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How Greek Students Experienced Online Education during Covid-19 Pandemic in Order to Adjust to a Post-Lockdown Period

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Abstract: Following an unprecedented situation of confinement due to the Covid-19 pandemic, academic institutions were called to focus on supporting telecommunications technologies. For the first time, Higher Education went completely online. The authors of this research conducted an online voluntary survey where Greek students could answer questions about the distance education, they had experienced during the Covid-19 lockdown, particularly of the synchronous type. The purpose of this research was to investigate the major issues that created impediments to the students, both the technical barriers that made it difficult to communicate, and the teaching/learning challenges raised because of emerging trends. Recognizing the main problems that arose in the educational process during the lockdown period leads to a better communication in the future in the field of distance education. The students were informed about the research by the Student Counseling Center of their universities but also via posts on well-known student content websites. The research results have shown that most students attended synchronous communication online classes (the theoretical and the practical ones) in replacement of their face-to-face lessons. The students pointed out some negative aspects of online education concerning synchronous communication educational practices, but also how their classes were organized and presented. They referred to the main technical difficulties that occurred - on the part of the teacher - preventing a satisfactory communication, as to the practices that stressed them or to the lack of communication between students and teachers they experienced during the lockdown. Nevertheless, despite these problems, most students are interested in continuing online learning in combination with traditional courses in a classroom. Overall, this study provided important, additional information in respect of the students' perceptions towards online education during the first quarantine.

Keywords: Covid-19, Pandemic, Higher education, Distance education, Pedagogy, Attitudes

1. Introduction

Mankind is experiencing an unprecedented situation due to the rapid spread of a particularly threatening virus, characterized by uncertainty about the future. With no previous experience, all sectors of society were called upon to face this new ordeal by coping in the best possible way. Without exception, the academic sector had to immediately adapt to this new situation and to continue its work (Schleicher, 2020; Weeden and Cornwell, 2020).

In most countries, education rapidly went online (UNESCO, 2020a; Weeden and Cornwell, 2020), and the Greek educational system was abruptly confronted to online education – while many teachers did not possess any or sufficient skills to keep up with it. This rush was due, on the one hand, to the uncertainty of how the pandemic would develop and, on the other, in order not to raise the issue of having to retake an entire academic year (IESALC, 2020; Ministry of Education in Greece, 2020a).

As in Higher Education, students and teachers also were kept away from campus to continue the educational process via online education. What does this mean for both parts? It means that for a smooth achievement of this new educational process students should adapt to the new modes of delivery while teachers ought to ensure the learning process.

Studies conducted around the world during the lockdown period found that there is a significant percentage of students who felt negatively affected (Means and Neisler, 2020; Quacquarelli Symonds, 2020) and this not only in relation to their academic, but also to their social activities (Killan, 2020). Findings in other studies show in within-person comparisons that students were slightly more anxious and more stressed, on average more depressed and felt lonelier than half a year earlier (Cao et al, 2020; Elmer, et al., 2020; Sundarasen, et al., 2020).

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In view of the aforementioned pandemic crisis' consequences, we investigated the students' experiences and opinions regarding online education, based on various empirical data. According to a survey administered to a national sample of undergraduate students, by Means and Neisler (2020), notwithstanding the large decrease in the students' satisfaction with their online courses, the majority demonstrated satisfaction to a certain degree with the remote instruction. Factors such as the number of challenges and frequency of technology problems were associated with online course satisfaction. Many students cited the difficulty staying motivated to do well in the course as a problem. In addition, Quacquarelli Symonds (2020) pointed out that the proportion of students who are not interested in online degrees has decreased from March to August of 2020. Students' satisfaction regarding online education and factors that affect it, such as website services, platform value, course content, methods of teaching, quality of delivery, learning environment, and tutorials, have been studied in several studies worldwide (Raza, et al., 2020). Finally, dimensions that impact the feasibility and the quality of the online education provided may include technical infrastructure, accessibility, and distance learning competences (Marinoni, et al., 2020). Hence, in order to understand 'how' students experienced these new forms of academic education during the lockdown period in our country, we conducted an online survey, in which undergraduate students were asked to voluntarily answer questions about the problems and challenges they had met.

Our research had a twofold character: to highlight not only the positive and negative points that emerged but also the attitude of students towards online learning, most of them having to admit that it was something quite new.

2. From the mode of face-to-face teaching to emergency distance learning

On April 10th of 2020, 194 countries decided to close all schools and academic institutions, leaving out some 1.58 billion learners (90.1% of all learners worldwide) of any formal learning process (UNESCO, 2020b). In order to continue its task, the global academic community had made a rapid transition from formal mode face-to-face to online learning.

In the case of higher education institutions in order to ensure the delivery of courses, online teaching meant using special web communication tools, the so-called synchronous distance education platforms which would work in conjunction with asynchronous communication platforms (course management systems - CMS or learning managements systems – LMS). Countless students were forced to adapt to a completely different way of communicating with their teachers and fellow students, and countless teachers were called upon to adapt to these communication tools and at the same time turn their lesson completely into an online one. Yet despite ensuring the continuation of face-to-face classes with online courses, no one could say the same about equal access for all users, not even about the effectiveness of learning from the educational practices adopted by teachers during the distance learning period.

As in most countries over the world, all academic institutions in Greece had to close after the 10th of March. On the 17th of March the Greek Ministry of Education ordered that in only one week (until the 24th of the same month) the university institutions of the country had to be ready for a complete transition from traditional face-to-face learning to online education (Ministry of Education in Greece, 2020a).

All university institutions were compelled to react immediately to the new requirements. Academic institutions had to show rapid reflexes and seemed to adapt to the processes of synchronous distance education (Raikou, et al., 2020). Students and teachers managed to continue the educational process, the main result of these efforts being the successful completion of the academic semester (Ministry of Education in Greece, 2020b).

Reference is made to modern communication since the staff of all Greek academic institutions in the country has for many years at its disposal asynchronous communication platforms and knows how to use them in combination with face-to-face learning (LMS such as Moodle and e-class, a free open-source asynchronous education platform being the most widespread in Greek academic institutions).

Despite the Greek academic members' experience in asynchronous education, it is natural to have many questions and objections about the feasibility of substituting teaching in the classroom with synchronous online teaching, since online classes have displayed limitations, including time flexibility, problems with internet access and internet connection quality, and insufficient digital skills (Bączek, et al., 2020). Some questions involve the teachers' willingness to use the new tools and adapt their teaching strategies, students' ability to cope with new

communication forms, plus the availability of an appropriate equipment, and finally, the impact that this whole new situation had on individuals' behavior during the lockdown.

3. Research design and methods

In order to be able to better understand and assess the new education conditions related to the transition from classroom to online learning, we created in Google forms an anonymous online survey addressed to undergraduate students of Greek universities. Students could voluntarily respond about both the opportunities and the difficulties of online education during the lockdown.

The research was conducted in collaboration with the Student Counseling Center of School of Pedagogical and Technological Education (ASPETE), through which the respective Counseling Centers of the remaining academic institutions of the country were notified. In order to inform the students, in many institutions a question form was posted on the respective websites of the Counseling Centers as on well-known student content websites.

While the academic institutions closed on March 11, the research website had been collecting answers from May 16 to June 18, just three weeks after the partial reopening of the academic institutions on May 25 (Ministry of Education in Greece, 2020b).

3.1 Instruments

The questionnaire include demographic questions about gender, school and year of study, as well as questions of two main categories:

- Category 1: Problems that occurred during online education due to technology and communication tools used (computer/laptop, tablet, mobile phone, microphone, web camera and network connection), and
- Category 2: The educational process and pedagogical challenges during online education.

All questions were closed-ended (see figure and table captions in the 'Findings and discussion' section), giving the possibility of a different answer (Other). Only the last two questions were open-ended:

1. 'What changes should be made in the field of online education in order to help you complete your studies successfully?'
2. 'Do you wish to continue online classes after the lockdown period, and for what reason'

4. Findings and discussion

A total of 370 students from 25 academic institutions participated voluntarily, all at undergraduate level (see Figure 1) of which 235 were women (63.5%) and 135 were men (36.5%).

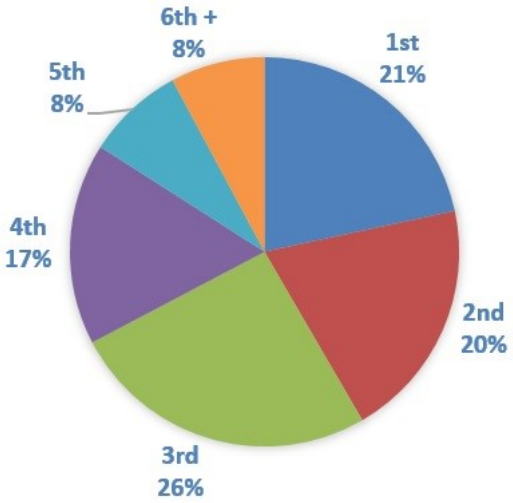

Figure 1: Academic year of undergraduate students who took part in the research

Out of 370 registered students, 341 (92.2%) answered positively the question whether they agreed to continue or not, a number representing the whole sample of the study.

First category of questions: Information and Communications technology (I.C.T.) tools used and problems that appeared during distance education.

The students had to say which I.C.T. tools they had been using during online education. 98.2% had an internet connection in their place of residence during the quarantine period, 53% of which said that they were satisfied with their connection speed (42% good and 11% very good). Also, 96.8% were owners of a personal computer and / or a laptop with 57.6% of them stating that they do not share it with another person.

In particular, (see Table 1), a high percentage of students stated that they had been using a laptop for their online classes (73%) and another significant percentage had been using their mobile phone (41.9%). A certain percentage of students of 26.1% used a personal computer, while some used a tablet (6.2%).

Table 1: Computer / Mobile tools used by students during online classes

PC Tool	Total N	Percentage%
Personal Computer	89	26.1
Laptop	249	73
Tablet	21	6.2
Mobile Phone	143	41.9

At the end of this category students were asked to name the technical obstacles they encountered during synchronous communication with their teachers (see Table 2). As it can be seen from the table below, the most common problems were network and interconnection issues (51.3%), followed by insufficient acoustics which in total reaches 52.8% namely 14,9% inability of voice communication on the part of the student and 37.9% poor acoustics on the part of the teacher. Regarding the weakness or the quality of the image transmission, the percentage amounts to 38%, with 9.6% for the student's inability to communicate through the image and 28.4% by the student poor image quality on the part of the teacher. Finally 22.1% stated that they faced no technical problems.

Table 2: Technical problems you faced during synchronous online classes

Technical problems	Total N	Percentage%
Frequent connection problems	172	51.3
Inability of voice communication on the part of the student	50	14.9
Poor acoustics	127	37.9
Inability of the student to communicate on screen	32	9.6
Poor image	95	28.4
I had no problem	74	22.1

Indicative answers given in the field "Other" are also mentioned, which we consider to be important for understanding communication problems, such as:

- "Poor infrastructure for lessons that required exercise solving (lighting, cameras with 240p-480p resolutions) if 720 is not HD I think it is a very big drawback as we cannot keep clear notes"
- "If too many people were online, we were being thrown out of the system"
- "My eyes got tired whenever I had to watch the lesson due to the small screen of my mobile phone. Plus, the teachers did not post the material of the next lesson in the e-class so that we could have accessed the lesson from there and listen to them on our mobile phone"
- "I would run out of Megabytes".

Second category of questions: The educational process and pedagogical challenges during online education

First of all, the students were asked about how often they had attended synchronous online theoretical and practical (laboratory) courses (if the schedule planned any). As for the theoretical courses, the answers "Very often" to "Always" were given by 72.4% of the students, while 14.1% answered that they had been attending those classes at a "moderate frequency".

Of all the students, 71.6% also had to attend practical (laboratory) courses, 89.5% attending from "Very often" to "Always" and 5.1% at a "moderate frequency".

The questions that followed reveal the students' attitude towards synchronous online education, as they were experiencing it for the first time. So, we asked them to rate the whole process from 1 (I do not like it at all) to 5 (I like it very much) (see Figure 2). Most students rated it as an average of 3 (35.2%), while 41.6% chose the most positive rates, from 4 (26.9%) to 5 (14.7%). On the contrary, 23.2% consider distance education to be below average (7.9% for 1 and 15.3% for 2).

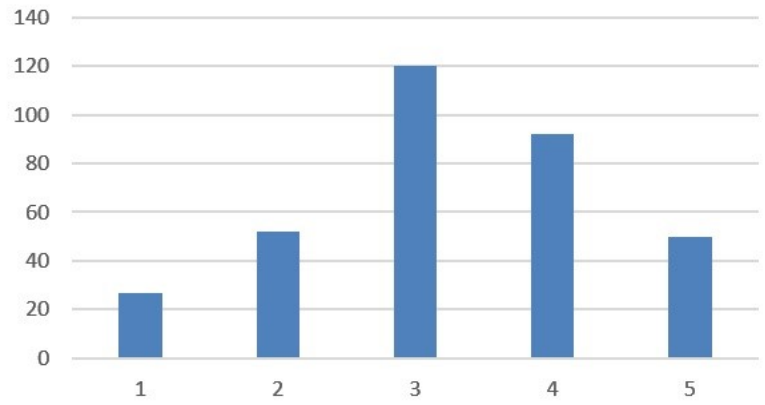

Figure 2: From 1 = I do not like at all up to 5 = I like it very much, how do you evaluate your experience so far with your online classes?

Students were then asked to report cases where distance learning communication methods create negative emotions (see Table 3). In the case of synchronous communication, the negative emotions were provoked by "Tiring and long lectures" (47.5%), the "Lack of interaction" (39.6%), the "Sense of lack of communication with the teacher" (35.5%) and finally "An exclusive use of slides" (33.7%). In the case of asynchronous communication, the option "Lack of feedback" (15.8%) appears at a smaller percentage as well as the "Poor class material organization" (15.2%). Finally, 13.5% had nothing negative to report.

Table 3: When online classes create negative emotions

Negative emotions	Total N	Percentage%
Lack of communication with the teacher	121	35.5
Frequent use of slides	115	33.7
Lack of interaction	135	39.6
Boring and long lectures	162	47.5
Lack of feedback	54	28.4
Poor class material organization	52	15.2
Nothing negative to report	46	13.5

Being asked what stressed them while having online classes during the quarantine period (see Table 4), most of students referred to "Having to spend hours in front of a computer screen" (73%). "Fatigue / inability to concentrate" comes second in options (46.9%) and then "Feeling lonely or isolated" (30.8%).

A percentage of 12.9% also referred to issues of "Disruption to family life" while 16.4% of them reported no impact.

Table 4: What stressed students during online education

Triggering fact	Total N	Percentage%
Long hours in front of a screen	249	73
Feeling of fatigue or inability to concentrate	160	46.9
Feeling of loneliness or isolation	105	30.8
None	56	16.4
Disruption to family life	44	12.9

To the question "What do you miss most during your online learning period?" (see Figure 3), the students indicated as their first choice the "Face-to-face and interactive contact communication with their fellow

students" (74.5%), the "Possibility of direct communication with the teacher" as the second (57.5%) and last, with a percentage of 51%, their "Physical presence in class".

