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Remote Education during the Covid-19 Pandemic in the Opinion of Students

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Abstract: The Covid-19 pandemic forced an immediate switch from the traditional form of education to a remote one, which caused various problems. Comparative studies conducted among students and academic teachers have shown the complexity of the situation and the ambiguity of assessments concerning the effectiveness of the solutions applied. This article presents an analysis of the results of a survey carried out in Q4 of 2021, using own questionnaire, among students from universities in Poland, Hungary and Greece, and a group of attendees of the Adult Education Centre in Finland (N = 769). The presented area of research embraces students' experiences of distance learning during the first stage of the Covid-19 pandemic. Descriptive statistics and tests of the equality of means were used to analyse the students' opinions in order to check for differences in assessments based on the selected metric characteristics of the respondents. Possible differentiation of opinions due to respondent characteristics such as gender or country of study was also searched for. The study results can be used to develop solutions which can be used to improve the quality of distance learning.

Keywords: distance learning, Covid-19 pandemic, students' opinions, questionnaire research, statistical analyses.

1. Introduction

The outbreak of the Covid-19 pandemic forced an immediate switch from traditional form of learning to a remote one, which affected all levels of education and caused various problems. Remote education is one type of distance learning characterised by the teacher being separated from the learner and knowledge being transferred via electronic media (Burns, 2011). It is worth noting that the unpreparedness for such radical changes meant that, at least in the first months, in Poland and other countries, remote education was conducted based on the same educational means as those used in traditional classes (Pietluch, 2023). Due to the lack of preparation and the temporary nature of the solutions applied, many authors started to use the term of *remote education* during the pandemic period (Depoo et al., 2022; Król and Zawicki, 2022). Before the pandemic, this form of teaching in tertiary education was perceived as a solution reducing costs and increasing the number of students who were not restricted by the distance to the campus (Chen et al., 2022).

The barriers associated with remote education can be divided into three groups: those arising from technical and technological constraints, those on the part of educators (teachers, authorities) and those on the part of students. The unprecedented nature of the situation, especially during the first period of the Covid-19 pandemic, encouraged numerous researchers to conduct studies, including comparative ones (Głodowska et al., 2022), on the effectiveness of the measures taken, types of problems and their sources (Chomiak-Orsa and Smoląg, 2022; Cicha et al., 2022; Ebner et al., 2023), as well as the perception of the remote education stage by different stakeholder groups (Bacci et al., 2023; Hoss et al., 2022; Lambert and Rennie, 2021; Ober and Kochmańska, 2022; Romaniuk and Łukasiewicz-Wieleba, 2020; Zis et al., 2021), and in particular the factors motivating students to engage in the remote education process (Grzelczak, 2022).

According to the study results, the main problems were connected with the technical and organisational possibilities of using modern digital tools, the extent of knowledge about new didactic aids and barriers that hindered or prevented participation in remote education (Hauke et al., 2021). Students also expressed their concerns about the lack of Internet literacy, symptoms of cognitive overload and a lack of meaningful face-to-face relations with their peers and teachers (Pietluch, 2023), and considered the input of lecturers to be an invaluable factor in determining the effectiveness of e-learning classes (Kocot and Kwasek, 2022).

Measures taken in different European Union countries to improve the situation have had different levels of efficiency, and therefore initiatives where flexible solutions could be developed in international teams should be highly valued. Opportunities for such international initiatives were provided, among others, by the Erasmus+ programme (European Commission, 2022, 2021), one of whose main objectives was to improve the quality of education of different target groups. The HE

(higher education) sector supports the development of innovative solutions in higher education through partnership projects, and in 2020 a special competition was announced for strategic partnership projects developing solutions to make distance learning more attractive. One of these projects which received funding as part of this competition was *The Future Professionals* carried out in a Polish-Finnish-Hungarian--Greek partnership[1]. The main objective of the project is to support universities and academic teachers in providing distance learning by means of developing solutions that will permanently improve the quality of this type of teaching.

In order to achieve the objectives of *The Future Professionals* project, it was necessary to conduct extensive international comparative research in a group of students. The research concerned perceptions of the importance of the level of different types of competencies in the successful entry into the labour market of school leavers, and opinions on distance learning in the first year of the Covid-19 pandemic. This article presents the results of the study in the area of students' experiences of distance learning. To structure the analyses conducted, the following research questions were formulated:

1. How did students evaluate the conditions and effectiveness of distance learning? Did they perceive it more as an opportunity or a threat? In other words, which methods of teaching and verification of learning progress were found to be effective during distance learning?

