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University Students' Attitude to E-learning in the Post-COVID-19 Era

Tomasz Szopiński 

ABSTRACT

The study addresses the issue of students' attitudes toward remote learning in a post-COVID-19 reality. It presents the results of a survey conducted in 2023 among students of a Polish university offering online and blended approaches. The analysis of the survey reveals that variables, such as the field of study, the mode of study, the age of the students, and their professional activity, differentiate the frequency of participation in online classes and attitudes towards remote learning. The most conscientious participants in remote classes are part-time students, those working full-time, and those enrolled in legal, political and philological studies. Remote classes were rated highest by students of computer science. In contrast, psychology students and students from the youngest age group were the least active students. Psychology students also rated remote learning the lowest. Respondents' nationality did not differentiate students' attitudes toward remote learning or the frequency of participation.

KEY WORDS:

online learning, blended learning, e-learning in higher education, post-COVID reality

JEL Classification: D12, I23.

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1. Introduction

Kumar et al. (2019) found that online learning is not just a passing trend affecting universities, but is beginning to be the new standard of education. The outbreak of the COVID-19 pandemic accelerated the changes associated with the transition to online teaching. Some universities in Poland, taking advantage of the experience of providing online studies during the COVID-19 pandemic, continue to offer remote education. These are currently mainly private universities. Poland's higher education market stands out compared to other countries in Central and Eastern Europe. The 1990s saw a rapid expansion of private higher education in Poland (Antonowicz et al., 2017; Kwiek & Szadkowski, 2018). Poland has the most developed system of non-public higher education in Europe (Dobbins & Knill, 2009). In addition, Poland is seen

as a gateway to the European Union for young people from former Soviet countries such as Ukraine, Belarus or from Asia and Africa. Studying in Poland allows them to legally enter the workforce. At the same time, the cost of living in Poland is much lower compared to countries that were part of the European Union before 2004, also referred to as the "Old Union." The purpose of the study is to answer the following question: what is the attitude of students towards remote learning in the post-COVID-19 pandemic lockdown era? My goal is to show how variables such as students' fields of study, mode of study, professional activity, age, and nationality affect perceptions of remote learning and the frequency of participation in classes taught online. The paper begins with a review of the literature on the determinants related to university students' perceptions of remote learning and their activities related to participation in online classes.

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Further, I present the assumptions of my own study conducted on 1007 students enrolled in one of the universities in Warsaw, the capital of Poland. The subsequent chapter includes the results of my research. The article concludes with conclusions and suggestions for further research.

2. Literature Review

The development of new information and communication technologies has a significant impact on the labor market and also on leisure time activity. Technology contributes to increased productivity and improved labor efficiency (Batorski, 2015b). The process of spreading these technologies was accelerated by the lockdown associated with the COVID-19 pandemic, which forced a reduction in face-to-face contact and the proliferation of online meetings. This is clearly demonstrated by the statistics for increasing online meetings in 2019-2020. Clickmeeting, a digital platform providing the ability to hold online meetings such as webinars, recorded a fourfold increase in the number of events held during this time (Clickmeeting, 2020). Estimating the impact of these developments is an ongoing debate. Online learning has many advantages and disadvantages, which are the subject of many scientific analyses. One of the advantages of online learning is the increase in free time that comes with not having to leave home or travel to the university. This results in financial savings for students due to the ability to participate in classes from anywhere (Ćwiertniak et al., 2022). The lockdown caused by the COVID-19 pandemic had severe macroeconomic effects, leading to increased poverty (Estrada, 2021). In this situation, remote learning makes it possible to reduce costs associated with commuting to university or those associated with living away from the family home. Online classes can also be a more comfortable experience. This comfort may stem from the fact that online classes tend to be quiet, thus making it easier to focus. Another advantage is the reduction of stress during an exam, class or presentation (Ćwiertniak et al. 2022). Paudel's (2021) research shows that most respondents are willing and ready to take online courses in the future, but the reasons vary. Some respondents would like to keep up to date with new information, receive authentic information and resources