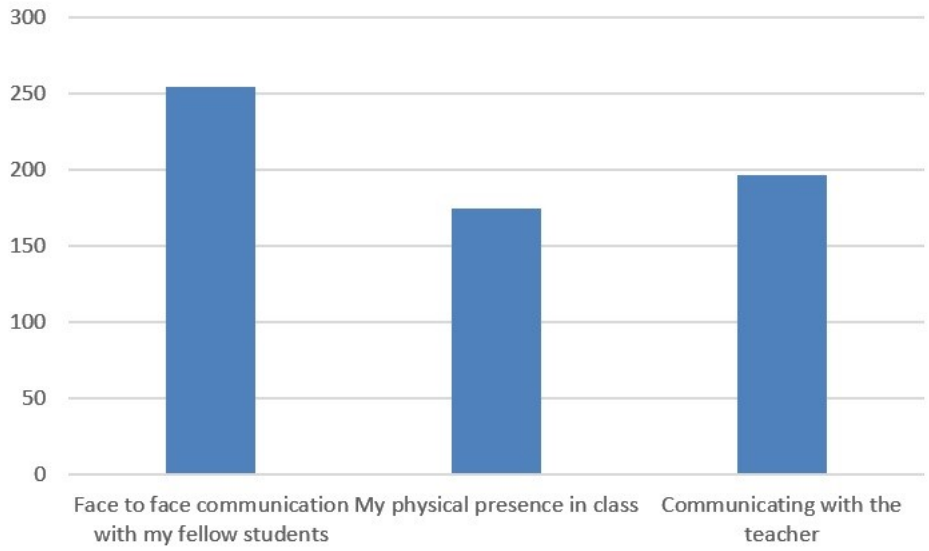

Figure 3: What do you miss most during your online learning period?

In the next question we asked the students to give us their opinion about what changes should be made in the field of online education so that they can successfully complete their studies. The question was open-ended and we received a total of 166 answers. In order to be able to understand the students' answers, we created 6 categories of content (see Figure 4).

First category of answers: Technical issues (3%)
The students proposed that a higher speed and broadband connections stability or the combinatorial use of special online applications with the synchronous distance education platform would improve the communication process.

Second category of answers: Back to the classroom (8.4%)
The percentage of students, as shown above, prefer to attend conventional classes and take part in face-to-face lessons.

Third category of answers: Organization (32.5%)
This category is about a better organization of the teaching material and any form of material shared through the asynchronous education platforms (for instance e-class or Moodle), an immediate feedback from the teacher regarding any kind of change, a better preparation of the lesson by the teacher during synchronous communication, but also the knowledge of the use of electronic tools by the teacher to achieve a better communication.

Typical is the response of a student: "*All I would say is that maybe some people should be more organized, (teachers did not always send email with the link permitting us to participate in the course, they just forgot) but I understand that they are quite lost because there are so many new things to handle*"

Fourth category of answers: Educational practices (56.6%)
The largest percentage of answers was about issues related to the educational practices used by their teachers during synchronous communication. References are made to the lack of interaction and communication, to the long lectures, insufficient breaks, to the insufficiency of choices of different means and ways of transmitting information during class.

Here are some of the students' requests as follows:

- "A better interaction with teachers. Students should not be mere receptors of information-without being able to participate"
- "The pdf-files in the e-class without further explanation and discussion have no meaning for me. It takes me many hours to understand them and at some point I just give up" (e-class is a LMS)
- "More interaction and not just a bunch of dry lectures"
- "… teachers should be more interested in the quality of the lesson than in the quantity of the material… they should be willing to change the way they teach"
- "Teachers should try as much as possible to address the students for a discussion and use other means to transmit knowledge, for instance through movies, articles"
- "i'm really terribly bored and having to sit all day in a chair is just freaking me out"

Fifth category of answers: Inclusive education (3.6%)
This percentage of responses ranged from issues like the concern on the part of the teacher, the Faculty and the Greek State. They refer to the insufficient assistance to students with learning difficulties, and to the lack of a minimum necessary electronic material to achieve online communication. The following answers are indicative:

- "Providing care and counseling on how a student with learning difficulties should deal with distance learning"
- "… help students who do not have access to a computer or to the internet… "

Sixth category of answers: I do not want any change – No changes (6.6%)

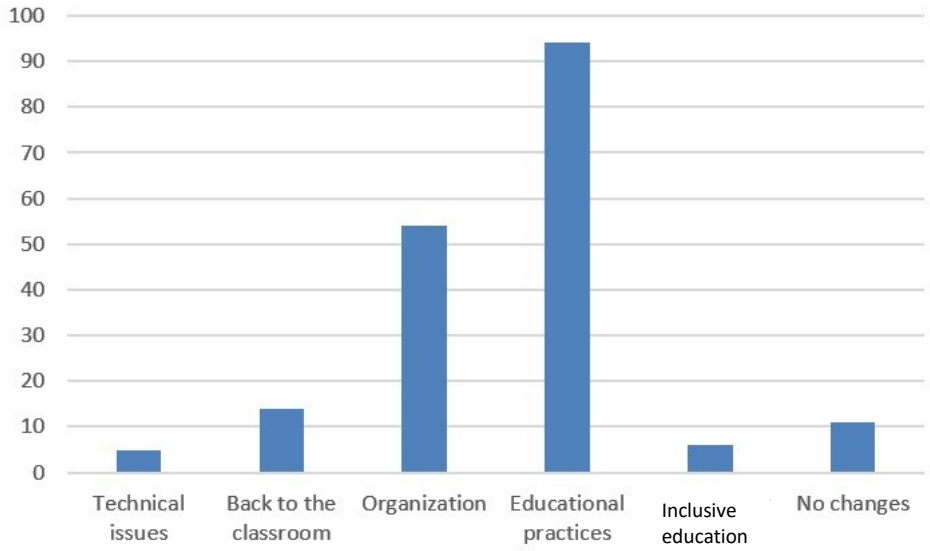

Figure 4: What changes should be made in the field of online education in order to help you complete your studies successfully?

Finally, the students were asked if they wished to continue online classes after the lockdown period, and for what reason. There were 197 positive answers (57.8%) and 166 of the students justified their opinion.

Because the question was open-ended, according to the answers we received, we proceeded to classify them into 3 main categories (see Figure 5).

First category of answers: Special conditions (33.1%)
Here we included answers that contained a particular or personal condition, such as the existence of financial problems, plus issues concerning members of vulnerable groups or people with family issues. Indicatively, we are quoting the following answers:

- "*This was a fortunate situation for me, because I am mother of a baby and I have nobody to help me. This was the only way for me to attend classes*"
- "*I am member of a vulnerable group. For this reason, online classes helped me avoid being exposed*"
- "*Online lessons helped me because I may not be able to afford to attend lessons (rent, travel expenses)*"

Second category of answers: A different educational practice (14.5%)
This category includes answers relating to the educational practices students experienced during the lockdown. Indicative information:

- "In the current situation, some teachers send us earlier the material that they would teach in their lesson, so that we have an idea of what we will discuss in class. This is very useful, because I have already studied the material and I can ask questions (when this does not happen and we are being sent the material later, eventual questions are being rejected because they tell us that they have already explained them in previous lessons)"
- "It helped me a lot because I could watch the videos that the teacher had sent whenever I wanted and as many times I wanted in order to understand the lesson"

Third category of answers: Time saving (59.6%)
Some students thought that it would be important to continue online education because it helped them save time, especially for those who have to cover long distances in order to get to class. The following answers are indicative:

- "*I cover long distances to get to my Faculty, spending money on food and drinks all day since I do not have the opportunity to return home and leave again. Usually if the next lesson is late, I decide not to attend it.*"
- "*Because I need two and a half hours to go to the university and back*"
- "*I belong to those students who need to work while studying. Therefore, distance learning helps me to have more free time that can be used for studying*".

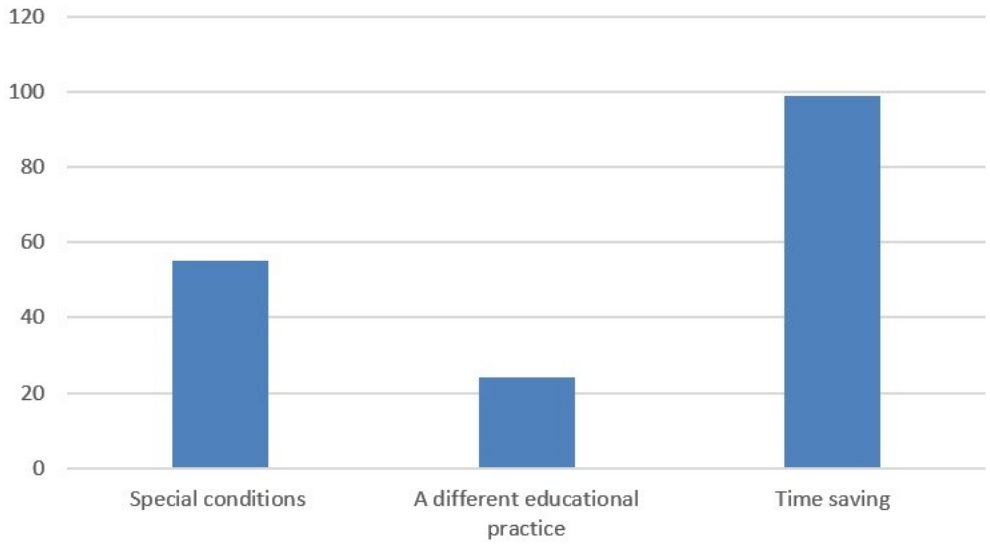

Figure 5: Why do you want to continue online learning?

5. Discussion

The aim of the present nationwide study, that took place during the first quarantine period, was to identify the major issues that created impediments to the students, with respect to their learning process of online education, and their attitudes towards it, and to explore the changes that could be implemented so as to improve the online academic services provided.

It is positive to see that almost all of the students were able to have access to the internet in their place of residence during the lockdown (98.2%), as well as access to a Personal Computer or to a laptop (99.1%) (Table 1).

Moreover, it is encouraging for the whole effort of the academic community to see that the attendance frequency of online lessons ranges from "Very often" to "Continuously" (72.4%). Especially in the case of online practical courses (laboratory) the attendance rate reached 89.5%. It should be emphasized that the difference may be due to the mandatory attendance that many Departments specify for their laboratory courses.

We should mention the high percentage of students that used the mobile phone for their online lessons (41.9%, Table 1). It has been proven that the educational use of mobile phones in combination with classroom education, contributes positively to teaching and learning processes (Mileva, 2011; Draves, 2013, p.257). However, we cannot conclude that it has a positive contribution in the case of absolute online learning, such as in the delivery of exercises or practical courses, or even in the reading and studing of digital material, because in that case different designs are needed for mobile devices (Ozdamli and Cavus, 2011).

Certainly, many problems regarding oral or visual communication can be easily be solved, either with the help of people with know-how or by replacing some communication tools (for example camera, microphone, etc.). The fact that a large percentage of students answered that they did not have a reliable connection during their online education (51.3%, Table 2) can only be disquieting, not only in terms of the online courses they underwent during the lockdown but mainly in the event of a similar situation during the new academic year.

The majority of them report that what they missed the most was the communication with their fellow students (74.5%, Figure 3), but also with the teachers (57.5%). Research has shown that the quality of conversations is reduced through technology and mobile communication devices, although the frequency of communication is higher (Przybylski and Weinstein, 2012; Misra et al, 2014; Drago, 2015). It is notable that 30.8% of the students that took part in this survey stated that this was one of the reasons that made them feel lonelier or more isolated (Table 4). Similarly, Karalis and Raikou (2020) noted that most students consider online, in comparison with face-to-face education, as lacking collaboration, social interaction, and socialization.

Furthermore, 47.5% of the students evaluated negatively the long lectures during online lessons (Table 3). Even if the combination of course material – students – teacher interactions has been proved as one of the most important reasons in a successful online course (Swan, 2003), in our case 39.6% said to have been missing the interaction and participation between students as well as between students and the teacher that existed during courses former to the lockdown.

Additional negative aspects that the students pointed out are the frequent use of slides in the lessons (33.7%), an insufficient organization of the learning material (15.2%) and the lack of feedback (28.4%) (Table 3). We could mention in a few words to the organization of the courses, aspects which are also pointed out by the answers given to the question “What would you like to change about the education you are benefitting from?” Specifically, in the category "Organization", they referred to the need to change the structure and presentation of the material, but also to issues related to how teachers prepare their lesson (32.5%, Figure 4). It would be more helpful if the course material was segmented and presented in modules (Clark and Mayer, 2011, p.39; Draves, 2013, p.13, 66).

The above results in combination with the technical problems mentioned in the students' answers (see Table 2), underline the need for a better knowledge of communication applications both in the synchronous and in the asynchronous form.

Schleicher (2020, p. 16) refers to the lack of training of a significant percentage of teachers in ICT distance education. This lack is likely to affect the teaching practices that teachers choose in their communication but also in the way they create, share and present their educational material.

In addition, 3.6% referred to the need to enhance learning opportunities by helping categories of students that are in need, either because they face either learning difficulties or financial issues (Figure 4).

The previous results help us better understand the attitude of students towards online education, that 41,2% of them evaluated as "Good" or "Very Good" (see Figure 2) whereas the rest of the students rated it up to "Average".

Finally, we should not overlook the students' answers on why they want to continue their studies partly online in the post-pandemic era (Figure 5). It is impressive that more than half of them answered positively to that question (57.8%). The majority refers to reasons like saving time (mainly referring to the time needed to get to their Faculty and back), but also to personal conditions (health, financial reasons, social obligations, etc.) at a rate of 33.1%. This conclusion is in accordance with Karalis and Raikou (2020) who also observed that students

were in favor of online teaching, because participation in the class was easier, and the difference compared to the usual process was exciting. Moreover, Baczek, et al. (2020) noted that medical students considered e-learning as an effective in increasing knowledge and valuable teaching method.

6. Conclusion

This research focuses on the views of undergraduate students regarding online education during the lockdown. It is a fact that previously to the lockdown due to Covid-19, online education had not been, for most students and teachers, adopted as the formal teaching and learning methodology and that this mode of education is clearly different from face-to-face lessons in a classroom.

Looking ahead to the new academic year and with many restrictions still in place, the academic world is very well aware that it should be prepared as appropriately as possible. Certainly, online learning has come to stay. It is most certain that the use of online communication can help a wider range of students have access to education. However this does not mean that it will exclusively be the only form of education to the detriment of a traditional face-to-face one. Likewise, in the study of Raikou, et al. (2020) with students at two Greek universities evaluated positively the online education on account of the development of new skills, the convenience of attending courses in their own environment, time and pace, and the improvement of ICT skills.