2. Do the selected metric characteristics of the respondents result in various opinions about distance learning? In other words, do characteristics such as gender and country of study differentiate assessments?

It was decided to analyse these specific characteristics of the respondents because of their importance emphasised in the literature. For example, differences in students' perceptions of different forms of teaching in different countries may also be due to cultural differences, especially perceptions of the role of the teacher. What seems to be crucial at this point is the dimension of culture according to Hofstede (PDI) referred to as power distance (Chen et al., 2022; Hofstede, 2011). However, according to research results, in non-typical situations (like remote classes), women were significantly more likely to experience severe anxiety than men (Gewalt et al., 2022; Wahid et al., 2023).

The answers to the research questions provide information that makes it possible to assess the quality of distance learning and develop solutions to improve it.

[1] Project *The Future Professionals* (No 2020-1-PL01-KA226-HE-095164) is financed by the Erasmus + Programme. In Poland, the institution leading the project is the Wroclaw University of Economics and Business. The partnership consists of Eduko (Adult Education Center) from Finland, the University of Pannonia from Hungary and the University of West Attica from Greece.

2. Materials and methods

The study was conducted in the period of October-December 2021 among students from three countries (Poland, Hungary and Greece) and the attendees of the Adult Learning Centre in Finland, and relied on the CAWI technique – the participants were asked to fill in specially prepared web questionnaires, which took them approximately 15 minutes. The questionnaires used in the research were prepared in English and then translated into the national languages of the project partners. The participation in the study was anonymous and voluntary, and the number of respondents totalled 769 (they represented different fields of study, degrees and years of study, and modes of study: full-time/extramural studies). Table 1 presents the characteristics of the research sample in terms of the two metric characteristics applied in the study, namely gender and country of study. In the case of the gender characteristic, the group of respondents with the answer 'other' was excluded from the analyses due to its insufficient size.

Table 1. A research sample – a structure according to selected characteristics ($N = 769$)

Characteristic	Characteristic categories	Frequency	Percentage of respondents
Gender	Female	456	59.3
	Male	307	39.9
	Other	6	0.8
Country of study	Poland	338	44.0
	Finland	94	12.2
	Hungary	231	30.0
	Greece	106	13.8

Source: own elaboration.

The analysis covered respondents' opinions concerning broadly understood distance learning, and the questions referred to:

1. Preferred way of learning within various forms of classes.
2. Assessment of conditions in which distance learning took place.
3. General assessment of experiences with distance learning.
4. Preparation of the lecturers for the requirements of distance learning.
5. Effectiveness of didactic methods during distance learning.
6. Effectiveness of methods of verifying progress during distance learning.
7. Evaluation of student behaviour during distance learning.

For most questions, the respondents were asked to choose answers on a five-point Likert scale, except for question 1, where answers were given on a sliding scale from 1 to 10. The detailed content of the questions and the possible response options are provided in Appendix.

Various data analysis methods were applied in order to find answers to the research questions. For the first research question, descriptive statistics were used, including mean value, standard deviation and frequency of selection of specific response options, whereas for the second one – tests of the equality of means to check for differences in assessments according to the selected metric characteristics of respondents. For the gender characteristic, an independent two-sample *t* test was applied. Tests of the equality of two means were preceded by Levene's test for homogeneity of variances (LeBlanc, 2004). When heterogeneity of variance was found, an alternative to the classical approach, the Welch *t*-test statistic, was applied (Welch, 1947). For the country of study, one-way analysis of variance was chosen. When the ANOVA results showed significant differences, post hoc Tukey's HSD tests for multiple comparisons (Abdi and Williams, 2010) were carried out to identify the pairs characterised by different means. Since the use of ANOVA does not allow for a clear identification of pairs of subjects between which there were significant differences, the last column of the table with the ANOVA results shows the pairs of countries for which such differences were found on the basis of post hoc tests. A threshold *p*-value of 0.05 was assumed in the analyses, below which it was concluded that there were significant differences in the assessments of the respondents characterised by different categories of metric characteristics. In the tables presented in the section dedicated to the study results, *p*-values are indicated for three levels of significance: below 0.05, below 0.01 and below 0.001.