through online courses. In contrast, others said that online courses provide a flexible opportunity for professional development and lifelong learning. Online courses offer flexibility in terms of their time and location (Ćwiertniak et al., 2022; Gamage, 2022). In addition, they provide convenient education (Lamanauskas & Makarskaitė-Petkevičienė, 2021; Zhang et al., 2023). Online learning, according to respondents, allows access to the vast content resources needed for professional and academic work. This, in turn, affects their self-discipline. However, the disadvantages of distance learning include problems related to the quality of instruction due to the lack of appropriate equipment, low speed Internet connection, or the absence of an Internet connection altogether (Ćwiertniak et al., 2022; Muflih, et al., 2021). In Poland, price is no longer an issue when it comes to Internet access. The 2015 results show that motivation, not financial factors, was a roadblock to Internet access. At that time, 80% of Poles had Internet access in their homes already (Batorski, 2015a). Another disadvantage of online learning that students cited during the pandemic was the lack of social interaction, the difficulty of making new friends, and the lack of or limited opportunity to enjoy the sports activities or cultural life associated with living on a campus or in a major academic city. Another drawback is the weak bonds in student teams working on team projects and the low quality of some practice-oriented classes (Ćwiertniak et al., 2022). Those who take online courses say that they make them lazy and do not provide practical knowledge (Paudel, 2021). Low online learning efficiency is cited as a problem by participants in the study by Zhang et al. (2023). Significant reported difficulties associated with online learning during COVID-19 include deterioration of physical and mental health (Lamanauskas & Makarskaitė-Petkevičienė, 2021; Li & Che, 2022) or students' unrealized social needs (Lamanauskas & Makarskaitė-Petkevičienė, 2021). Studying online may result in inferior preparation for professional work. A study by Alam and Parvin (2021) found that students who studied online during the pandemic scored lower on career readiness than a group of students who studied in the classroom before the pandemic. On the one hand, there is an increased awareness among students re-

garding the usefulness and advantages of e-learning (Al-Fraihat et al., 2020). On the other hand, it causes a lot of difficulties for students and teachers as well. Students often become isolated and alienated due to the anxiety associated with participating in online communities (Lemay et al., 2021). This may originate from various factors, such as personality, sense of transactional distance in the online environment, lack of confidence and trust in participants in the online community, lack of nonverbal communication (facial expression, voice tone, etc.), connection difficulties (e.g., low internet speed), poor writing skills or language barriers (Rasheed et al., 2019). Results from a study of students in Saudi Arabia show that $\frac{3}{4}$ of the students surveyed experience stress associated with distance learning, anxiety about exams, and reduced productivity. Depression often intensifies among students who find distance learning tedious (Azmi et al., 2022). Online courses, compared to offline courses, enable being less active (lurking behavior) (Küçük, 2010; Ruthotto et al., 2020; Szopinski & Bachnik, 2022). Remote learning brings about yet another issue of concern - low emotional engagement among students (Tiam & Lu, 2022). In an online classroom, it is easier than in a lecture hall for a student to perform multiple activities at the same time. For example - one may be at work and listen to an online lecture simultaneously. Moreover, according to Alghamdi et al. (2020), multitasking can negatively affect academic performance. A study conducted by Stecula and Wolniak (2022) during the COVID-19 pandemic shows that, according to the students surveyed, the positive aspects of e-learning far outweigh the negative ones. The results confirmed that e-learning can be useful even after the pandemic has come to an end. Its advantages could make it an alternative to traditional classes in some fields of study. The benefit of e-learning in terms of reducing the spread of the virus was only the sixth most important benefit for respondents. This shows that while the pandemic has spurred the widespread use of e-learning in universities, its use has made students aware of other benefits. A good rapport with university teachers has a significant impact on the reduction of the perceived disadvantages of e-learning.