Whatever measures are taken, a percentage of education will still be online, meaning that in the first post-lockdown era the academic community ought to take care of any issues, deficiencies and inequalities that may have arisen during the lockdown period.

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Exploring Students' Acceptance of Google Classroom during the Covid-19 Pandemic by Using the Technology Acceptance Model in West Sumatera Universities

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Abstract: The learning process in West Sumatera, Indonesia, changed into an online-based system due to the Covid-19 pandemic, which involved educators and students using many platforms of e-learning for teaching and learning. Therefore, the purpose of this research is to evaluate the use of e-learning platforms among students at universities in West Sumatera, Indonesia, during the Covid-19 pandemic, particularly widely used Google Classroom. This research employs the Technology Acceptance Model (TAM) by considering relevant external factors related to the pandemic situation and examining their effects on the acceptance of Google Classroom. A questionnaire was distributed from December 11th to December 31st, 2020, to collect data via an online-based survey. Using Cochran's formula with a confidence level of 95%, 383 students were selected as samples, while Structural Equation Modeling (SEM) was applied as a method for data analysis. The result showed that the facility had made the learning process easy for students, which influenced its usefulness. The facility is related to the possession of the required tools and knowledge to utilize the technology, alongside the significant effect on ease of use and usefulness. When adequately provided, the ease and benefit of using Google Classroom are maximally felt when distance learning is ongoing. Consequently, the ease of use positively influenced the benefits of the platform as its features were simple and benefited the students during the learning process. The usefulness of Google Classroom also had a positive influence on attitude towards the platform, and this variable finally determined the intention to use, which was significantly influenced by the perceived usefulness of e-learning. Therefore, this study shows that factors that determine facility, such as the internet, devices used by students, or knowledge to use Google Classroom, are important in online learning during the Covid-19 pandemic.

Keywords: E-learning, Technology Acceptance Model, The Covid-19 Pandemic, Google Classroom, Structural Equation Modeling

1. Introduction

The Novel Coronavirus Disease 2019 (Covid-19) pandemic caused by Severe Acute Respiratory Syndrome Coronavirus - 2 (SARS-nCov-2) in Indonesia has led to many issues across various sectors, including education, since early 2020. Consequently, the government enforced physical distancing to prevent the viral spread and the learning process that was formerly implemented traditionally or via blended methods has totally changed into an online-based program. Many e-learning or Learning Management System (LMS) platforms, either free or paid, are available for educators and students to teach and learn during the pandemic. According to their situations, online learning offers advantages over the traditional method, mostly concerning accessibility, flexibility, and adaptability for working (Gallagher *et al*., 2005) (Al-Adwan, Al-Adwan and Smedley, 2013).

E-learning is a media that aims to increase the effectiveness of the learning process (Chao and Chen, 2009) and is designed to be applied remotely (Oztekin *et al*., 2013). One of such widely used platforms in Indonesia is Google Classroom, which, according to Appbrain.com, holds the first rank for the number of downloads in the country. (Appbrain.com, 2021). Similar results were also obtained from a survey conducted by Lembaga Arus Survei Indonesia (ASI) from October 7th to 11th, 2020, which showed that it was the most widely used e-learning platform for distance learning during the Covid-19 pandemic (ASI, 2020). Google Classroom is considered the best for improving educators' performance, as ideal for students (Iftakhar, 2016), and is very effective due to the support by various features that facilitate teaching and learning (Al-Maroof and Al-Emran, 2018). Therefore, using this platform can improve the quality of the learning process (Mafa, 2018). Also, Google Classroom is accessible by smartphones, an educator can create rooms for specific subjects consisting of all students in the class (Bhat *et al.*, 2018), and more than one teacher can share a classroom to manage the courses easily. It can also be effortlessly operated and adapted by students (Hussaini *et al*., 2020), which can facilitate distance learning (Shaharanee, Jamil and Rodzi, 2016).

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Although students can easily use this platform, the implementation of technology is not necessarily accepted by users. Acceptance and technology use are the main factors determining the platform's success (Davis, 1993), and failure leads to wasted resources and does nothing (Cowen, 2009). Consequently, various theoretical models to describe or evaluate technology acceptance have been developed by researchers, including the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), Unified Theory of Acceptance and Use of Technology (UTAUT), and Technology Acceptance Model (TAM). TRA is a model of psychological behavior by Fishbein and Ajzen (1975) to explain that a person's intention influences their behavior. The modification of TRA to TPB was implemented by Ajzen (1988) through the addition of perceived behavioral control. Then, Davis (1986) proposed the TAM model, which used TRA as the basis, to explain the acceptance of technology. UTAUT was developed by Venkatesh *et al*. (2003) to explain acceptance and use and it has four primary constructs related to behavioral intention, namely performance expectancy, effort expectancy, social influence, and facilitating condition. Performance and effort expectancies are represented by the constructs' usefulness and perceived ease of use in the TAM model, as UTAUT also includes this model's elements. Studies by Venkatesh *et al*. (2003) and Marchewka, Liu, and Kostiwa (2007) showed a slight difference between UTAUT in theory and on application to an academic environment.

Conversely, TAM is one of the most widely applied models to analyze technology acceptance in users (Renny, Guritno and Siringoringo, 2013). It is employed in accepting the use of technology that is flexible and can follow developments. Therefore, this research aims to evaluate the use of Google Classroom among college students in West Sumatera, Indonesia, during the Covid-19 pandemic. The Indonesian government decided to change every learning process to an online or learn from the home system due to the disease. Consequently, this research uses TAM for assessing the use of Google Classroom by considering the external factors, and the results are expected to be an evaluation for educators regarding the use of e-learning platforms during the -19 pandemic. It will also help the decision-makers in educational institutions to understand the effectiveness of using Google Classroom.

2. The Technology Acceptance Model (TAM)

Davis (1989) first developed the Technology Acceptance Model (TAM) to examine the acceptance of information technology. It was created based on the Theory of Reasoned Action (TRA), which explains a person's reactions and perceptions in taking action (Fishbein and Ajzen, 1975). TAM, which is shown in Figure 1, is a flexible technology acceptance model and is determined by two main constructs, namely Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Al-Maroof and Al-Emran, 2018). By adding other factors, many studies use this model as the basis for their research (Abdullah and Ward, 2006).

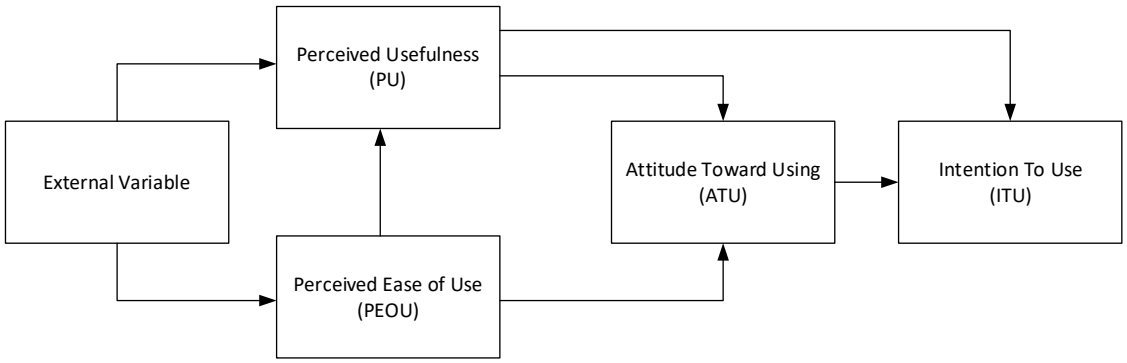

Figure 1: Technology Acceptance Model (Davis, 1989)

2.1.1 Perceived Ease of Use (PEOU)

Perceived Ease of Use (PEOU) is "the degree to which a person believes that using a particular system would be free of effort within an organizational context" (Davis, 1989). This construct shows how a system makes users complete their work faster, increase productivity, and work efficiently without requiring much effort (Munoz-Leiva, Climent-Climent and Liebana-Cabanillas, 2017). The study by Angela et al. (2018) indicated that PEOU significantly influences the Perceived Usefulness (PU) of e-learning but not students' desire to use this system. Unlike this research, the study conducted by Budu, Yinping, and Mireku (2018) showed that PEOU affects the desire to use e-learning platforms in Ghana.

2.1.2 Perceived Usefulness (PU)

Perceived Usefulness (PU) is *"the degree to which a person believes that using a specific system will increase his or her job performance"* (Davis, 1989). This construct is influenced by PEOU, which eventually determines how helpful the information technology used will be. The research by Masrom (2007) showed that usefulness is a dominant factor that influences students to utilize e-learning systems in the university and recommended an increase in the ease-of-use factor by conducting e-learning training in this environment.

2.1.3 Attitude Towards Using (ATU)

Attitude is defined as *"a multidimensional construct, consisting of cognitive, affective, and conative or behavioral dimensions. The cognitive aspect comprises experiences, beliefs, and opinions, the affective or emotional entails feelings, emotions, and subjective evaluations, while the behavioral dimension involves the intention and respect to purchase, alongside the response to rejection"* (Fishbein and Ajzen, 1975). It correlates with Attitude Towards Using (ATU) in the TAM model, which, in classical TAM, is influenced by two main constructs, namely PEOU and PU (Davis, 1989).

2.1.4 Facilitating Condition (FC)

A Facilitating Condition (FC) is *"the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of a system"* (Venkatesh *et al.*, 2003). This construct was built due to the closeness of e-learning use to facilities and infrastructure, including the internet network, accessibility, and the devices used. Salloum *et al*. (2019) and Sun *et al*. (2019) showed that facilities affect PEOU and PU, while Kabir, Saidin, and Ahmi (2017) proposed a TAM model, which indicated a relationship between FC and intention to use.

2.1.5 Price Value (PV)

Price Value (PV) is the cost that must be paid to benefit from using technology (Dodds, Monroe and Grewal, 1991). E-learning requires fees, specifically the cost of using the internet, and Mehta *et al*. (2019) showed that this construct significantly influences the desire to use technology.

2.1.6 Intention to Use (ITU)

Intention to Use (ITU) is closely related to the user's attitude towards the technology (Davis, 1989) and is affected by exogenous constructs in TAM. The level of a person's desire to use technology affects their motivation in performing activities through this system. A high intention will increase the number of activities carried out through the platform and vice versa.

3. Method

Figure 2 shows the conceptual model used in this study and also represents 11 constructs that stated the hypothesis, namely:

1. H1: PEOU significantly influences ATU in using Google Classroom
2. H2: PU significantly influences ATU in using Google Classroom
3. H3: PEOU significantly influences PU in using Google Classroom
4. H4: PU significantly influences ITU in using Google Classroom
5. H5: ATU significantly influences ITU in using Google Classroom
6. H6: FC significantly influences ITU in using Google Classroom
7. H7: FC significantly influences PU in using Google Classroom
8. H8: FC significantly influences PEOU in using Google Classroom
9. H9: PV significantly influences PU in using Google Classroom
10. H10: PV significantly influences PEOU in using Google Classroom
11. H11: PV significantly influences ITU in using Google Classroom

The research used a questionnaire via Google Form for data collection, and it was distributed from December 11th to 31st, 2020. Meanwhile, the population of students at universities in West Sumatera is 163,994 (BPS, 2017), hence, Cochran's formula with a confidence level of 95% was used to select 383 students as the sample. Three experts assessed the readability and validity tests of the questionnaire. Furthermore, a Likert Scale with a range of 1 (one) as strongly disagree to 5 (five) as strongly agree was used. This study's sample involves active students at the universities in West Sumatera, Indonesia, using Google Classroom during the Covid-19 pandemic.

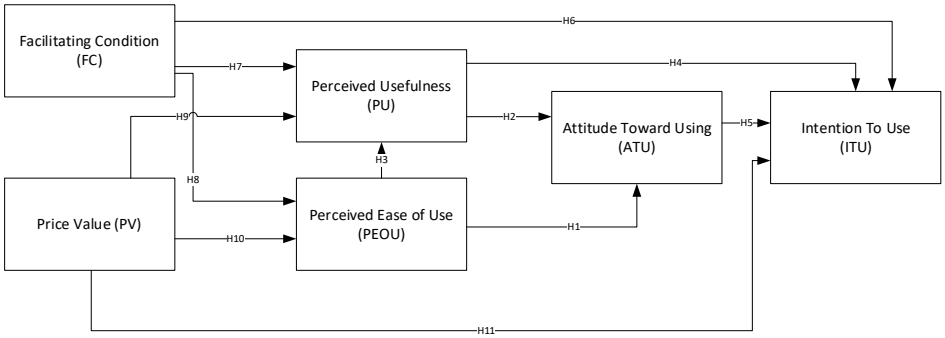

Figure 2: Conceptual Model (Proposed)

The questionnaire consisted of two sections, which comprised the user's demographic data and TAM. Subsequently, the demographic section entailed questions related to gender, educational background, and the internet providers used, while TAM discussed three PEOU and PU statements each, alongside two ATU, four FC, two PV, and four ITU statements, as shown in Table 1.

Table 1: Questionnaire

Statement	Reference
The use of Google Classroom is easy for me to learn	Modified from (Davis, 1989)
It is easy for me to become proficient in using Google Classroom	Modified from (Davis, 1989)
Google Classroom is easy to use	Modified from (Davis, 1989)
Google Classroom makes my lecture activities, including information, material downloads, discussions, assignments, and other related things, easy	Modified from (Davis, 1989)
Google Classroom makes me more efficient than when I come to campus	Modified from (Davis, 1989)
Google Classroom helps my lecture process	Modified from (Davis, 1989)
I want to use Google Classroom for my next lecture	Modified from (Davis, 1989)
I want to use Google Classroom for other lectures	Modified from (Davis, 1989)
I will use Google Classroom for further lectures	Modified from (Davis, 1989)
I would suggest others use Google Classroom	Modified from (Davis, 1989)
Google Classroom makes my learning interest grow	Modified from (Davis, 1989)
I like using Google Classroom	Modified from (Davis, 1989)
I have the facilities needed to use Google Classroom	Modified from (Venkatesh, Thong and Xu, 2012)
I have the knowledge needed to use Google Classroom	Modified from (Venkatesh, Thong and Xu, 2012)
Google Classroom corresponds with the technology I use	Modified from (Venkatesh, Thong and Xu, 2012)
I get help from others when I have difficulty using the platform	Modified from (Venkatesh, Thong and Xu, 2012)
The cost of the internet for using Google Classroom is affordable	Modified from (Venkatesh, Thong and Xu, 2012)
The data package issued to access Google Classroom is relatively small compared to other online learning systems	Addition

The analysis utilized Structural Equation Modeling (SEM) built on AMOS software (AMOS Version 22), as shown in Figure 3, where e1 to e24 are variances. SEM consists of latent and observed variables connected by paths and can solve multi-regression problems and factor analysis between the constructs that were determined based on theory (Carlsson and Hamrin, 2002).