The calculations were performed using SPSS software and MS Excel.

3. Results

3.1. Conditions and effectiveness of distance learning

In the first instance, students assessed their preferred way of learning, the conditions in which their distance learning took place and their overall experience connected with it. Table 2 presents the distribution of answers to the question about the preferred way of learning, taking into account the different forms of classes. As far as the lectures were concerned, the students preferred the remote way of conducting them – more than half of the respondents selected a response option between 8 and 10 (preference for the remote form), with an average rank of 6.66. For the other types of classes, the results were not so unambiguous, with average ranks from 5.11 for auditorium exercises to 5.52 for seminars and tutorials. The percentage of respondents who chose answers from 1 to 3 (preference for the traditional form) was close to 40%.

As far as conditions of distance learning were concerned, the students evaluated them in a positive manner (cf. Table 3). The average rank for all aspects considered was above 4 on the five-point scale. Access to adequate computer equipment allowing for active participation in classes was rated the highest, with 84% of respondents

Table 2. Opinions of respondents on preferred ways of learning – frequency of responses to individual assessment categories

Class type	1	2	3	4	5	6	7	8	9	10
Lectures	84	47	49	37	64	44	54	75	67	248
Auditorium classes	151	67	75	56	100	41	59	68	29	123
Computer lab	183	56	62	46	82	35	42	71	39	153
Seminars/ tutorials	181	49	57	34	89	29	38	55	37	200

Sliding rating where 1 means *Definitely a traditional form* and 10 – *Definitely a remote form.*

Source: own elaboration.

Table 3. Opinions of respondents on conditions in which distance learning took place – frequency of responses to individual assessment categories

Condition	1	2	3	4	5
I had a room at my disposal where nobody disturbed me	43	62	84	155	425
I had Internet of sufficient quality	28	57	113	204	367
I had the appropriate equipment (a computer, a laptop)	26	37	57	134	515

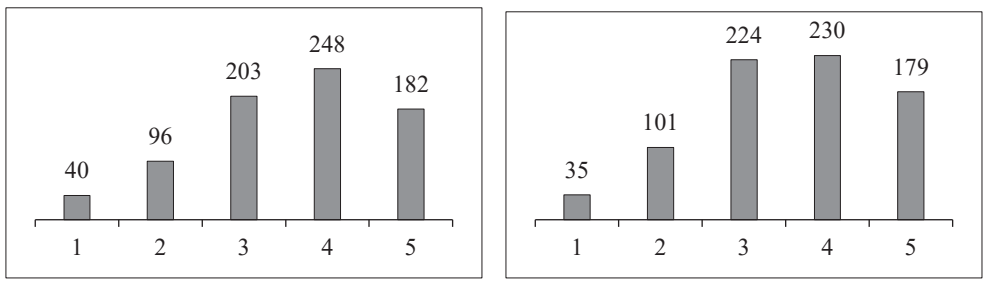
Rating on a scale of 1-5, where 1 means *Definitely no* and 5 – *Definitely yes.*

Source: own elaboration.

selecting 4 or 5. In the case of having a room at one's own disposal where he or she was not disturbed during the classes and sufficient Internet quality, the percentage of responses for these two options was approximately 75%.

Other aspects that students evaluated mostly well included their experience of distance learning and teachers' preparation in light of the requirements imposed by this learning method. Figure 1 presents the distribution of responses to these two questions. The percentage of responses for option 4 or 5 was 56% and 53% respectively, with an average rank of 3.57 and 3.54, the mode in both cases being 4.

Another aspect that the students evaluated was the effectiveness of the various didactic methods and learning progress verification methods applied during distance learning. Basic descriptive statistics for the assessment of the didactic methods are shown in Table 4, while for the methods of knowledge and skills verification – in Table 5. The students evaluated the methods on a five-point scale, and they could also select the answer 'Not applicable' if they had no experience with a particular method. It is worth nothing that the size of the group choosing the 'Not applicable' response option allowed the authors to assess the popularity of using the different methods.



Rating on a scale of 1-5, where 1 means *Very badly* and 5 – *Very well.*

Figure 1. General experiences with distance learning (left side) and preparation of the lecturers for distance learning (right side)

Source: own elaboration.

