators had to adapt quickly to the new forms of actual teaching (Daniel, 2020; Morgan, 2020).

In most countries, medical education was affected to a great extent, which can be viewed both as a positive influence (a rare opportunity for professional development) and a disruptive one (Alsaf, Abbas, Hassan, & Ali, 2020; McMaste, Veremu, & Santucci, 2020; Ting, Carin, Dzau, & Wong, 2020). Economics education was affected, too. Interestingly, some authors find a lot of positivity in such education practices because educators were made to practice what they typically preach, that is, to adapt to market conditions, to remain agile, and to innovate (Lugiori & Winkler, 2020). However, new concerns have emerged at once. Among many, some are connected with the pitfalls in the use of advanced technology: for instance, "zoom-bombing" etc. (Reich et al., 2020). But it is obvious that, nevertheless, the crucial factor in organizing the educational process in conditions of the pandemic is the stress-resistance level of the teachers (Melnyk & Stadnik, 2020), as well as the policy of individual health protection and the development of student health culture (Melnyk, 2019).

The present survey results have proved that the target group of educators from 20 countries was/is well prepared for the pandemic-driven emergency remote teaching, which includes the flexibility of institutional support. The lower level of satisfaction with the educational outcomes can be viewed as a manifestation of teacher-specific neuroticism that works against overestimating the gains rather than an indicator of a decline in the quality of teaching.

It has been suggested that the pandemic may be a factor of 'revolutionizing' teaching/learning practices, the main impact being on the system of professional values shared by educators worldwide (Melnyk, Pypenko, & Maslov, 2020). The survey participants reported increased opportunities for research work, familiarizing with educational management activities and wider contacts with the international educational community.

Conclusions

The survey results demonstrate that the impact of social distancing measures on higher education practices is quite significant. The majority of participants have assessed highly their individual levels of both preparedness for teaching/learning and of satisfaction with the educational outcomes. Interestingly, students have displayed higher levels of preparedness and satisfaction. However, the assessment of the impact of social distancing measures on physical and mental health is generally more negative, the trend being more visible in student responses.

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