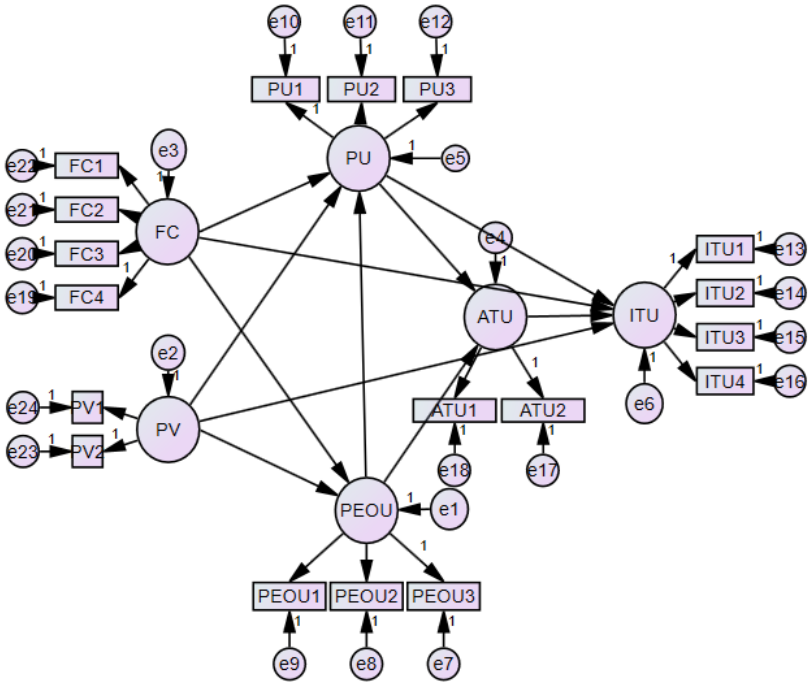

Figure 3: Modelling Using AMOS

4. Result

Table 2 shows the respondents' demographics, where 26% were male, 74% female, and the population was dominated by individuals of productive age taking the undergraduate program at the universities in West Sumatera. The most common provider used was Telkomsel, which is managed by the Indonesian government, and the internet quota spent in one month was between 10 to 30 GB. According to Ghazali (2017), an indicator is valid if the loading factor is > 0.5 (Ghazali, 2017), and Table 3 showed that each gave a value > 0.5 except for PV2, which produced a score of 0.484. Re-estimation was performed by eliminating the PV2, after which the loading factor for PV1 was calculated as 0.268, causing the PV variables to be removed. Consequently, the indicator used to build the acceptance model was valid. The reliability test was executed by evaluating the Average Variance Extracted (AVE) and Construct Reliability (CR), as shown in Table 4. According to Ghazali (2017), an indicator is reliable if AVE ≥0.5 and CR ≥0.7, hence, all the built constructs were valid and reliable.

Table 2: Demographics of Respondents

Gender	
Male	100
Female	283
Education Level	
Vocational Program	36
Undergraduate Program	342
Master Program	5
Internet Provider	
3 (Tri)	40
Im3 Ooredoo (Indosat)	13
Lainnya	33
Smartfren	19
Telkomsel	229
XL	49
Internet Quota/Month	
< 1 GB	6
1 GB-5 GB	50
5 GB-10 GB	71
10 GB-20 GB	143
> 20 GB	113

Table 3: Loading Factor of the Variable

Variable	Indicator	Loading Factor
PEOU	PEOU1	0.865
	PEOU2	0.807
	PEOU3	0.730
PU	PU1	0.755
	PU2	0.626
	PU3	0.760
ATU	ATU1	0.786
	ATU2	0.838
ITU	ITU1	0.903
	ITU2	0.888
	ITU3	0.935
	ITU4	0.785
FC	FC1	0.620
	FC2	0.769
	FC3	0.777
	FC4	0.807
PV	PV1	0.762
	PV2	0.484

Table 4: Validity and Reliability

Variable	Indicator	Loading Factor	CR	AVE
PEOU	PEOU1	0.869		
	PEOU2	0.811	0.848392	0.652017
	PEOU3	0.737		
PU	PU1	0.774		
	PU2	0.649	0.778988	0.541854
	PU3	0.778		
ATU	ATU1	0.802	0.812008	0.683703
	ATU2	0.851		
ITU	ITU1	0.911		
	ITU2	0.898	0.937782	0.790852
	ITU3	0.941		
	ITU4	0.801		
FC	FC1	0.624		
	FC2	0.771	0.832688	0.556607
	FC3	0.769		
	FC4	0.807		

Table 5: Hypothesis Testing

Relationship	β(Estimate)	C.R.	P	Status
PEOU<---FC	0.781	9.293	***	Accepted
PU<---PEOU	0.386	5.696	***	Accepted
PU<---FC	0.743	8.211	***	Accepted
ATU<---PEOU	-0.258	-2.236	0.025	Not Significant
ATU<---PU	1.418	10.87	***	Accepted
ITU<---PU	-0.426	-1.088	0.277	Not Significant
ITU<---ATU	1.234	4.063	***	Accepted
ITU<---FC	-0.036	-0.221	0.825	Not Significant

Note: *** P<0.001

Based on the significance level α=5%, the hypotheses H1, H4, and H6 were estimated to be insignificant. Meanwhile, FC is related to the possession of the tools and knowledge to use the technology (Zhou, 2011) and Table 5 shows that this construct has a significant effect on PEOU (β=0.781) and PU (β=0.743). Hence, the ease and benefit of using Google Classroom can be maximally felt during distance learning when these tools are adequately provided. An obstacle to using Google Classroom is the internet (Hussaini et al., 2020), and according to The Economist Intelligence Unit (EIU) study commissioned by Facebook, Indonesia places 57th among 100 countries on the inclusive internet index (EIU, 2020). Therefore, institutions' knowledge and infrastructure should be improved to benefit from this e-learning platform.

The table also showed that PEOU has a significant positive effect on PU, where PEOU indicates the ease of using Google Classroom, while PU describes students' benefits. Consequently, the result exhibited that the features of this platform are easy to use to benefit students during learning. This is similar to the research by Angela et al. (2018), Binyamin, Rutter, and Smith (2019), and Khan et al. (2020), although they used a different platform. A related study using TAM was also conducted by Masrom (2007), where a simple model was employed without considering external factors. The findings showed that perceived usefulness is the dominant factor that determines the use of an e-learning system. Additionally, the research by Farahat (2012) indicated that usefulness and ease of use are the dominant factors of students using e-learning.

Furthermore, Table 5 showed that PU positively influences ATU, meaning the benefit of Google Classroom affects students' attitudes, such as comfort and pleasure are highly experienced when greater levels of usefulness are felt during learning. Hence, the student's attitudes affect the intention to use the platform. The Intention to Use (ITU) is closely correlated with the consumer's attitude to the technology used, and the table showed that this construct was significantly affected by the Attitude Towards Using (ATU) of this platform. Therefore, usability is greatly affected by the ease of use and dictates the student's attitude, however, success occurs when students decide to learn and are willing to participate in related activities, including engagement with their peers and lecturers.

5. Conclusion

The benefits felt by students are impacted by the ease of using Google Classroom, which is affected by the facilities, such as the internet, help from others when experiencing difficulties, and the devices used. These facilities significantly affect the ease of use and usability during the learning process. Also, the usefulness of the platform influences students' attitudes, which, in turn, affects their intention to use it. Therefore, institutions need to improve their infrastructure and knowledge to obtain benefits from e-learning systems, especially Google Classroom.

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International Students' Perspectives on e-Learning During COVID-19 in Higher Education in Australia: A Study of an Asian Student

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Abstract: Given that online higher education shows no sign of abating during the COVID-19 pandemic in Australia, understanding the nature of e-learning and e-learners in this particular setting is much needed. However, little is known about the e-learning approaches that international students apply, or about how they experience the process of e-learning. This article is a critical reflection on the misalignment between an international student's (Author 1) e-learning behaviours and the expectation of online education. It outlines the autoethnographic method and employs self-study to explore why Author 1 behaves in a certain way with particular reference made to the Biggs' 3P model. In so doing, the study attempts to shed light on the values and interests of international students that have been silenced in the discourse of e-learning design in Australian universities. With the aim of obtaining a profound insight into the effectiveness of e-learning, the present study challenges the notion that the virtual university is a means of achieving educational equality; it suggests the potential of online education in undermining the social inclusion agenda of internationalised universities. The findings show that while the participant could engage with the curriculum to some extent, there are signs of disconnection, isolation and emotional instability associated with the establishment and development of the e-learning environment. Illustrations of these emerging issues could help educators better understand the downside of e-learning and e-practice by identifying various influential elements, including individuals' socioeconomic status, cultural heritage and environmental learning settings. The study points out that international students' education outcomes could be compromised, and expectations could be unfulfilled via e-learning. Thus, there is a further need to prepare learners for e-learning environments.

Keywords: e-learning; COVID-19; international students' perspectives; Australian university; 3P model; virtual university

1. Introduction

The COVID-19 pandemic has caused a fundamental change in the way that educators transform knowledge, meaning an increasing number of international students would participate in Australia's education programs via adapting e-learning and e-practice. Since April 2020, Australian universities have unveiled online courses and taken on the form of virtual universities as an emergency plan to alleviate the impact of COVID-19 (Australian Government Department of Education Skills and Employment, 2020). By definition, a virtual university refers to a higher education institution that offers educational courses and learning options via a well-structured web-portal on the Internet (Shahtalebi, Shatalebi and Shatalebi, 2011). In such settings, virtual classes, modules and real-time tutorials and discussion forums are delivered by computer applications and multimedia technologies, while examinations and laboratory work are carried on through virtual-reality programming (Shatalebi, Shatalebi and Shatalebi 2011). However, these changes are likely to raise an additional set of challenges for international students who are expected by educators to practice e-learning in a professional manner and to utilise these digital tools to assist their e-learning..

The level of satisfactory learning experiences in Australian universities could be affected by the advocation of e-learning and the utilisation of e-practice. Statistically, the export of education contributes $ 37.6 billion to the Australian economy (Parliament of Australia, 2019). Apart from financial rewards, the motivation for universities to enact this practice is aligned with the value that the higher education ranking system places on the ratio of international students (QS topuniversity, 2020). While these three elements are arguably intertwined, the designs of e-learning may rely on assumptions about international students and these students' perceived education quality. In the field of education research, studies on Asian students' cross-border educational experience and studies on virtual universities are extensive. Yet there has been little literature combining both areas – research on Asian students' cross-border learning experiences in virtual universities is scarce. Moreover, the existing studies are limited to students' use of technology, with little attention paid to their learning strategies. In an effort to narrow this gap, the current study seeks to reclaim some of the lost and disregarded voices of international students.

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In an attempt to help fill the void, the present case study sets out to offer a qualitative account of how knowledge is acquired in an Australian virtual university from the perspective of an international student. In so doing, the direct impact of the pandemic on the learning experience during the pandemic will be analysed. Possible learning strategies to optimise the learning outcome of a cohort of Asian international students in e-learning settings will be proposed.

In summary, the context has been described and the aims of the study have been clarified. The following section will present a literature review regarding recent studies on the virtual university and the 3P model. By way of illustration, a critical framework for learning theory, Biggs' 3P model (Biggs, 1990) will be utilised as a means of examining the learning strategies, attitudes and practices of the virtual university regarding contextual factors, such as knowledge delivery patterns. The study will then offer an introduction to autoethnographic research methods followed by a critical discussion about the challenges of practicing e-learning. It argues that the consideration of e-learning design with other factors, such as cultural background and learning styles, would be an important avenue to explore given that the utilisation of e-learning is becoming a new normal.

2. Biggs's 3P model in E-learning

In order to analyse the participant's e-learning behaviour in an organised way, the development of virtual universities, the studies of e-learning experience and Biggs's (1990) 3P model will be illustrated in this section.

Since the unprecedented development of the virtual university, many scholars have prioritised different aspects of increasingly complex and diverse e-learning. As such, a body of literature around the e-learning environment is offered as an approach for effective online education (Cho et al., 2015). Initially, the research studies learners in a micro-level environment and focuses explicitly on course-related topics, such as learning content, assessment and interaction modes (Hew and Cheung, 2012; McPherson and Bacow, 2015). Subsequently, as learners are simultaneously contained in a macro-level environment, research has been expanded to account for a broader scope, including online education theories, educational policies, professional development of faculties and the impact of labour markets (Bernard et al., 2004). Furthermore, several studies have examined the demographic factors of successful online learners (Ke and Kwak, 2013; Keller and Karau, 2013). While these studies offer considerable insights for effective e-learning, research in international student experiences is limited in the examination of ethnic factors. In other words, there have been few studies on the alignment between e-learning approaches and international students' learning expectations with reference to their original socioeconomic status in Australia's virtual university settings.

In the process of e-learning and e-practice, learners, educators and institutions are considered as the core elements of the virtual university. From the learners' perspectives, attending virtual universities reduces time-space barriers and alleviates the burden of commuting from home to campus. However, e-learners are likely to feel isolated in the learning environment in the virtual university through the lack of interpersonal communication (Wang and Chiu, 2008). Roger (2003) finds that online learners may be subject to negative social influences and perceptions regardless of their ability to adapt to technology and innovation. In an ongoing Australian cohort investigation into the learning outcomes of higher education (Australian Department of Education and Training, 2017b), online learners are 2.5 times more likely than their traditional peers to withdraw from courses without a certification. Meanwhile, the retention and completion rates for online learners are less than 80 percent of traditional ones (Australian Department of Education and Training, 2017b). Arguably, the lack of interaction with peers and educators means that online learners may not be able to effectively narrow the gap between the result of independent learning and the level of potential development (Vygotsky, 1998). Moreover, learning is essentially a process of socialisation in which learners are expected to connect to both the learning content and macro-environments (Vygotsky, 1998). However, it is worth noting that theories of social constructivism only partially identify the social nature of learning. They do not consider the sociocultural influence that international students may be vulnerable to in their host countries, especially if there is a mismatch between the Asian students' underdeveloped dispositions and western virtual universities' prerequisites (Zhao and McDougall, 2008). Thus, it is crucial to have conversations with e-learners as a means to examine the education quality in virtual universities.

Helmi (2001) predicts that the only proper solution to improve the effectiveness of online courses is to empower the learners. In this regard, research into students' perception of e-learning is important. This is even more so in Australia, where the higher education industry has been internationalised. According to the Australian Bureau

of Statistics (2020), imports of services, which consists of education and tourism, have fallen by 12.8% since the pandemic. At the national level, the Australian Gross Domestic Product declined 0.3%, which is a resemblance to the situation in 2009, when Australia was enmeshed in the Global Financial Crisis (Australian Bureau of Statistics, 2020). Thus, exploring the perspective of international students would be useful in developing the quality of education in the virtual university, in that the financial crisis caused by the global pandemic might be alleviated in this way.