Table 4. Effectiveness of didactic methods during distance learning

Method	Average rating	Standard deviation	Mode
Live classes conducted by the teacher using online tools (e.g. Teams, Zoom, Google Meet)	3.96	0.99	4
E-learning courses	3.70	1.08	4
Materials provided by the teacher (e.g. presentations from lectures, answers to tasks)	4.15	1.00	5
Recorded video materials from classes	3.97	1.20	5
Recorded audio materials in which the teacher explains specific issues	3.79	1.29	5
Sharing digital content from widely available resources (e.g. articles, textbooks)	3.79	1.15	5
Tutorials with the use of instant messaging	3.94	1.10	5

Rating on a scale of 1-5, where 1 means *Totally ineffective* and 5 – *Fully effective.*

Source: own elaboration.

The didactic methods that most respondents encountered were lessons conducted with the use of instant messaging and the sharing of materials by teachers – 5% of students had no experience with these. This is not a large percentage, but given the lack of face-to-face interactions between students or students and teachers, there should be at least the possibility of a live meeting in a remote space. The highest number of respondents stated that they had no experience of using materials provided in the form of audio (25%) and video recordings (16%). The method whose effectiveness was thought to be the highest was the sharing of ready

materials by teachers, whereas e-learning obtained the lowest rating in this respect. The differences in assessments of specific methods were not significant, with average ranks 3.70-4.15. Taking into account the standard deviation value, it can be concluded that the smallest differentiation of respondents' opinions occurred in regard to classes conducted with the use of instant messaging, whereas the largest – to recorded audio materials.

Table 5. Effectiveness of methods in terms of verifying progress during distance learning

Method	Average rating	Standard deviation	Mode
Choice tests done during meetings with the teacher	3.77	1.12	4
Tests with open-ended questions done during meetings with the teacher	3.50	1.18	4
Written assignments prepared outside the classroom and sent to the teacher	3.77	1.17	5
Oral answers given by students during online meetings with the teacher	3.34	1.27	4
Projects prepared in a group and presented to the teacher	3.60	1.20	4
Projects prepared in a group and sent to the teacher	3.63	1.22	5
Projects prepared individually and presented to the teacher	3.83	1.09	4
Projects prepared individually and sent to the teacher	3.92	1.05	5

Rating on a scale of 1-5, where 1 means *They do not verify my knowledge or skills at all* and 5 – *They verify my knowledge and skills very well.*

Source: own elaboration.

All of the methods of learning progress verification included in the research questionnaire were familiar to the vast majority of respondents. The highest percentage of 'Not applicable' responses occurred for group projects sent to the teacher, but this was only 13%. The lowest percentage of this response was noted for written assignments prepared outside of class (5%). According to the students, projects prepared individually and sent (average rank 3.92) or presented (average rank 3.83) to the teacher were the most effective methods of verifying knowledge and skills. For these methods, there was also the smallest differentiation of opinions. On average, the lowest rank was obtained for oral answers given by students during online meetings with the teacher, with the largest variation in ratings (standard deviation of 1.27).

The last issue analysed was students' opinions as to the extent to which they agreed with the statements concerning their attitudes and behaviour during distance vs. traditional learning. The basic descriptive statistics for these assessments are presented in Table 6. The responses were given on a five-point scale from 1 to 5; a higher value of an average rank indicates stronger agreement with the statement.

Table 6. Distance learning – agreement with the statements

Statement	Average rating	Standard deviation	Mode
Distance learning requires less involvement of students than traditional education	3.01	1.38	3
Distance learning requires less time of students than traditional education	3.19	1.43	5
Students were more likely to miss remote classes than traditional ones	2.90	1.45	1
Students were more passive during remote classes than traditional ones	3.37	1.29	3
Fictitious participation in remote classes is a common practice	3.32	1.25	3
Distance learning, to a greater extent than its traditional form, enables the use of external sources of information	3.26	1.23	3
Students often used prohibited external sources of information during the verification of their progress in online classes	2.90	1.25	3
It is ethical to use external sources of information during the verification of progress in online classes	2.75	1.24	3
Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	3.20	1.22	3

Rating on a scale of 1-5, where 1 means *I definitely disagree* and 5 – *I definitely agree.*

Source: own elaboration.