During the pandemic, those who rated their engagement to learning higher also rated the situation in which learning took place online higher than those reporting low engagement. The results show that students who reported being diligent learners did not reduce the frequency of their class participation after switching from traditional to remote learning, in contrast to students who reported low levels of class engagement prior to switching from traditional to remote learning. The respondents from the former group, when faced with the choice of attending online or offline courses in the future, chose the online forms more often. This may be explained by the fact that the value of a lecture stays the same for those who want to learn, regardless of the form. In a situation where a person treats their studies as an opportunity to socialize or a chance to legalize their stay in Poland, online learning is not as attractive and does not provide the same opportunities as brick-and-mortar education (Szopinski & Bachnik, 2022). A pre-pandemic study by Clayton et al. (2018) found that when given a choice, students generally preferred to study in a traditional way. They found them to be more engaging and interactive than the online or blended style of education. According to Bouchrika (2023), the deciding factors for choosing to study online include the price of the service, the reputation of the university, the degree program, and availability of a program with a fast track to a degree (Bouchrika, 2023). The intensity of participation in online courses varies depending on demographic characteristics such as age, race, and ethnicity (Ruthotto et al., 2020).

Research on differences in attitudes toward distance learning among students of different fields is lacking. One such study was presented by Ignaciuk and Gutowski (2022). The study was conducted during the COVID-19 pandemic among students at a Polish university located in northern Poland. The highest percentage of those preferring remote lectures occurred among students of computer science, chemistry, economics. However, the authors of the above article only provide percentage distributions of preferences according to the field of study. It is not known to what extent the reported relationships are statistically significant. World literature predominantly includes studies on at-

titudes toward remote learning of medical science students (Gheshlagh et al., 2022; Muflih, et al, 2021; Tiam & Lu, 2022; Zheng et al., 2021; Zhang et al., 2023). One can also find the results of a study on attitudes towards remote learning among participants of English courses for foreigners (Yang et al., 2021) conducted among students of management (Szopiński & Bachnik, 2022), among students of technical universities (Stecula & Wolniak, 2022) or among students of hospitality and tourism (Chandra et al., 2022). According to the above, the following research hypotheses emerge:

H1: There is a statistically significant relationship between the field studied and the frequency of participation in online classes;

H2: There is a statistically significant relationship between the field studied and attitudes toward remote learning.

An important factor that had a huge impact on higher education in the 1990s was the large number of people who entered the job market without a tertiary education degree. However, their career advancement was limited, as senior positions in public administration and large public companies were often formally restricted to those with a university degree. Consequently, these individuals were interested in supplementing their education. These were mostly full-time employees who, due to their work commitments, were interested in part-time studies (Antonovich et al., 2017). In Poland, the percentage of part-time students is very high - 35.7% of the total number of students in the 2021/2022 academic year (Central Statistical Office of Poland, 2022). According to analyses carried out by Alexander (2006), it appears that the strength of the educational motivations of adults taking up part-time studies is very high in this group. As a result, the respondents embarked on a difficult (and one requiring considerable funds, sometimes borne by the entire family) educational path. This proves that education has become a value for them. Without it, they would not be able to find their place in today's changing and increasingly difficult social and civilizational reality. In today's changing social, political and cultural reality, they see education and lifelong learning as a way of life. Chorab's (2016) analysis of students at Polish universities suggests

they are a diverse demographic. They carry a sense of transience, awareness of the "here and now", and fear of what the future holds. Students vary in the amount of time engaged in education by gender, type of study, type of university, mode of study, and size of the city in which the university is located (Gajderowicz et al., 2015). A noticeable characteristic of students is an increase in urgency due to lack of time. Students are preoccupied with many things in their lives, but they do them without analyzing, without drawing conclusions. Today's students are extremely busy, they often pursue two or more degrees simultaneously, and most are employed or do internships. Consequently, they do not have time for themselves and personal development. The results of the study by Romaniuk and Łukasiewicz-Wieleba (2021) show that among the surveyed undergraduate students of pedagogy during the COVID-19 pandemic, there was a significant group of students whose desire was to maintain the online mode of study as long as possible because of, among other things, a better opportunity to plan their free time, which is especially important for part-time students. According to the survey results, the economic situation following lockdown has worsened the material situation of students. Many active students had to give up their jobs as a result of the pandemic. Some of them have experienced difficulties in paying their own financial obligations on time. There was a decrease in the satisfaction with studying during the period of social isolation (Myszka-Strychalska, 2022). According to the above, the following research hypotheses emerge:

H3: There is a relationship between the mode of study and participation in online classes;

H4: There is a relationship between the mode of study and attitudes toward remote learning;

H5: There is a relationship between students' activity on the labor market and frequency of participation in online classes;

H6: There is a relationship between students' activity on the labor market and their attitudes toward remote learning;

H7: There is a relationship between students' age and frequency of participation in online classes;

H8: There is a relationship between students' age and their attitudes toward remote learning.

When analyzing attitudes toward remote learning, it is impossible to ignore the current situation of a wide range of foreigners studying in Poland. Research indicates that the main motivation for Ukrainians to study in Poland is the opportunity to pursue legal employment (Kapera, 2017). At the time of the survey, the war in Ukraine was still ongoing. Some students have been conscripted. Some of them do not have the opportunity to come to Poland. Accordingly, the following research hypotheses were put forward to differentiate the behavior and attitudes of Polish and Ukrainian students:

H9: There is a relationship between the students' nationality and frequency of participation in online classes;

H10: There is a relationship between students' nationality and their attitudes toward remote learning.

3. Methods

The survey was conducted in March and April 2023 on students of a Polish private university. The survey included 1007 students studying exclusively in a remote mode and those studying in a blended mode, in which the lectures are delivered online while the practical classes take place on the university campus. In order to invite students to participate in the study, the system administrator sent an email to them containing information about the study and a link to the online questionnaire to the email addresses provided by the students during enrollment for the study. The respondent group who completed an online questionnaire included persons in different life situations. 64.3% of the respondents worked full-time, 20.6% of students worked part-time, while 15.2% did not work at all. 66.9% of the respondents were extramural students. 53.2% were undergraduate students (bachelor's degree), 15.6% were graduate students (master's degree), while 31.2% were long-cycle master's degree students. For 57.1% of the respondents, studying in hybrid form took place both online and on campus. 42.9% of the respondents studied exclusively remotely. 60.2% of those surveyed were under 24 years old, 12.2% were 25-29 years old, 15.3% were 30-39 years old, and 12.3% were 40 years old and older. 85.4% of the

respondents were Polish, 11.3% were Ukrainian, while the rest of the respondents were Belarusian. 10.3% of the respondents were computer science students, 30.5% were students of economic sciences such as management and finance and accounting, and 11.0% were students of legal and political sciences. In contrast, 37.5% of the respondents were psychology students, and 4.5% were students of philology such as English studies and German studies. 6.2% were students in other fields such as cyber security, dietetics, cosmetology, and new media and public relations. Analyzed variables such as frequency of participation in online classes and attitudes toward remote learning were measured on a five-point scale, where: 1- strongly disagree, 2- disagree, 3- neither disagree, nor agree, 4- agree, 5- strongly agree. For the first variable, respondents were asked to rate the accuracy of the sentence, according to the above scale: "I diligently participate in all remote classes," while for the second variable respondents rated the following sentence: "I have a positive attitude toward remote learning." In order to verify the hypotheses I used the Mann-Whitney, Kruskal-Wallis test and post hoc test were used to verify the hypotheses. For pairwise comparisons, I used the multiple comparison test with Bonferroni correction. In order to measure the effect size of the identified relationships I used the epsilon squared and Glass rank biserial correlation coefficient. Both coefficients assume the value from 0, indicating no relationship, to 1 indicating a perfect relationship (Tomczak & Tomczak, 2014).