It is clear that understanding international students' learning behaviours in Australia's virtual universities could offer insights into the current practice of online education and provide a possible solution for the development in education and national economic situations. Therefore, instead of presenting an over-generalised description of e-learning, a framework that values individual difference – the 3P model – is considered as a suitable starting point for the present study. Specifically, this model was devised by Biggs (1990) to delineate the relationship between the fluid nature of learning motivations, the contextual components of the environments, strategies for participating in learning, and academic performance. It identifies three stages of learning: (1) *presage*, containing study-related factors and factors from teaching contexts; (2) *process*, including various learning approaches; and (3) *product*, referring to learning outcomes (Biggs, 1990). The model sheds light on the diversity of learners and provides variables in predicting academic performance other than ability. Thus, it is employed as a theoretical framework for the present study. It deepens the analysis into and discussion about the challenges that international online learners may have in ever-complex virtual university contexts. Generally, the current study builds on and contributes to development in e-learning. While the study focuses on Australia's virtual universities, it may be a source of reference for other countries. While the existing literature examined demographical factors, such as age (Ke and Kwak, 2013) there has not been an attempt to interpret e-learners' success or failure based on their perceptions. As such, this study provides additional insights into e-learning, and its aims are as follows:

1. identifying the gap between international students and the prerequisites of online education in terms of digital literacy and emotional development
2. exploring the (mis)alignment between the expectation of Australian universities' online education and international students' learning practices
3. offering suggestions on online education research from the perspective of international students

3. Method

3.1 Autoethnography as a research method

The autoethnography methodology was employed for its unique advantages in exploring the experiences, relationships and identities of a particular individual. Such a methodology has re-emerged as the means to understand personal problems from a naturalistic stance with the belief that human beings are interrelated (Bullough and Pinnegar, 2001). By definition, autoethnographers have developed four major branches, namely autoethnography (Hayano 1979), evocative autoethnography (Ellis, 1997), analytic autoethnography (Anderson, 2006) and collaborative autoethnography (Chang, Ngunjiri and Hernandez, 2013). In the present study – using the 3P framework to investigate international students' e-learning practices – we draw from analytic and evocative autoethnography. Specifically, the former one, analytic autoethnography has the following characteristics: "a full member in the research setting, a full member in the researcher's published texts, and committed to an analytic research agenda focused on improving theoretical understanding of broader social phenomena" (Anderson 2006, p.21). As such, analytic autoethnography provides a pathway for researchers to engage with authentic e-learning experiences and theoretical discussions – the 3P model.

The latter one, evocative autoethnography, is "a genus of writing and research, autoethnography starts with personal experiences and studies 'us' in relationships and situations" (Ellis, 1997, p.13). This method allows the authors to move back-and-forth between the e-learning experience and self and observe the wider context of that experience, such as Australian higher education (Ellis, 2007). In this way, this study would carefully examine Author 1's notes, reflections and supporting materials. In particular, several rounds of self-interrogation and self-examination would be conducted to document e-learning behaviours. Moreover, consistent with autoethnographic techniques, the current study invests Author 2, an outsider, in the study. She worked closely with Author 1 throughout the research, including the design of the study, collection and analysis of the data. By so doing, this study could avoid self-indulgent introspection (Chang, 2008) so that a transparent picture of professional activity can be depicted, and a thoughtful view formulated. By combining analytic and evocative autoethnography, we believed the trustworthiness of the current study could be increased.

While autoethnographic studies have been criticised for lacking significance (Bullough and Pinnegar, 2001), they have the power to present the practice from insiders and develop the understanding of the theory in a more detailed manner. Therefore, the current study treats autoethnography as a powerful and critical tool for education studies. In particular, such a method has the potential to bridge the understanding of international students by un-silencing their voices (Adams, Holman and Ellis, 2015). In this regard, it could address the crisis of representation, as it is important for stakeholders, such as educators and university administrators, to understand international students' feelings, lives, struggles and relationships through the eyes of insiders. As such, the study attempts to present not only insights and interpretations from a personal perspective, but also become the voice of international students and seek to improve the e-learning situation for this particular cohort.

3.2 Data collection and analysis

Education study is rooted in a particular cultural, political and social context (Freebody, 2003). The present study is associated with the study of international students' e-learning during the COVID-19 pandemic. The primary data source of the present study was Author 1's field notes and her personal diary of e-learning experiences, including her reactions and reflections on e-practices. Based on her self-observations and reflections, she offered a general description of her e-learning behaviours, which exposed her vulnerability as a means to understand the emotions that have been generated during the process and presented her perceptions of e-learning outcomes. As the course progressed, the interactions with Author 1's tutor become frequent, and these conversations regarding course contents, learning methods helped her advance in the study, and shape her understanding of being an e-learner. Thus, discussions with tutors were also be documented as an example of her development of e-learning ability. Other data sources included: conversations with parents about her e-learning progress, the formal evaluation from chief examiners, especially the written feedback, and Author 1's reflections on her e-learning experience after finishing the course.

A thematic analysis (TA) is preferred in this study. Theoretically, TA is known for its flexibility in categorising data, identifying patterns, and describing data with rich detail (Braun and Clarke, 2006). In the present study, the data is to be collected by following Biggs' (1990) 3P model. In this sense, the analysis is driven by a specific theory and thus tends to place emphasis on certain aspects of the data (Braun and Clarke, 2006). In this regard, Author 1's documents would be placed according to Biggs's definition and then sorted into three categories – presage, process and product (Biggs, 1990). Moreover, the recurrent themes will be captured to explore the relations between an Asian student's values, characters, learning habits and the results of e-learning. Hence, the analysis follows TA's principles – recurrence and importance – and concentrates on the exploration of social capital theory at a semantic level (Braun and Clarke, 2006).

The analysis starts with the familiarisation of the data based on Braun and Clarke's (2006) guidelines. This practice is viewed as the primary interpretative act, where the meaning may be generated (Braun and Clarke, 2006). After these initial preparations, all materials were read and re-read in a careful manner to capture a general understanding and develop initial ideas (Braun and Clarke, 2006). Driven by the theoretical interest, the primary practice of coding aims to work systematically through the data with special attention to related theoretical areas (Braun and Clarke, 2006). In this way, the author attempts to code for themes that can be identified from the data, while focusing on the core inquiry – the gap between international students' experiences and the prerequisite of online education in terms of digital literacy and emotional development; and the (mis)alignment between the expectation of Australian universities' online education and international students' learning practices. In an attempt to answer these questions, the narrative and supporting materials were examined carefully to preserve the validity of the interpretation (Braun and Clarke, 2006). Following the initial coding, in the third stage, the focus would be on searching for the broader level of themes, including classifying codes and relevant data into potential themes (Braun and Clarke, 2006). As such, TA enhances the interpretation of the materials as it offers ample room for researchers to identify emerging concepts in a systematic approach.

3.3 The Author 1's context

The participant of this study was Author 1, an international learner in an Australian university. She received her Bachelor's degree in Mainland China and enrolled in an Australian university. Similar to the majority of international students, studying abroad is perceived as a path for attending a world-class university and an

adventure of gaining a new cultural and social experience (King and Sondhi, 2018). This life choice is a reflection of Author 1's cultural heritage, family and social backgrounds and previous experience.

Culture is a critical factor that influences an individual both consciously and unconsciously. Recently, culture has been identified as an influential element in the construction of self, which, in turn, is reflected in individuals' behaviours (Harrington and Liu, 2002). In this study, Author 1 comes from an Eastern culture –Confucianism – where self-criticism is commonly used in psychological processes (Harrington and Liu, 2002). Such a tendency is led by Confucian values – humility and submission (Harrington and Liu, 2002). In this sense, Author 1 is likely to view herself as a subordinate to a group, such as a student of a particular unit, and follow the rules accordingly. Meanwhile, while the self-criticising nature may help Author 1 to find her areas of weakness and motivate her to work on them accordingly; it can also prevent her from challenging the rules and to remain silenced (Harrington and Liu, 2002). Compared to Eastern cultures, Western ones promote the understanding of an independent self and encourage individuals to be "expressed in public and confirmed in private" (Harrington and Liu, 2002, p. 39). These distinctions between two cultural norms make cross-cultural communication more complicated, and thereby could lead to exacerbate Author 1's inner conflicts for lacking the ability to balance the differences.

In contemporary China, society is experiencing dramatic economic and social changes and a particular group, the affluent Chinese middle class, has emerged. This group is known for being more economically capable and globally oriented. As indicated by Eileen Yuk-ha (2013), Author 1 could be categorised in the second-generation middle class which constitutes the majority of international students' group. By definition, she would be more familiar with the English language than working-class peers and aspire to educational opportunities and living experience in Anglophone countries. Meanwhile, Author 1's participation in the Australian education programs reflects the changes in China's labour market. As indicated by Lin and Chan (2020), Chinese tertiary enrolment has expanded more than tenfold since the 1990s, which affects graduates' employment in a negative way. In other words, China's massification of higher education has led to unemployment and underemployment (Lin and Chan, 2020). Given that, middle-class families are keen to send their children abroad in the hope of gaining advantages in the highly competitive market. Following Bourdieu's (1984) analysis, this strategy aims to distinguish the second-generation middle class, such as that of Author 1, from others in terms of different educational achievement. As such, Author 1 is expected to achieve academic high-performance to obtain leverage in the market.

While Author 1 grew up in the era of technology and is termed as digital native (Anon, 2011), it is questionable to assume that she can adjust easily to e-learning. Considering her previous learning experience in the early 2000s, e-teaching and learning practices in China are still in their infancy (Hamidi et al., 2011). As such, she could not be viewed as a capable e-learner who has sufficient digital literacy. In line with that, scholars highlight the phenomenon that students are struggling to accept the new technologies in educational practices (Arbaugh, 2004; Greene and Copeland, 2014). Reportedly, delayed feedback, unfamiliar learning environments and lack of the sense of belonging are decreasing e-learners' learning motivations. Given that, Arbaugh (2004) argues that students need to be provided with time to transit from traditional classroom learning to e-learning. However, in the current context, Author 1 needs to adjust to the e-learning model quickly in the time of COVID-19. Therefore, she is striving to modify her learning behaviours while learning to conduct cross-cultural communication.

As aforementioned, Author 1 is facing a number of challenges in her e-learning. Her transition from traditional learning to e-learning is a focal point of discussion about an international students' real-life experience in COVID-19.

4. Author 1's E-learning experience: achievements, frustrations and developments

In Australia, educational courses in virtual universities generally combine both synchronous and asynchronous forms. In the current setting, Moodle, an online learning system, is employed as the sole delivery platform. Within the platform, synchronous online tutorials are conducted, and asynchronous online discussion forums are set.

4.1 Insecurity, lack of confidence and loneliness

In an attempt to have learner-learner interactions, I experienced a fear of expressing myself in an unfamiliar space. In the class, I was encouraged to consider myself as a social member, and integrate my personal

experiences, manners and the course context into the e-learning process. However, I was not particularly confident about my English writing, and therefore preferring to simply read my peers' posts rather than actively engage in the forum. During the process, I would draft several replies for the online forum. Yet before submitting, I would start to question myself: will my peers be offended by my words? Will I make a good impression on the readers? I felt so insecure that I eventually deleted all of them. I was both eager to connect with people and scared to make any moves.

Gradually, participating in e-learning environments as a *lurker* became my default mode in engaging knowledge content in the online course. On the plus side, lurking allowed me to connect with the learning content on Moodle, while keeping track of peers' learning process and sustain a basic level of involvement in discussion forums. However, to maintain this invisible presence, I found myself allocating hours of online time to avoid the feeling of being left behind. As the email record shows, I received 299 notifications from the forum. Taking 31th of March for example, I received 26 notifications which start from 8:18 AM to 11.28 PM. Unfortunately, I experienced an information overload that directly led to certain negative emotions, such as anxiety and frustration. These negative emotions prompted me to examine my learning preferences. From the perspective of perceptual learning style preferences, I preferred visual learning modes. From the perspective of sociological learning style preferences, I preferred to work by myself in a highly organised manner. As a result, negative emotions – anxiety and frustration – could be detected when I was overwhelmed by the myriad of e-learning sources and struggling with some technical problems. For many days, I spent hours in mind-wandering. The image – me as a prisoner who is never able to leave the house, keeps hovering in my mind. I felt so powerless in everything.

Moreover, I could sense that my goal was evolving. Unavoidably, I had to deal with family pressure, as my parents constantly expressed their high expectations of me – earning social approval for the family by attaining a high academic achievement. Moreover, they were concerned about the devaluing of western education quality through the form of e-learning, especially my development in employability. My mom was calling me and said:

> *You really need to work harder and try to advance yourself in Australia. It is really hard to get a decent job in China, not to mention you want to live in cities, such as Shanghai. Do you know my colleague's son got a master's degree in a really good university and got back to the hometown with less than 5000 RMB a month? If you do not work hard and be better than others, you will find yourself working in a place you do not like at all.*

Deep down, I know that my relationship with my parents follows the Confucian tradition in which individuals influence the social status of family numbers via sociocultural relations (Hall and Ames 1987). However, it was stressful to think about my future employment. Moreover, there is a misalignment between my parents and me – I had a consuming passion for acquiring knowledge, as I found that the charm of learning lay fundamentally in the appreciation of diverse schools of thoughts, instead of cultivating myself to become a qualified worker.

4.2 Emailing with the tutor: a light of my life

I acknowledged the value of engagement in e-learning environments. Thus, while I was struggling to join asynchronous discussion forums, I strived to involve myself in learner-lecturer interactions through sending emails regularly. Here is an extract from my email:

> *Mon, 16 Mar 2020, 08:43*
>
> *Last week, I was learning tons of learning theories. As I am reflecting on all of them, I noticed that all theorists are striving to come up with a "general" learning pattern; in this sense, the sociocultural influence is being ignored. From my understanding, culture is not "pure", school may not be a "liberal" place. Bourdieu (1984) has claimed that education could become a "symbolic violence" as the dominant culture is belonging to the privilege status. Even Vygotsky, the great man who came out of the sociocultural constructivism theory, has no analyses of the identity of culture …… I am very interested in the social context and learning, how learners are being affected by the social force and how learning reflects the environment in which learners grow. I was thinking it will be fun to link multiple intelligence theory with different types of society, or add a bit analysis in Vygotsky's theory, like how the social representation influences learners in different classes…*

The tutor replied to me an hour later:

Mon, 16 Mar 2020, 09:57

> *Thanks for sharing your critical thoughts with me, which are so interesting. Yes, you're right. I definitely agree with you that identity and culture have huge impacts on learners' learning development. You can deepen your understanding and reflection about the influence of culture, identity and/or multicultural education when we explore Module 4 in this unit with me.*

Writing to the tutor on a regular basis helps me maintain a level of motivation, especially when the tutor always replies to me positively. However, she did not make any connections with peers and I explored the course alone. I would feel motivated for days and immersed myself into the knowledge. These moments were so enjoyable that I could forget the fact that I am isolated in a small room. When I received the final feedback by the chief examiner, who remarked "Overall, it's an excellent task", I was tearful. I could not figure out whether I was happy with my achievement, or sad because of the emotional e-learning journey.