The average ranks ranged from 2.75 to 3.37. The lowest mean was found for the assessment of the ethics of behaviour involving the use of external sources of information when verifying learning progress, whereas the highest was for the statement of greater passivity during remote classes compared to traditional ones. For the majority of statements, the most frequently chosen answer was 3, i.e. no explicit reaction to the statement. The exception to this were the statements concerning less time required of students during distance learning compared to its traditional form (the most frequent answer was 5) and the higher probability of missing remote classes than traditional ones (the most frequent answer was 1). It should be noted that the differentiation of opinions for these assessments was greater than for assessing the effectiveness of didactic methods and methods of verifying knowledge and skills.

3.2. Differentiation of opinions on distance learning by gender and country of study

The results of the assessment of the specific issues included in the study on distance learning with regard to the gender characteristic are presented in Table 7. The table includes only those issues out of the 33 for which statistically significant differences were found between the opinions of female and male respondents.

Table 7. Results of *t*-tests – differentiation of opinions due to characteristic "gender"

Study area/questions	t statistic	*p*-value	Mean	
			female	male
Conditions for distance learning				
Internet quality	–4.069	0.044*	4.01	4.18
Preparation of the lecturers for distance learning	5.686	0.017*	3.62	3.43
Effectiveness of didactic methods during distance learning				
Live classes conducted by the teacher using online tools	8.413	0.004**	4.05	3.83
Materials provided by the teacher	11.638	0.001**	4.26	4.00
Recorded video materials from classes	5.509	0.019*	4.07	3.84
Recorded audio materials	9.767	0.002**	3.92	3.58
Tutorials with the use of instant messaging	5.520	0.019*	4.04	3.83
Effectiveness of methods for verifying learning progress during distance learning				
Choice tests done during meetings with the teacher	5.650	0.018*	3.86	3.66
Written assignments prepared outside the classroom and sent to the teacher	10.988	0.001**	3.89	3.60
Projects prepared individually and sent to the teacher	5.419	0.020*	4.01	3.82

* *p*-value < 0,05; ** *p*-value < 0,01; *** *p*-value < 0,001.

Note: the table contains only statements for which significant differences between the opinions of women and men were observed.

Source: own elaboration.

Significant differences were found for ten statements, with women's average ratings higher than men's for 9 of them. Women's more positive assessments were mainly related to the effectiveness of didactic methods used during distance learning, including the provision of ready materials by teachers, audio recordings presenting

selected topics and live classes using instant messaging. Women also evaluated the effectiveness of the three methods of verifying learning outcomes more positively, with the greatest differences noted for written assignments prepared outside the classroom and sent to the teacher. Female students were less critical when assessing the preparation of lecturers for the requirements of remote education. The only area of higher ratings given by male students was the quality of the Internet connection allowing for active participation in class.

The results of the evaluation of the different issues covered in the study on distance learning by country of study are presented in Table 8. This characteristic proved to be very strongly differentiating. Significant mean differences in comparisons between the opinions of students studying in different countries were noted for 30 statements, with a *p*-value of less than 0.001 in 23 cases, indicating strong differentiation. The countries of study, where students' opinions differ from the opinions of respondents from other countries, were mainly Poland, Hungary and Finland. It is worth noting that the assessments of the first three research issues expressed by people studying in Poland, namely the preference for distance learning, a positive evaluation of the conditions for distance learning and effectiveness of the didactic methods used in remote education, were more positive than the assessments given by students in other countries. At the same time, their ratings were significantly lower for opinions on agreeing with statements about students' behaviour. The ratings given by Hungarian students were significantly higher for two research issues – the effectiveness of the methods of learning progress verification and agreement with statements concerning students' attitudes during distance vs. traditional learning. The respondents from Finland evaluated distance learning as their preferred form of learning, conditions for distance learning and the effectiveness of didactic methods and methods for verifying learning progress less positively than other students. The respondents from Greece, on the other hand, did the same with all methods used in distance learning. The largest differences in the ratings by country of study were noted for opinions concerning the preferred form of learning – lectures (*F* statistic value of 106), the preferred class type – seminars and tutorials (*F* statistic value of 82) and opinions on missing remote classes more frequently than those conducted in a traditional way (*F* statistic value of 43). The opinions of students from the countries covered by the study were not statistically significantly different only in the case of three issues: the quality of the Internet connection during distance learning, the effectiveness of tests with open-ended questions and the effectiveness of oral answers given to the teacher during online meetings as methods of verifying knowledge and skills.