4. Results

Table 1 shows the verified correlations using the Kruskal Wallis test between diligent participation in remote classes and the field of study, and between positive attitudes toward remote learning and the field of study. In the case of the first hypothesis: $H=30.316$; $df=5$; $p < 0.001$, while for the second $H=45.224$; $df=5$; $p < 0.001$. Both H_1 and H_2 were confirmed. In this case, the field of study differentiated the frequency of participation in online classes and attitudes toward remote learning. The most frequent participation was declared by legal and political science students. In contrast, psychol-

ogy students were the least likely to declare participation in remote classes. Moreover, computer science students declared the most positive attitude toward remote learning. This was followed by students in of fields described as “other”, then students of philology, economic sciences, and legal and political sciences. The least positive attitude towards remote learning was declared by psychology students. In the case of the first relationship, $E^2=0.030$. This means that the field of study explains 3% of the variation in results regarding the frequency of participation in remote classes. On the other hand, in the case of the second relationship, $E^2=0.044$. This means that the field of study explains 4.4% of the variation in the results on attitudes towards remote learning.

In order to examine whether the tests are significant for each pair of groups, I additionally used the multiple comparison test with Bonferroni correction. In the case of the relationship between the field of study and the frequency of participation in online classes, I stated that students of psychology have a lower frequency of attendance than students of economics sciences ($Z= 3.580, p=0.005, r_g=0.163$) and legal and political sciences ($Z= 4.496, p<0.001, r_g=0.203$). Differences between other pairs of fields of study were not statistically significant. In the case of the relationship between the field of study and the attitude toward remote learning, I also found that psychology students had a lower average for attitude toward remote learning than economics sciences students ($Z=4.933, p<0.001, r_g=0.188$) and computer sciences ($Z= 5.449, p<0.001, r_g=0.248$). Differences between other pairs of fields of study were not statistically significant.

Table 2 shows the verified relationships, using the Kruskal Wallis test, between diligent participation in remote classes and respondents' work situation, and between positive attitudes toward remote learning and respondents' work situation. In the case of the third hypothesis: $H=25.791; df=2; p<0.001$, while for the fourth $H=44.113; df=2; p<0.001$. Both H_3 and H_4 were confirmed. In this case, respondents' employment situation differentiated the frequency of participation in online classes and attitudes toward remote learning. The most frequent participation in remote activities was

declared by students working full-time. In contrast, students who were unemployed or working part-time were the least likely to declare participation in remote activities. The most positive attitude toward remote learning was declared by students working full-time. Students working part-time had the least positive attitude toward remote learning. Respondents' professional situation explains 2.5% of the variation in the results regarding the frequency of participation in remote classes, and 4.3% of the variation in the results regarding the attitudes towards remote learning.

In the case of the relationship between different levels of students' labour activity and the frequency of their participation in online classes, I stated that students working part time obtain a lower average for frequency of participation in classes than students working full time ($Z= 4.969, p<0.001, r_g=0.170$). Differences between non-working students vs. full-time working students, and non working students vs. part-time working students were not statistically significant. In the case of the relationship between different levels of students' labour activity and their attitude toward remote learning, I stated that students working part time had a lower average for attitude toward remote learning than students working full time ($Z= 5.786, p<0.001, r_g=0.197$). Non working students had a lower average for attitude toward remote learning than students working full time ($Z= 4.430, p<0.001, r_g=0.156$). Differences between non-working students vs. part-time working students, was not statistically significant.

Table 3 shows the verified relationships using the Kruskal Wallis test between diligent participation in remote classes and students' age and between positive attitudes toward remote learning and students' age. For the fifth hypothesis: $H=45.900; df=3; p<0.001$, while for the sixth: $H=40.761; df=3; p<0.001$. Both H_5 and H_6 were confirmed. In this case, the age of respondents differentiated the frequency of participation in online classes and attitudes toward remote learning. Students in the 40+ age group reported the most frequent participation. In contrast, the youngest students in the 24 and under group were the least likely to report participation in remote classes. In the case of the relationship

Table 1*List of Verified Hypotheses 1-2*

Item	Field of study	N	Average rank	Kruskal Wallis Test		E^2
				H	p	
I diligently participate in all remote classes	Computer Science	104	536.35	30.316	<0.001	0.030
	Economic sciences	307	525.89			
	Legal and political sciences	111	581.84			
	Psychology	378	452.76			
	Philology	45	563.09			
	Other	62	471.45			
I have a positive attitude toward remote learning	Computer Science	104	598.55	45.224	<0.001	0.044
	Economic sciences	307	538.57			
	Legal and political sciences	111	500.63			
	Psychology	378	437.26			
	Philology	45	547.92			
	Other	62	555.26			