Despite my first-rate academic result, in my e-learning experience my expectations were not achieved, particularly because of the ineffective emotional consumption and interactions, i.e., e-learning engagement, cultural conflicts and the sense of control. In other words, I perceived the development of the virtual university as a practical but unpleasant alternative in the pandemic, and preferred to avoid the e-learning experience in the future. There was a conflict between my ego and superego, and I was longing for a change.

5. Discussion

This section applies the 3P model to expound on the inner logic behind the participant's learning behaviours (see more explanation about this model in the literature review). Biggs' 3P model (Biggs, 1990), in this sense, can be a means of construing the relationship between learning behaviours and Australia's virtual universities by re-evaluating the nature of e-learning and the socioeconomic capital of international students. While the fundamental structure of the model is suitable in the current context, some modifications are still needed so that the model could be a better fit for online courses in Australia's virtual universities. There are two primary reasons for this. First, study-related factors, which means the ability and prior knowledge, may limit the investigation of Asian learners regarding their disposition toward learning technologies. Second, during the global pandemic, the connection between international students and the host country could become tenuous due to the quarantine regulations. It has been found that people in quarantine can suffer from psychological and immediate stress (Auerbach and Miller, 2020). Furthermore, international students may also lack social support from the host country, which can intensify their feelings of depression, separation and ultimately homesickness (Saravanan, Mohamad and Alias, 2019). Thus, they may tend to contact family members and connect to the home country on a more regular basis. These behaviours could add weight to the home country's sociocultural influence on their cross-border learning experience. Therefore, attention to the technical-sociocultural environment and the participant's socioeconomic status in her home country was included in the present study. Moreover, the elements of the teaching context in the original model were replaced by the situational context in this study so that a broader range of elements during the pandemic could be explored. Given that, the 3P model would be treated with caution in the following discussion.

5.1 The presage

Presage, in the present study, intends to explore the participant's demographic variables and situational variables. Traditionally, Asian learners have been seen as rote learners who adopt surface learning approaches and demonstrate a heavy reliance on textbooks (Ramburuth and McCormick, 2001). While this assumption has been refuted by later studies (Hojo and Oshio, 2012), researchers continue to argue that Asian learners tend to be passive in classes (Zhao and McDougall, 2008). For example, the participant in this study devoted a vast amount of time to familiarise herself with the learning context and showed little enthusiasm for interaction in online discussion forums. Such behaviours seem to echo the traditional image of an Asian learner. Based on this inclination, researchers suggest that Asian learners may not possess the required characteristics for academic success in western learning environments. However, this notion could be denied in this case as the participant achieved high marks. This apparent inconsistency could be explained through drawing on Bourdieu's (1996) analysis, the disposition of learners reflects the nature of their learning environment. In Asian countries, while the development of learners' communication skills has increasingly come to educators' and policymakers' attention, mainstream educational practices remain test-driven (Lee, 2017). Within this environment, diligence,

as a favourable quality, is cultivated, strengthened and maintained by local educators and has become one of the most distinctive personal characteristics of the participant, an Asian international student.

The demographic variables, in this study, intertwine with the situational variables which could present in the form of situational interest (Quinlan, 2019). Statistics show that for every 100 people in China there were 19 computers in 2001, whereas the number was reported as 68.236 computers for 100 people in Australia in the same year (Hamidi et al., 2011). It suggests the minimal chance of the participant to foster digital skills. The participant could be more vulnerable to technical problems and issues in the e-learning environment. However, the main issues were not particularly related to technical skills, but more to individual factors such as the uncertainty about online communication and time-management skills. As such, the participant presented a low level of situational interest and thus struggling to embrace the e-learning approach – engaging with the discussion forum – and experienced overloaded information from the learning contents. Such a situation is worsened in the time of COVID-19, where students allow little time to prepare, learn and master basic e-learning skills. Drawing on Bourdieu's (1984) concept of capital, which refers to the internalised aptitude and externalised scarce social resources of the current study, the participant lacked the 'digital capital' to operate technologies and evaluate information. This then points to the insufficient social capital that the participant possessed and uncovers the issue of inequality in online education.

In the current context, the 3P model is expended to account for a wider range of presage variables, such as situational factors in both home country and host country. Indeed, the participant, as an economically advantaged learner, was supposed to be endowed with 'digital capital'. While she can be classified in an advantaged group in her home country, it is questionable whether she can fall into the same category in Australia. In such a setting, the possession of digital capital is advantageous, for the learning field is reorganised so that learners with digital capital can benefit by acquiring desired knowledge with less effort; they can practice e-learning in a more flexible and versatile manner than their counterparts for their better digital skills. In this regard, the emergence of virtual universities during the pandemic blurs the original boundary of the field, disrupts the logic within these relative static sociologies of classes and re-forms the learning field (Roger, 2003). In view of the above discussion, one may acknowledge that the academic performance of the participant, as an Asian international student, may be compromised in the virtual university.

5.2 The process

The second stage of the 3P model, the process, concerns the student's learning strategies. Following Biggs' (1990) differentiation, there are three approaches to learning: *surface approach, deep approach* and *achieving approach*. By definition, the first one refers to the effort that requires to meet basic requirements, while the followed one means the sustained engagement of learners to think critically and analyse the relationship between content knowledge and practice. The last one describes these learning behaviours that aim to maximise students' academic results. With regard to the learning expectation of the participant, it is argued that her focuses were predominately placed on mastering the unit-based content and obtaining high scores in the assignments, thereby discarding the *deep approach* to learning. Thus, the participant's cohort, Asian students, were commonly labelled as surface and rote learners. However, the conceptualisation of memorising differs according to cultural contexts (Biggs, 1990), thereby causing the paradoxical description of Asian students, that is, rote learners on the one hand, and brainy Asians on the other hand. These inconsistent perceptions of Asian students imply the intrinsic distinctions between learning contexts. In this sense, the participant is likely to confront challenges concerning cultural difference.

Given the cultural background – Confucian – of the participant, she firstly engaged in learning activities by taking a surface approach. For example, she strived to master the course content by engaging with learning materials, such as recorded lecturing. However, she also adopted a deep approach as a means to enhance understanding. For instance, she would seek supplementary articles to extend the content of the course and attempted to apply acquired knowledge to real-life events. During this process, the teaching practices, such as theoretical scaffolds, and the use of guiding questions assisted the learner to expand and refine her reasoning. In the narrative, she presented her initiative by emailing the tutor. This practice was proven to be helpful, because she described it as *the light of her e-learning experience*. Overall, these practices indicate the participant's dispositional belief of being able to cope with content-related challenges and characterise her as a *deep* learner.

As a critical aspect of learning strategies, the learning engagement strategy has a profound impact on a learner's encoding process and consequently determines the learning outcome (Simelane and Mji, 2014). In the current

online learning environment, learners are praised for their active participation, especially in Australia's courses, where real-life professional contexts are emphasised, and cultural interpretations of the content knowledge are commonly accepted. Led by her parents' extreme academic expectations, the participant employed a partially strategic approach, such as devoting consistent efforts toward learning and connecting with the lecturer for guidance.

However, the learning story alluded to the fact that the participant failed to engage socially with her peers and instead employed a low-profile approach to e-learning, suggesting poor management of time and effort. Arguably, the participant utilised the strategic approach sparingly. However, such learning behaviours could be due to the possibly impersonal nature of the e-learning environments that lack non-verbal cues (Orton-Johnson, 2008). Non-native English speakers, especially those with an Asian background, may confront cultural challenges as they are used to being immersed in high-context environments where communication primarily relies on non-verbal cues. Recognising this fundamental shortcoming in this cohort would help course designers to explore ways that would better assist learners in engaging with their cohort. This would take into account Asian students' national, cultural and ethnic characteristics.

5.3 The product

The product, in this study, refers not only to the participant's academic achievement but also her formulated perception of Australia's virtual university in terms of its effectiveness and *practical functions*. According to Biggs' (1990) prediction, academic performance would be correlated positively with the use of the achieving approach and deep approach while it would correlate negatively with the surface approach. Superficially, the finding is contrary to Biggs' prediction, as the participant had a high-Grade Point Average regardless of her neglecting to use the achieving approach. Meanwhile, the finding also differs from the Vygotskian principle, that is, the positive learning outcome is only attainable by reforming and synthesising the existing knowledge framework (Vygotsky, 1998). Despite the seeming controversies in the product regarding whether or not the participant was a successful e-learner, the fact that the struggles in presage and process, and the underachieved expectation of the participant suggests that her product could not be defined solely by the academic result.

The participant's failure to derive satisfaction from e-learning implies the limitations of her practices. This finding is echoed by Wang and Chiu (2008), who contend that unsatisfactory e-learning is likely to result from low-level cognitive engagement with context, which may be caused by underdeveloped socio-emotional intelligence. Hence, the intrinsic weaknesses of the participant combined with her socio-economic background, i.e. the insufficient engagement with the cohort, to some extent, could make her an underdeveloped learner in the virtual university.

In previous studies, discussion on the 3P model product were limited to course grades and rarely considered learners' perceptions toward the course. With the rapid flourish of the virtual university, e-learners' perceptions of courses have become one of the most investigated learning outcomes (Helmi, 2001), and thus, could be another form of the product. Thus, the present study tracked the participant's understanding of the virtual university with reference to sociocultural elements. For Asian international students, the acquisition of knowledge from western universities is essentially the quest for positional goods. Therefore, when evaluating the effectiveness of receiving online courses from Australia's virtual universities, the role of sociocultural networks from the participant's original country needs to be taken into account.

In the participant's narrative, insights into how cultural values are rooted in her social networks, such as the connections from home, is provided. For example, her parents have a pragmatic attitude towards education and treat education experience in Australia as leverage in the labour market. While education is considered as the cultivation of talents and the improvement of their productivity by the human capital theory (Stigler, 1987), some scholars highlight that education provides a signal of scarcity for employers (Pham and Tran, 2015). Such a view is in line with the precited effectiveness of virtual university, as both of them assume the asymmetric information structure between the labour market and the schooling. In this sense, evaluation of the virtual university is based on its effectiveness in the labour market regarding whether the educational product could symbolise the absolute levels of productivity and thus gain the monetary returns. In this regard, the emergence of virtual universities may expand the potential competitor cohort due to its affordability, meaning that more people would be able to access the knowledge through e-learning with lower cost. Given the sociocultural influence from the participant's original country and her individual factors, she was struggling to engage with

peers through e-learning models through having had insufficient e-practices. In a sense, she cannot utilise e-learning tools effectively, and as a result, she formed a negative attitude toward virtual universities as a whole.

6. Conclusion

This article outlines a learning episode of an Asian student's e-learning experience at an Australian university during the COVID-19 pandemic. Although the findings from the study deal explicitly with an Asian learner, they provide an important insight into the development of online education and present a clearer picture of internationalised higher education than is usually described. This study offers a more detailed observation of international students via applying the 3P model. In particular, it focuses on sociocultural conflict and offers a fuller meaning of issues around inequality during a pandemic in the space of higher education. A visible constraint of the present study is that the findings are based on a single sample, which may affect some overgeneralisation about the cohort of international students studying in Australia.

The findings of the study would be very useful in a number of ways. Specifically, the findings could inspire educators and could innovate the existing e-practices in an internationalised virtual classroom, help international students to adjust and develop e-learning habits and promote the design of e-learning as a whole. Not only does this make a contribution to the understanding of Asian students' e-learning habits, but also potentially it does make a theoretical contribution to the development of the 3P model. We hope that this study will lead to further academic research on international students' e-learning and their e-practice in internationalised universities.

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Attitudes and Practices of Educators Towards e-Learning During the COVID-19 Pandemic

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Abstract: Background The novel coronavirus outbreak is now shifting the way educational institutions operate around the world. This study aims to assess the online learning experience during the pandemic and recognize its perceived barriers according to university professors in Jordan. Methods This is a questionnaire-based, cross-sectional, and descriptive study. A web-based survey was distributed to all university professors and lecturers in public universities across Jordan. Results A total of 508 educators responded to this study. Males (67.5%, n=343) dominated the study population compared to females (32.5%, n=165). Educators spent an average of 20.2 ± 15.9 hours/week using the internet for educational purposes during the pandemic. Positive attitudes towards online teaching were seen, as 65.7% reported being prepared for online teaching, while 40.8% were comfortable communicating with students via online platforms. Institutional support for online learning also appears to have increased following the coronavirus outbreak. An overwhelming majority (81.9%, n=416) stated that their universities supported online education during the pandemic, compared to 56.5% (n=287) before. The main recognized barriers for online teaching were poor internet connection (78.3%, n=398), disadvantages in old learning tools (e.g., uploading capacity) (70.9%, n=360), and family atmosphere (69.3%, n=352). Participants also recognized technical (74.0%, n=376) and computer skills (49.2%, n=250) as areas requiring development. Conclusion Despite the positive attitudes of educators towards online teaching, many barriers need to be overcome before the shift from traditional learning is implemented. Faculty training and inter-departmental communication are warranted for the success of online teaching during the COVID-19 pandemic.

Keywords; coronavirus, COVID-19, e-learning, online teaching, pandemic, distance learning

1. Introduction

Online learning is a form of distance learning that harnesses electronic technology and internet platforms for conducting teaching and learning processes (Howlett *et al.*, 2009). Distance learning has been conducted since as early as 1996, with the use of methods such as TV broadcasting, lesson recording, and online content (Weiner *et al.*, 2019). The last decade has seen a shift, albeit hesitant, into online and other forms of distant learning (Shachar and Neumann, 2003; Weiner *et al.*, 2019). Recently, due to the novel coronavirus (COVID-19) outbreak many countries have implemented containment measures ranging from partial to complete lockdowns (Lau *et al.*, 2020). Thus, several educational institutions were required to operate under exceptional circumstances and transfer their activities to online and remote methods (Sahu, 2020). Such transition, normally taking months of deliberation and training, is now happening overnight. Concerns over the preparedness of institutions and faculty members for the delivery of high-quality remote education may therefore re-emerge.

Many countries since the declaration of COVID-19 as a global pandemic by the World Health Organisation (WHO) have implemented precautionary efforts directed towards containing the viral outbreak, forcing multiple institutions, most noticeably schools and universities to work and operate remotely (Azamfirei, 2020; Cohen and Kupferschmidt, 2020).

Online learning incorporates Information and Communication Technologies (ICT), such as websites, video conferences, CDs, television, online platforms, and mobile technologies in the learning and teaching process (Sife, Lwoga and Sanga, 2007). This has been suggested to enhance education quality, increase motivation, evade place limitations, provide time flexibility, and endow both students and educators with innovative technological skills (Van Braak, 2001; Al-Zaidiyeen, Mei and Fook, 2010). However, the shift towards online education has been slow due to multiple barriers recognized from earlier experiences. These barriers to online learning may fall into 4 main categories including skills, resources, institutional strategies, and attitudes (O'Doherty *et al.*, 2018).