Table 8. Results of ANOVA – differentiation of opinions due to the characteristic "country of study"

Study area/questions	F statistic	p-value	Mean				Post hoc tests
			Finland	Greece	Poland	Hungary	
Preferred way of learning							
Lectures	106.415	0.000***	4.07	4.67	8.54	5.87	PL – All, HU – FI, EL
Auditorium classes	16.839	0.000***	3.68	3.97	5.33	5.88	PL – FI, EL HU – FI, EL
Computer lab	15.137	0.000***	4.17	4.28	6.11	4.83	PL – All
Seminars/tutorials	82.162	0.000***	3.48	4.95	7.43	3.80	PL – All EL – FI
Conditions for distance learning							
A separate room	13.863	0.000***	3.81	3.71	4.41	4.00	PL – All
Internet quality	1.442	0.229	3.95	3.92	4.12	4.13	-
Appropriate equipment	15.381	0.000***	3.90	4.12	4.46	4.65	PL – FI, EL HU – FI, EL
General experiences with distance learning	8.665	0.000***	3.20	3.32	3.77	3.55	PL – FI, EL
Preparation of the lecturers for distance learning	3.525	0.015*	3.40	3.34	3.54	3.72	HU – EL
Effectiveness of didactic methods during distance learning							
Live classes conducted by the teacher using online tools	5.631	0.001**	3.77	3.70	4.11	3.92	PL – EL
E-learning courses	4.031	0.007**	3.64	3.41	3.70	3.87	HU – EL
Materials provided by the teacher	13.125	0.000***	3.71	3.84	4.36	4.11	PL – FI
Recorded video materials from classes	18.869	0.000***	3.48	3.20	4.25	3.94	PL – EL
Recorded audio materials	6.480	0.000***	3.41	3.20	3.92	3.86	PL – EL
Sharing digital content from widely available resources	4.026	0.007**	3.51	3.58	3.93	3.77	PL – FI
Tutorials with the use of instant messaging	16.150	0.000***	3.40	3.31	4.10	4.06	PL – FI, EL HU – FI, EL
Effectiveness of methods for verifying learning progress during distance learning							
Choice tests done during meetings with the teacher	6.493	0.000***	3.41	3.93	3.66	3.98	EL – FI HU – FI, PL
Tests with open-ended questions done during meetings with the teacher	1.579	0.193	3.53	3.32	3.59	3.44	-

Written assignments prepared outside the classroom and sent to the teacher	13.311	0.000***	3.62	3.75	3.55	4.16	HU – All
Oral answers given by students during online meetings with the teacher	1.758	0.154	3.33	3.57	3.36	3.21	-
Projects prepared in a group and presented to the teacher	7.225	0.000***	3.13	3.34	3.80	3.51	PL – FI, EL
Projects prepared in a group and sent to the teacher	3.727	0.011*	3.12	3.47	3.71	3.69	PL – FI HU – FI
Projects prepared individually and presented to the teacher	6.438	0.000***	3.30	3.65	3.87	3.99	PL – FI HU – FI
Projects prepared individually and sent to the teacher	9.881	0.000***	3.51	3.87	3.82	4.21	HU – All
Distance learning – agreement with the statements							
Distance learning requires less involvement of students than traditional education	6.248	0.000***	2.95	3.03	2.80	3.30	HU – PL
Distance learning requires less time of students than traditional education	3.350	0.019*	2.88	3.34	3.10	3.36	HU – FI
Students were more likely to miss remote classes than traditional ones	42.949	0.000***	3.43	2.67	2.37	3.57	FI – EL, PL HU – EL, PL
Students were more passive during remote classes than traditional ones.	13.560	0.000***	3.37	3.26	3.11	3.79	HU – EL, PL
Fictitious participation in remote classes is a common practice	9.901	0.000***	3.53	3.46	3.05	3.57	All – PL
Distance learning, to a greater extent than its traditional form, enables the use of external sources of information	9.030	0.000***	3.68	3.42	3.03	3.35	All – PL
Students often used prohibited external sources of information during the verification of their progress in online classes	11.372	0.000***	3.07	3.30	2.62	3.05	All – PL
It is ethical to use external sources of information during the verification of progress in online classes	13.140	0.000***	2.79	2.83	2.46	3.11	HU – PL
Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	4.202	0.006**	3.13	3.27	3.06	3.41	HU – PL

* p-value < 0,05; ** p-value < 0,01; *** p-value < 0,001.