Table 2*List of Verified Hypotheses 3-4*

Item	Respondents' professional situation	N	Average rank	Kruskal Wallis Test		E^2
				H	p	
I diligently participate in all remote classes	I study but I am unemployed	153	483.25	25.791	<0.001	0.025
	I study and work part-time	207	427.78			
	I study and work full-time	647	533.29			
I have a positive attitude toward remote learning.	I study but I am unemployed	147	439.12	44.113	<0.001	0.043
	I study and work part-time	200	422.05			
	I study and work full-time	617	545.56			

Table 3*List of Verified Hypotheses 5-6*

Item	Age of respondents	N	Average rank	Kruskal Wallis Test		E^2
				H	p	
I diligently participate in all remote classes	up to 24 years	606	462.51	45.900	<0.001	0.045
	25-29	123	509.91			
	30-39	154	579.44			
	above 40	124	607.23			
I have a positive attitude toward remote learning	up to 24 years	606	460.69	40.761	<0.001	0.040
	25-29	123	574.09			
	30-39	154	579.95			
	above 40	124	551.80			

between age and attitudes toward remote learning, the most positive attitudes toward remote learning were declared by students in the 30-39 age group and, and the least positive attitudes were expressed by students in the 40+ age group. Respondents' age explains 4.5% of the variation in the results regarding the frequency of participation in remote classes and 4.0% of the variation in the results regarding the attitudes towards remote learning.

In the case of the relationship between student's age and the frequency of their participation in online classes, I stated two dependences: students up to the age of 24 had a lower average for attitude toward remote learning than students in the age category from 30 to 39 years old ($Z= 4.873, p<0.001, r_g=0.177$), students up to the age of 24 had a lower average for attitude toward remote learning than students in the age category 40 years old or more ($Z= 5.522, p<0.001, r_g=0.204$). In the case of the relationship between student's age and their attitude towards remote learning I stated following dependences: students up to the age of 24 obtain a lower average for frequency of participation in classes than students in the age category 40 years old or more ($Z= 3.458, p=0.003, r_g=0.127$), students up to the age of 24 obtain a lower average for frequency of participation in classes than students in the age category from 25 to 29 years old ($Z= 4.290, p<0.001, r_g=0.128$), students up to the age of 24 obtain a lower average for frequency of participation in classes than students in the age category from 30 to 39 years old ($Z= 4.944, p<0.001, r_g=0.125$).

Table 4 shows the verified relationships using the Mann Whitney test between diligent participation in remote activities and mode of study, and between attitudes toward remote learning and mode of study. For the seventh hypothesis: $Z=-6.061; p<0.001$, while for the eighth $Z=-8.394; p<0.001$. Both H_7 and H_8 were confirmed. In this case, mode of study differentiated the frequency of respondents' participation in online classes and their attitudes toward remote learning. More frequent participation in remote classes was declared by students enrolled in part-time studies than by those enrolled in full-time studies. The same relationship occurred when assessing students' attitudes toward remote learning. Students enrolled in part-time studies

had a more positive attitude toward remote learning than those enrolled in full-time studies. For the seventh correlation found, Glass rank biserial correlation coefficient takes a value of 0.190, and for the eighth takes a value of 0.264. In this case, mode of study explains 19% of the variation in the results for frequency of participation in remote classes and 26.4% of the variation in the results for attitudes toward remote learning.

Table 5 shows the verified relationships, using the Mann Whitney test, between diligent participation in remote classes and students' country of origin, and between attitudes toward remote learning and students' country of origin. For the ninth hypothesis: $Z=-1.749; p=0.080$, while for the tenth $Z=-1.796; p=0.073$. Both hypotheses H_9 and H_{10} were not confirmed. In this case, there were no differences in the frequency of participation in online classes or attitudes toward remote learning between Polish and students from the countries of the former Soviet Union. Due to the lack of a found relationship between the analyzed variables, measures regarding the strength of the relationship between them were not calculated.