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2. Literature Review

Barriers to efficient online learning during COVID-19 included the lack of technological equipment and stable internet connection, socioeconomics, household distractions, and digital incompetence among students and educators. Moreover, the lack of structured teaching plans with digestible material were found to risk overloading students and faculty and hinder effective learning (Adedoyin and Soykan, 2020).

Recently, many studies attempted to assess the online learning experience mandated by COVID-19 from teachers' and students' perspectives. One study from India has highlighted the key areas that determined the success of online teaching from the perspective of 70 teachers and 407 college students. These included efficient interaction, a defined structure for modules, the availability of technical support, and the ability to conduct practical lessons remotely (Nambiar, 2020). Another study outlined the online learning challenges faced by elementary school teachers during the COVID-19 pandemic. These were the availability of infrastructure, including internet connection and facilities, in addition to teacher-parent collaboration and carrying out teaching activities, including planning, teaching, and assessment (Fauzi and Khusuma, 2020).

Several studies have examined the online learning process during the time of the pandemic from students', parents, or school teachers' perspectives (Agung, Surtikanti and Quinones, 2020; Dong, Cao and Li, 2020; Khalil *et al.*, 2020; König, Jäger-Biela and Glutsch, 2020; Mailizar *et al.*, 2020; Verma *et al.*, 2020). However, few studies provided an insight into online teaching practices and attitudes of university educators during the early stages of the COIVD-19 pandemic. Furthermore, this study examines factors influencing educators' perceptions of institution preparedness and barriers towards the implementation of effective e-learning in a developing country providing better understanding necessary to future adaptation of online education in the region. Moreover, as the adaptation of online education was conducted overnight in the early stages of COVID-19, educators' readiness to adopt new technologies was assessed in this study. Therefore, educators were classified based on their adaptation styles providing better understanding to achieve better accommodation of online teaching tools necessary for effective online teaching particularly in developing countries.

3. Methods

3.1 Study design

This is a descriptive, questionnaire-based, cross-sectional study design. The questionnaire was implemented on a web-based platform to facilitate completion and collection of data during the quarantine period. Invitations were emailed nationwide to all educators of all academic degrees at private and public universities in Jordan. E-mail addresses were obtained from universities' websites. The link to the survey questionnaire was included in the sent invitations with a brief description about the study purpose. The average completion time of the survey was 10 minutes.

3.2 Questionnaire development

A set of main ideas and primary items directly relevant to our topic were based on current scientific literature. The primary items were reviewed by seven experts from different disciplines and universities who were required to provide feedback and suggest necessary changes in order to establish both face and content validity of the survey. The reliability of the questionnaire was established using a pilot test by collecting data from 20 academics not included in the study sample. They were asked to fill in the questionnaire individually and were encouraged to think loudly and to speak what they meant by each answer and how they understood each question.

Responses were voice recorded and questions were adjusted accordingly. The final survey contained five sections. Those included (1) demographics, (2) innovation adoption, (3) attitudes and opinions towards online learning, (4) perceived areas of development and barriers, and (5) usage and rating of online teaching tools.

Questions included in the questionnaire were tested for content validity. Section 2 was adopted from Roger's classification of innovation adoption where people are categorized as Innovators (the first to adopt a new innovation); Early Adopters (second in responding to novelties); Early Majority (those who accept a technology after a considerable period of time); Late Majority (those who adopt a technology after the average society member); and Laggards (those who are last to accept an innovation) according to their acceptance of new technologies (Rogers, 1983). A three-point Likert scale was used and scored to evaluate statements related to electronic teaching practices and perceived barriers and to identify associated factors. Usage of online teaching

tools were assessed using "Yes", "No" options. Furthermore, educators were asked to rate the currently used online teaching tools from 1=less preferred to 3= more preferred, with the option "not using it" was available for each online tool.

3.3 Ethics

Ethical approval was obtained from the Institutional Review Board (IRB). Participants were informed prior to starting the survey that it is completely anonymous, voluntary, and that all data would be treated as confidential.

3.4 Statistical Analysis

Data was analyzed using SPSS software version 24. Descriptive data was expressed as frequencies and percentages. T-test and the One-Way ANOVA Model were used at a significant level of Alpha <0.05 to identify factors associated with educators' attitudes and perceived barriers to on-line learning.

4. Results

A total of 508 educators participated in the study. Table 1 shows participants' characteristics. The mean (±SD) age among participants was 44.8 ± 10.4 years. Males (67.5%, n=343) were predominant in the sample. Almost 41.5% (n=211) of educators belonged to medical faculties, 37.5% to engineering faculties, 17.7% to science and literature faculties, and 3.3%. to other faculties. The mean years of experience was 9.7 ± 9 years. Almost two thirds (66.9%, n= 340) of educators reported having a prior experience with online learning, including attending or receiving workshops, webinars, and courses. The educators reported that they used the internet for 12.8 ± 13.6 hours/week prior to the coronavirus crisis for non-educational purposes (e.g., Facebook, YouTube, games). During the pandemic, the use of internet for educational purposes averaged at 20.2 ± 15.9 hours per week.

Table 1: Demographic characteristics of study participants. (N=508)

Variable	Frequency (%)
Gender	
Male	343 (67.5)
Female	165 (32.5)
Age mean ± SD	44.8 ± 10.4
Academic degree	
Professor	103 (20.2)
Associate Professor	108 (21.3)
Assistant Professor	223 (43.9)
Lecturer	37 (7.3)
Teacher	37 (7.3)
Department	
Medical	211 (41.5%)
Engineering	190 (37.5)
Science and Literature	90 (17.7)
Other	17 (3.3)
City	
Northern	305 (60.0)
central	176 (34.6)
southern	27 (5.4)
Living Area	
City	453 (89.2)
Village	55(10.8)
Prior experience with online education	
Yes	340 (66.9)
No	168 (33.1)
Years of experience mean ± SD	9.7 ± 9.0
Number of hours you generally spent per week online for non-educational purposes	12.8 ± 13.6
Number of hours spent online per week for educational purposes during the current corona crisis	20.2 ± 15.9

Participants were asked to categorize themselves into Innovators, early adopters, early majority, late majority, or laggards according to their adoption of online teaching technologies (Table 2). Most reported being

innovators (37.8%, n=192) or early adopters (32.7%, n=166). Meanwhile, only 5.3% (n=27) were self-classified as late majority and 6.7% (n=34) as laggards.

Table 2: Self-reported categories of teaching technologies adoption

Style	Frequency (%)
Innovators	192(37.8)
Early Adopters	166 (32.7)
Early Majority	89 (17.5)
Late Majority	27 (5.3)
Laggards	34 (6.7)

Most educators believed they were well-prepared for electronic education (65.7%, n= 334) (Table 3). More than half participants also reported having the required computer skills to conduct online teaching activities (77.4%, n=393). Less than half (40.8%, n= 207) said they were comfortable communicating with students by online methods. However, only 36.2% (n=184) reported being easily able to give group assignments online. Moreover, only 23.2% (n=118) stated that they would prefer electronic learning to become the new norm. The greater percent did not trust online systems to be robust and fair (32.5%, n= 165). Around 55% of participants also disagreed that all courses offered by their departments can be given electronically without difficulties. University support for online education appeared to have increased following the COVID-19 pandemic. An overwhelming majority (81.9%, n=416) stated that their universities supported online education after the pandemic, compared to 56.5% (n=287) before. Around 44.7% (n=227) educators perceived the online education provided by their universities to be of high quality. A similar percent (40.9%, n=208) stated that their universities provide tools and technical support for online education. More than half participants also stated they can easily access the internet to conduct online teaching activities (63.8%, n= 324). Around half educators disagreed that students feel more comfortable sharing their ideas through online platforms compared to classes (50.2%, n=255). Moreover, around 47.2% (n=240) agreed that online education risks overloading students with schoolwork.

Table 3: Attitudes and practices of educators towards online teaching during the COVID-19 pandemic

	Preparedness and Attitudes Statements	**Frequency (n%)**		
		Disagree	Neutral	Agree
▪	You are well-prepared to join online learning	56 (11.1)	118 (23.2)	334 (65.7)
▪	Before the emerging of COVID-19, the university used to support online education.	82(16.1)	139(27.4)	287 (56.5)
▪	After the emerging of COVID-19, the university started supporting online education.	82(16.1)	59 (11.4)	416 (81.9)
▪	Would you prefer to have online learning to become the new normal?	232 (45.7)	158(31.1)	118 (23.2)
▪	I am able to easily access the Internet for my online courses.	85 (16.7)	99 (19.5)	324 (63.8)
▪	I feel comfortable to actively communicate with my students online.	152 (29.9)	149 (29.3)	207(40.8)
▪	I am able to grade assignments on time for online courses (usability).	124 (24.4)	168 (33.1)	216 (42.5)
▪	My university provide high-quality online education.	84(16.5)	197 (38.8)	227(44.7)
▪	I prefer in-class approach as it provides a lot of interaction with my students.	46 (9.1)	88(17.3)	374 (73.6)
▪	I have satisfactory computer skills for dealing with online course/assignments.	25(4.9)	90 (17.7)	393 (77.4)
▪	Students feel more comfortable sharing their thoughts in an online learning environment than in-class.	255 (50.2)	185 (36.4)	68 (13.4)
▪	I can easily assign group activities online.	149 (29.3)	175 (34.4)	184 (36.2)
▪	I believe most courses offered in my department can be given online without difficulty.	279 (54.9)	113 (22.2)	116 (22.8)
▪	You trust the online systems to be fair, rigorous and reliable.	165 (32.5)	220 (43.3)	123 (24.2)
▪	My school provide adequate hardware and technical support for online learning	114 (22.4)	186 (36.6)	208 (40.9)
▪	Online education is associated with a significant risk of information overload.	110 (21.7)	158 (31.1)	240 (47.2)

Perceived barriers for online education were also assessed (Table 4). The most recognized barriers were weak internet connection (78.3%, n=398), disadvantages in old learning tools (e.g., uploading capacity) (70.9%, n=360), and family atmosphere (69.3%, n=352). Time constraints, lack of instructions, demotivation, equipment costs, internet subscription fees, and number of students were all identified as barriers by over than half of educators (61%, 59.8%, 56.1%, 52.2%, 58.7%, and 53.5%, respectively). The majority of participants recognized training for use of online learning platforms as an area needing development (74%, n=376).

Table 4: Perceived barriers and necessary areas of development for online education

	Frequency n (%)		
Barriers	**Agree**	**Neutral**	**Disagree**
Lack of motivation	285 (56.1)	128 (25.2)	95 (18.7)
Lack of instructions	304 (59.8)	118 (23.2)	86 (16.9)
Too challenging eLearning tools	221 (43.5)	134 (26.4)	153 (30.1)
Cost of hardware	265 (52.2)	117 (23.0)	126 (24.8)
Cost of Internet	298 (58.7)	102 (20.1)	108 (21.3)
Family atmosphere	352 (69.3)	104 (20.5)	52 (10.2)
Poor Internet connection	398 (78.3)	76 (15.0)	34 (6.7)
Time consuming	310 (61.0)	120 (23.6)	78 (15.4)
School using complex online software programs	131 (25.8)	184 (36.2)	193 (38.0)
Lack of trust in online systems	154 (30.3)	203 (40.0)	151 (29.7)
Number of students	272 (53.5)	98 (19.3)	138 (27.2)
Disadvantages in old learning tools (e.g., uploading capacity)	360 (70.9)	92 (18.1)	56 (11.0)
Needed skills			
Basic computer literacy	250(49.2)	145(28.5)	113(22.2)
Skills training in using the online tools	376(74.0)	101(19.9)	31(6.1)
Training in browsing online resources	291(57.3)	131(25.8)	86(16.9)

Factors associated with attitudes and perceived barriers to distance learning were assessed (Table 5). Notably, females appeared to have significantly more perceived barriers than their male counterparts (p= 0.00). Moreover, there were significant differences in the reported barriers across departments, with pharmacy and nursing departments having the highest average of perceived barriers 2.67 (0.46). Preparedness to join online teaching was associated with less perceived barriers and more positive attitudes. Prior experience with online education and innovativeness were also both associated with more positive perceived attitudes towards online learning.

Table 5: Factors Associated with Attitudes and Perceived Barriers to Distance Learning

Variables	**Attitudes** Mean (SD)	**p value** (sig.)	**Perceived Barriers** Mean (SD)	**p value** (sig.)
Gender				
Male	2.02 (0.42)	0.329	2.49 (0.47)	*0.000*
Female	1.98 (0.39)		2.65 (0.44)	
Age				
25-35	1.99 (0.43)	0.816	2.59 (0.47)	0.275
36-45	2.02 (0.39)		2.56 (0.46)	
Above 45	2.01 (0.42)		2.51 (0.47)	
Academic degree				
Professor	1.96 (0.41)	0.395	2.57 (0.53)	0.108
Associate Professor	2.04 (0.41)		2.58 (0.44)	
Assistant Professor	1.98 (0.38)		2.56 (0.44)	
Lecturer	2.01 (0.44)		2.45 (0.49)	
Department				
Medical (MDs and Dentists)	2.05 (0.41)	0.227	2.48 (0.45)	*0.007*
Medical (Pharmacists and Nurses)	2.05 (0.42)		2.67 (0.46)	
Engineering	2 (0.42)		2.51 (0.46)	
Science and Literature	1.95 (0.40)		2.51 (0.48)	
Teaching Experience (Years)				
Up to 5	2.03 (0.41)	0.398	2.57 (0.47)	0.678
6-10	2.04 (0.42)		2.53 (0.49)	

Variables	Attitudes Mean (SD)	p value (sig.)	Perceived Barriers Mean (SD)	p value (sig.)
11-15	1.96 (0.39)		2.55 (0.45)	
More than 15	1.97 (0.42)		2.51 (0.45)	
Living Area				
Urban	2.01 (0.41)	0.527	2.49 (0.50)	0.340
Rural	1.98 (0.42)		2.55 (0.47)	
Preparedness to Join Online Teaching				
No	1.6 (0.31)	*0.000*	2.73 (0.45)	*0.000*
Not Sure	1.8 (0.32)		2.65 (0.39)	
Yes	2.15 (0.38)		2.48 (0.48)	
Prior experience with online education				
Yes	2.06 (0.41)	*0.000*	2.54 (0.47)	0.701
No	1.9 (0.39)		2.56 (0.45)	
Number of Online Platforms used				
≤ 3 platforms	2.12 (0.41)	*0.000*	2.52 (0.46)	0.326
> 3 platforms	1.95 (0.40)		2.56 (0.47)	
Innovativeness (Rate of Adoption)				
Innovators	2.11 (0.41)	*0.000*	2.54 (0.44)	0.250
Early Adopters	1.97 (0.37)		2.56 (0.46)	
Early Majority	1.83 (0.37)		2.58 (0.46)	
Late Majority	1.99 (0.44)		2.59 (0.50)	
Laggards	2.1 (0.50)		2.38 (0.61)	

T-test and the One-Way ANOVA Model were used at a significant level of Alpha <0.05

Educators reported their most and least preferred platforms for conducting online teaching activities (Figure 1). E-mail, university e-learning, and Moodle were the most used platforms among educators for online teaching during the COVID-19 pandemic (figure 1). YouTube (56.5%, n=287), Facebook (54.5%, n=277), and Zoom (51.4%, n=261) were also used by over than half of the participants. WhatsApp and google classroom were the least preferred platforms among educators.