FI – Finland, EL – Greece, PL – Poland, HU – Hungary.

Note: higher average values are recorded for the country listed first in the last column of the table.

Source: own elaboration.

4. Conclusions

This article presents the results of the international study conducted among students on various aspects of distance learning during the first stage of the Covid-19 pandemic. Summarising the results obtained for the entire research sample, it is worth pointing out that the students expressed generally positive opinions about their conditions and experiences of remote learning, which they perceive as a good alternative/ complement to traditional forms of teaching (especially in the case of lectures), and not a threat. Somewhat surprising is the evaluation of the effectiveness of didactic methods used in distance learning, where the only method with an average rank above 4 and the highest rating was "Materials provided by the teacher" (e.g. presentations from lectures, answers to tasks). The least positive evaluated were the e-learning courses with an average rank of 3.70. It is also worth noting that in the evaluation of the effectiveness of methods for the verification of learning progress, none of the methods received an average rank above 4.

Interesting conclusions can also be drawn from the analysis of the responses to statements regarding students' behaviour during distance vs. traditional learning. For all the statements, the average ranks oscillated around the value of 3 (2.75--3.37). Although the statement *It is ethical to use external sources of information during the verification of progress in online classes,* received the lowest rank of 2.75, it is still quite high taking into account the nature of this statement, and it means acceptance of this type of behaviour. On the other hand, the highest rank of 3.37 for the statement *Students were more passive during remote classes than traditional ones,* may have a significant effect on the negative outcomes of distance learning. The results obtained in this area are worth relating to the results of studies indicating that there are no significant differences between the effects of distance and traditional form of learning (Zalewska and Trzcińska, 2022). Taking into account the fact that during distance learning all unethical actions, e.g. using external sources of information during examinations are accepted to a greater extent, it is difficult to state unequivocally whether the effects of distance learning are free from the influence of additional factors that do not occur or occur to a much lesser extent in traditional learning.

With regard to the second research question concerning the differentiation of respondents' opinions due to specific characteristics, it should be noted that gender did not appear to be a strongly differentiating factor, with statistically significant differences occurring only in 10 out of 33 statements analysed. Women evaluated the preparation of the lecturers, the effectiveness of the various methods of distance learning (5/7) and the effectiveness of the methods of verifying learning progress (3/8) more positively than men. The only aspect which men gave higher ratings was the one concerning technical issues and the quality of the Internet connection.

In contrast, the country of study proved to be a strongly differentiating characteristic, with statistically significant differences being found in 30 out of 33 statements analysed. The students from Poland expressed a preference for distance learning much more often than the students from the other countries. They also pointed to better conditions of distance learning (his/her own room, appropriate equipment, general experience of distance learning), and evaluated the effectiveness of didactic methods more positively than students from at least one of the other countries (6/7). The students from Hungary, on the other hand, evaluated the methods of verification of learning progress better than students from at least one of the other countries (5/8). Interestingly, all of these aspects were evaluated in the opposite way (that is, the lowest ratings) mostly by the students from Finland. When assessing behaviour/ comparing distance vs. traditional learning, most of the highest ratings were given by the students from Hungary (7/9), whereas the lowest ones by those from Poland (8/9).

It is worth mentioning that the study has its limitations. In addition to the small number of countries where the respondents came from, it should be noted that the research area was restricted to the statements concerning the conditions and methods of conducting classes. The issues of students' wellbeing during distance learning were omitted on purpose as they are important enough to require a separate study. According to the literature, remote education carries a number of risks, including those related to the mental health of pupils and students, especially their emotional exhaustion (Zis et al., 2021). Students clearly stated that distance learning has a negative impact on communication between students and teachers, as well as between students themselves (Ebner al., 2023). Among the good practices indicated by both lecturers and students, the possibility of having regular and relatively free interaction (Motała et al., 2022), personalised online video meetings, and the friendliness and openness of school staff in terms of social interaction (Depoo et al., 2022), are aspects that definitely come to the fore.

Appendix

The questions from the questionnaire form used in the international student survey analysed in this article:

Q1. Please assess your preferred way of learning within the following forms of classes.

Please use the slider, where 1 means "Definitely a traditional form" and 10 – "Definitely a remote form".

- Lectures
- Auditorium classes
- Classes in the computer lab
- Seminars/ tutorials

Q2. How would you assess the conditions in which your distance learning took place? Please evaluate the following statements.