4. Conclusion

Kaewsaiha and Chanchalor (2021) consider students from different majors during construction of the Technology Acceptance Model for remote learning. However, no one to date has analyzed whether the field of study differentiates attitudes toward remote learning. The analysis reveals clearly that psychology students rated the situation in which learning takes place remotely the lowest. This may be due to the fact that this group of students has a greater appreciation for in-person meetings. The work of a psychologist often requires both verbal and non-verbal assessment of the interlocutor or the patient. Online learning can make it difficult to analyze an interlocutor's nonverbal cues. Zhang et al. (2023) study of medical students' preferences regarding distance learning found that they perceived it as inefficient. Both psychology and medicine require a multifaceted view of diagnosed patients. The study by Gheshlagh et al. (2022) shows that a frequently cited disadvantage of e-learning is its inadequacy in teaching practical skills. This was

Table 4*List of Verified Hypotheses 7-8*

Item	Mode of study	N	Average rank	Mann-Whitney U Test		r_g
				Z	p	
I diligently participate in all remote classes	full-time	333	431.74	-6.061	<0.001	0.190
	part-time	674	539.70			
I have a positive attitude toward remote learning	full-time	333	403.41	-8.394	<0.001	0.264
	part-time	674	553.70			

Table 5*List of Verified Hypotheses 9-10*

Item	Country of origin	N	Average rank	Mann-Whitney U Test	
				Z	p
I diligently participate in all remote classes	Poland	860	509.54	-1.749	0.080
	countries of the former Soviet Union	146	467.95		
I have a positive attitude toward remote learning	Poland	860	509.73	-1.796	0.073
	countries of the former Soviet Union	146	466.82		

cited as the most important challenge indicated by medical students. Both medical and psychology studies include a multitude of practical classes. The results described in the current study come from the first survey of its kind that analyzes students' remote learning behaviors across different fields of study. Therefore, it is difficult to relate the results obtained to previous studies. The results of the present study showing that the impact of mode of study on perceptions of remote learning are consistent with earlier studies conducted during the pandemic (Jaworek, 2021). My research unequivocally show that students enrolled in part-time studies were the most likely to take online classes and rated this situation the highest. Among all the analyzed variables, the mode of study has the greatest impact on the frequency of participation in classes and attitudes toward remote learning. Moreover, age was a variable that positively influenced the frequency of participation. In contrast, the relationship between age and attitudes toward remote learning is not linear. The youngest students (in the group up to 24 years old) and the oldest students (in the group 40 years old and older) rated remote learning the

lowest. In turn, having a full-time job had a positive impact on the assessment of remote learning and the frequency of participation in online classes. This may be due to the fact that young students who are not burdened with family responsibilities may see studying as an opportunity to, for example, find friends or a life partner, while older students often study to supplement their education. They do not expect to have a social life associated with studying. Having a multitude of responsibilities and greater experience may lead them to organize their time in a better and more mature manner. Therefore, they participate in online classes more frequently than students in the youngest age group (under 24 years old). Online education can be considered a cost saving innovation (Okano et al., 2023). Knowing the behavior and preferences of students with different demographic characteristics will be increasingly important for universities that face the need to reduce energy costs. By understanding the needs and motivations of students, universities can make better decisions about how to deliver their services while reducing the costs of their operations. The impact of ICT and the spread of remote learning

on the quality of education is a matter of debate. According to Gallego Sánchez et al. (2021), remote education provides additional flexibility in the learning process. The development of technology that allows the use of ICT in higher education allows universities to improve their competitiveness and increase their research potential. As noted by Alam and Parvin (2021), during the COVID-19 pandemic there was an overuse of ICT in education which to some extent warped the philosophy of higher education.

Respondents' answers cannot be generalized to the entire student population. The results could have been completely different if the survey had included responses from medical students such as medicine and nursing. The analysis presented here largely included responses from social science students. It would be cognitively interesting to compare the responses of students from other universities, such as medical, technical, or arts universities.

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