Please use the 1-5 scale, where 1 means "Definitely no" and 5 – "Definitely yes".

- I had a room at my disposal where nobody disturbed me during classes.
- I had the Internet of sufficient quality which allowed me to actively participate in classes.
- I had the appropriate equipment (a computer, a laptop) which allowed me to actively participate in classes.

Q3. In general, how would you assess your experiences with distance learning?

Please use the 1-5 scale, where 1 means "Very badly" and 5 – "Very well".

Q4. In your opinion, the preparation of the lecturers was adequate for the requirements of distance learning.

Please use the 1-5 scale, where 1 means "Definitely not" and 5 – "Definitely yes".

Q5. In your opinion, how effectiveness were the following didactic methods during distance learning?

Please use the 1-5 scale, where 1 means "Totally ineffective" and 5 – "Fully effective". If you have no experience with a given method, please select "Not applicable".

- Live classes conducted by the teacher using online tools (e.g. Teams, Zoom, Google Meet).
- E-learning courses.
- Materials provided by the teacher (e.g. presentations from lectures, answers to tasks).
- Recorded video materials from classes.
- Recorded audio materials in which the teacher explains specific issues.
- Sharing digital content from widely available resources (e.g. articles, textbooks).
- Tutorials with the use of instant messaging.

Q6. How would you assess the effectiveness of the following methods in terms of verifying your progress during distance learning?

Please use the 1-5 scale, where 1 means "They do not verify my knowledge or skills at all" and 5 – "They verify my knowledge and skills very well". If you have no experience with a given method, please select "Not applicable".

- Multiple-choice tests (with several answers to choose from) done during meetings with the teacher.
- Tests with open-ended questions (descriptive answers to be given by students) done during meetings with the teacher.
- Written assignments prepared outside the classroom and sent to the teacher.
- Oral answers given by students during online meetings with the teacher.
- Projects prepared in a group and presented to the teacher.
- Projects prepared in a group and sent to the teacher.
- Projects prepared individually and presented to the teacher.
- Projects prepared individually and sent to the teacher.

Q7. To what extent do you agree with the following statements?

Please use the 1-5 scale, where 1 means "I definitely disagree" and 5 – "I definitely agree".

- Distance learning requires less involvement of students than traditional education.
- Distance learning requires less time of students than traditional education.
- Students were more likely to miss remote classes than traditional ones.
- Students were more passive during remote classes than traditional ones.
- Fictitious participation in remote classes (e.g. joining classes and doing something else during them) is a common practice.
- Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress.
- Students often used prohibited external sources of information during the verification of their progress in online classes.
- It is ethical to use external sources of information during the verification of progress in online classes.
- Obtaining a positive result of progress verification is easier in distance learning than in its traditional form.

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Nauczanie zdalne w czasie pandemii Covid-19 w opiniach studentów

Streszczenie: Pandemia Covid-19 spowodowała konieczność niejako natychmiastowego przestawienia edukacji z formy tradycyjnej na formę zdalną, co wiązało się z problemami różnej natury. Badania porównawcze prowadzone wśród studentów i nauczycieli akademickich pokazują złożoność sytuacji i niejednoznaczność ocen dotyczących skuteczności zastosowanych rozwiązań. W artykule zaprezentowano analizę wyników badań ankietowych przeprowadzonych przy wykorzystaniu autorskiego kwestionariusza w IV kwartale 2021 r. na grupie studentów z uniwersytetów z Polski, Węgier i Grecji oraz grupie słuchaczy Centrum Kształcenia Dorosłych z Finlandii (N = 769). Prezentowany obszar badań dotyczy doświadczeń studentów z okresu zdalnego nauczania w pierwszym etapie pandemii Covid-19. Do analizy opinii studentów zastosowano statystyki opisowe oraz *tests of the equality of means* w celu sprawdzenia różnic w ocenach ze względu na wybrane cechy metryczkowe respondentów. Szukano ewentualnego zróżnicowania opinii ze względu na takie cechy respondentów, jak płeć czy kraj pobierania nauki. Wyniki badań mogą być wykorzystane do wypracowania rozwiązań służących poprawie jakości kształcenia zdalnego.

Słowa kluczowe: nauczanie zdalne, pandemia Covid-19, opinie studentów, badania kwestionariuszowe, analizy statystyczne.