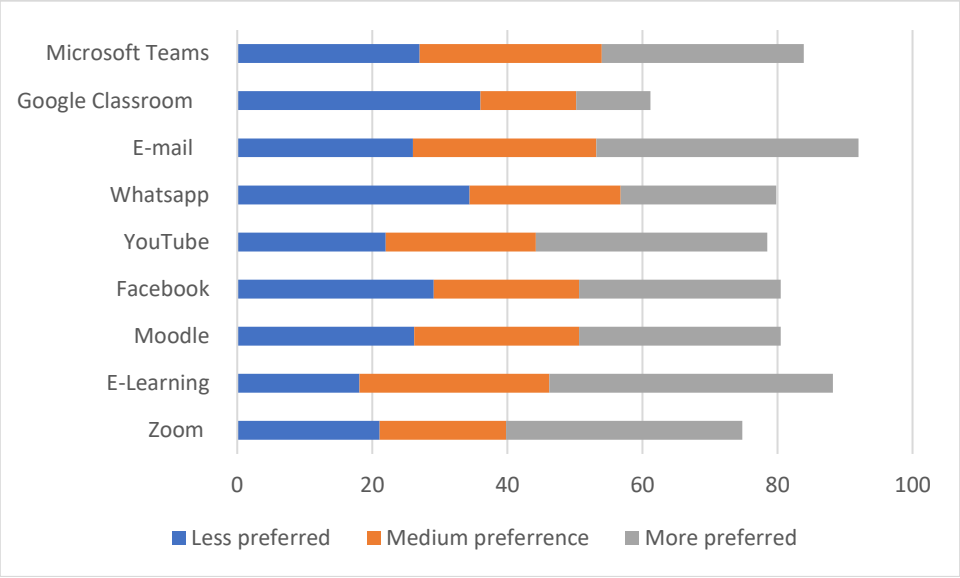

Figure 1: Preference ratings of commonly used online tools among users

5. Discussion

This study is a nationwide study that included educators from all public and private universities in Jordan. Our study finds that the main barriers for online education according to educators are poor internet connection, disadvantages in old learning tools (e.g., uploading capacity), and family atmosphere. These barriers were perceived more significantly among females. Such barriers have been previously reported by multiple studies, especially in developing countries where the infrastructure for information technology may be lacking (Attardi and Rogers, 2015; Lakbala, 2015; O'Doherty *et al.*, 2018). Lack of technology infrastructure and internet access

and poor internet connection also present challenges for online teaching, and were recognized as a main technical issues for live online classes in studies from Iran, Cameroon, and Canada (Bediang *et al.*, 2013; Attardi and Rogers, 2015; Lakbala, 2015).This particularly presents a challenge for the use of interactive teaching methods, such as video conferencing and prerecorded videos. In our study, use of the video conferencing tool "Zoom" and the video-sharing platform "YouTube" was popular among professors. Those also received high rankings among the commonly used platforms, as 35% and 34.3% gave a higher rating for Zoom and YouTube, respectively. The use of educational media downloadable from YouTube may offer a timesaving and relatively easy method to deliver certain concepts to students. However, real-time platforms such as Zoom offer a more interactive experience with an opportunity for in-class questions and answers. However, they are affected by poor internet connection and the lack of appropriate infrastructure (e.g. computers, webcams, internet routers, etc.). Rasmitadila *et al.(*2020) also noted that educators, particularly primary school teachers, may prefer methods that are commonly used among parents, such as WhatsApp. The cost of hardware infrastructure and internet subscription fees were also seen as challenges by over than half of our participants. However, Maloney *et al.* (2012) argue that investment in web-based education may later prove to be more cost-efficient than traditional learning, thus serving as a solution to a perceived barrier.

Responses to this study demonstrate a nationwide institutional support for online teaching following the COVID-19 pandemic. Compared to the 56.5% of educators agreeing that their universities supported online learning before coronavirus spread, around 81.9% stated such support is now present after the pandemic. A considerable percent of educators (40.9%) also endorsed the technical and hardware support offered by their universities for e-learning activities, while 44.7% stated that their universities offer high-quality online education. Sife, Lwoga and Sanga (2007) identify institutional support as a factor vital for successful integration of technologies in the learning and teaching processes. A recent study from Indonesia similarly identified collaboration and support from all of the involved parties, such as schools, authorities, and teachers as key factors in the success of online learning in the country amidst the pandemic (Rasmitadila *et al.*, 2020). Communication among departments and clear administrative directions can also contribute greatly to the success of e-learning strategies (Bury, Martin and Roberts, 2006). In this study, lack of directions was identified as a barrier to the success of online teaching by over than half of our participants (59.8%).

Training for technological and computer skills was the primary area needing development according to educators in this study. Dwyer, Ringstaff and Sandholtk (1992) further goes to highlight the importance of technological literacy and competency among administrators for the implementation of technology-based activities. Moreover, lack of technical skills is suggested to discourage the use of online-learning platforms (Dyrbye *et al.*, 2009). In a cross-sectional survey of 30 lecturers from nursing and midwifery faculties, the majority (66%) believed that lack of technical training is a barrier for e-learning implementation (Lakbala, 2015). This was previously highlighted in many studies, as the lack of required training is suggested to discourage faculty from conducting online teaching activities (Dyrbye *et al.*, 2009; Niebuhr *et al.*, 2014; Perlman *et al.*, 2014). In our study, educators who felt prepared to conduct online teaching activities had significantly less perceived barriers and more positive attitudes. Additionally, prior experience with online teaching was associated with more positive attitudes, highlighting the role of skills and digital competency in guiding a smooth and efficient transition to online learning.

Negative attitudes towards online learning may stem from a lack of comfort towards using unfamiliar technologies and having to handle technical errors. In addition, educators may find it overwhelming to navigate new tools and platforms while fulfilling teaching responsibilities (Merlin, Weston and Tooher, 2009; Skye *et al.*, 2011). The latter may be perpetuated by the need to cope with major life changes and elevated psychological stress associated with the novel coronavirus spread (Yanyu *et al.*. This further perpetuates the problem of time constraints already recognized by 61% of our participants, as both students and teachers might be overwhelmed with the extra burden of assigning time for technical skill attainment. A study of 27 faculty members engaging in the creation of online teaching content showed time management as an important limitation to the program, despite positive attitudes and increased confidence in new skills being reported (Niebuhr *et al.*, 2014). Perlman (2014) also cites time as a hindrance for faculty participation in an electronic portfolio (e-portfolio) experience, as they spent an average of 4-5 days of uncompensated time training for and using the tool. A suggested solution to this challenge is to reimburse and acknowledge educators for the additional time dedicated for training and creating online educational content (O'Doherty *et al.*, 2018). Once implemented, information and communication technology can be time-efficient and robust (Perlman *et al.*, 2014). This was shown in previous

studies in which a reluctance from lecturers to abandon the traditional teaching culture was observed and distance learning methods were adopted (Skye *et al.*, 2011; O'Doherty *et al.*, 2018).

On a natural distribution curve, Rogers (1983) proposed that people fall into five categories in terms of adopting new technologies. The degree of willingness to adopt new technologies in teaching has been suggested to predict the use of computer mediated communication (CMC) in school teaching (Van Braak, 2001). In a survey of 233 school teachers, most (90.2%) CMC users strongly agreed that adoption of technology innovations is beneficial to teaching (Van Braak, 2001). Furthermore, around 86.3% of CMC users believed the adoption of innovations in teaching is of high priority. In our study, an overwhelming majority (70.5%) of educators self-identified as either innovators or early adopters of online teaching technologies. In addition, around 40.8% were comfortable in communicating with their student via online platforms, and 65.7% reported being well-prepared for online teaching. This reflects positive attitudes among university professors towards taking the leap into a perhaps un-navigated experience. In contrast, a similar study reported the dissatisfaction of elementary school teachers (80%) with the online learning experience, with many perceiving it as ineffective (Fauzi and Khusuma, 2020). However, our study was conducted in an early period of the COVID-19 pandemic, and hence the timeframe was not large enough to assess long term outcomes. Interestingly, only 23.2% of our participants preferred online learning to become the new norm. This suggests that many barriers still need to be overcome before such strategies are successfully implemented.

5.1 Conclusion

Multiple barriers are identified that might hinder this shift, including poor infrastructure, costs, and time constraints. The study also identifies predictors of perceived barriers and attitudes of educators towards online teaching, including prior experience and readiness to adopt new technologies. Therefore, it is recommended that training programs and inter-departmental communication strategies are implemented and using fewer platforms for online education for an efficient online learning experience. Future studies assessing online tools used by educators are suggested to provide guidance of efficient tools in online education.

Conflicts of interest

Authors declare no conflicts of interest.

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Ethics approval

Ethical approval was obtained from the Institutional Review Board (IRB) (reference code 92/132/2020).

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The Attitude of the Academic Community towards Distance Learning: A Lesson from a National Lockdown

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Abstract: The number of online courses conducted at universities has been growing steadily worldwide. The demand for this form of education has jumped sharply in the 2019/2020 academic year as a consequence of the COVID-19 pandemic and the national lockdown. The following study uses the case of University of Wrocław and examines how this unprecedented situation would affect the attitude of members of the academic community toward distance learning. The examination, based on quantitative analysis of separated questionnaires distributed among teachers and students, reveals that the previous experience in distance learning strongly correlates with willingness to use it in the future, i.e. after fighting the coronavirus crisis. Thus, the research suggests that the implementation of distance learning may involve the need to put more emphasis on systematic and long-term actions. The results achieved in the study may contribute to improving the ways of implementing distance learning on a large scale in institutions dealing with higher education.

Keywords: COVID-19, distance teaching, emergency remote teaching, e-learning, remote teaching

1. Introduction

Higher schools and universities provide education to students mainly through traditional activities such as lectures and practical training. However, the tendency to introduce online courses has been growing steadily worldwide (Palvia et al. 2018). The educational experience at the University of Wrocław confirms this tendency. Since the 2016/2017 academic year the number of e-learning courses has been growing about 3-fold every year (according to the Centre of Distance Learning database). The national lockdown and health-protecting restrictions due to the COVID-19 pandemic introduced all around the world have necessitated profound changes in the way of teaching. Universities, as well as other kinds of schools, are switching to remote teaching. This unique situation, described sometimes as a “great online-learning experiment” (Zimmerman 2020), gave the opportunity for an in-depth analysis of the academic community’s attitude towards the advantages and weaknesses of remote teaching both from the teachers' and students' points of view. Both teachers and students were obliged to change their habits and routine and switch to online teaching in a very short period. It is wondering what this experience might mean for future remote education.

Does it introduce a permanent change in the way of teaching or is it only a temporary solution? The following article assumes that the case of the COVID-19 pandemic emergency, when the online teaching is obligatory, will not increase the social acceptance for online courses after fighting the coronavirus crisis. Contrary to this, it is also assumed that the experience in distance learning gained before the COVID-19 pandemic is a factor, which positively influences the teachers’ and students' attitudes towards distance learning.

The term “e-learning” means electronic learning and is strongly connected with and dependent on the Internet. E-learning refers to the learning of students which takes place online. This form of education originated in the 1990s (Sinclair, Kable, and Levett-Jones 2015). E-learning can provide many advantages.

Among them, flexible time management, a higher number of students with the opportunity to participate in education due to multiple access, the possibility of reducing the cost of classrooms, and laboratory training (e.g. the cost of reagents, personal protective equipment, etc.) should be mentioned. Distance learning is also a solution to typical infrastructure difficulties. For example, it allows teachers to easily share the content of

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lectures without limitation connected with lecture hall capacity. E-learning is not only a distance learning process but all together could provide real, virtual meetings, individual or collective tutoring, seminars, and more. E-learning could be more involving since it demands higher concentration and intensive individual work from students to solve the problems. At the same time, the remote way of work respects the individual working rhythm and learner abilities to accomplish a given task (Ilie 2019).

One should keep in mind that in the emergency remote teaching situation, the terms “online” and “distance learning” are often used without paying adequate attention toward the exact content of educational courses and ways of providing knowledge. A variety of methodologies such as distance learning, e-learning, blended learning, online learning, mobile learning, and many others, could be distinguished among them. One of the main differences is the student role in online learning. Depending on the methodology they could just listen and read, almost as in traditional teaching, or be more involved in completing problems and answering questions, explore simulations and resources, and/or collaborate with peers (Means, Bakia, and Murphy 2014; Hodges et al. 2020). Being aware of the differences between the above mentioned terms, due to the clarity of the argumentation and the nature of didactic activities that were undertaken by the studied academic community, as a direct consequence of the COVID-19 pandemic, the authors of this work decided to use the term- “distance learning”.

As a benefit of advances in information technology, distance learning can be based on high-performance communication systems that improve students' perception via visualization of different, not-visible processes (Morales-Menendez, Ramírez-Mendoza, and Vallejo Guevara 2019). Distance learning ensures better access to education for people with disabilities. Another advantage of distance learning can be environmental benefits connected with the carbon footprint reduction of distance learning users mostly resulting from limiting their travels to face-to-face meetings (Walsh 2018). In the context of distance learning, the most concern can be raised by the issue of hand-on based laboratories, which are characterized by different specifics and requirements in the form of appropriate infrastructure facilities than lectures or seminars. Among the basic disadvantages of this teaching method are a large amount of work required and limited face-to-face contacts (Arkorful and Abaidoo 2014). There is also a question whether distance learning could effectively replace traditional teaching, which provides many advantages such as a strong impact in the form of direct, efficient teacher feedback in response to students' activity, personal interactions allowing for modifications of the teaching process, adjusting to pupils' knowledge level, and a flexible formula enabling free discussion (Ilie 2019).

Therefore, although distance education could be seen as an alternative to the traditional educational process, the question of whether virtual teaching is more or less effective and accepted by teachers and students is still valid. The Education Endowment Foundation (EEF) reported in 2020 that it is difficult to use distance learning to replace the face-to-face learning interactions between teachers and students. Many research groups have conducted studies about this problem (Engum, Jeffries, and Fisher 2003; Corter et al. 2011; Brinson 2015; Clark et al. 2020; Marasi, Jones, and Parker et al. 2020). Some have concluded that the students’ learning outcome achievements are comparable in the case of both distance and conventional techniques (Corter et al. 2011; Brinson 2015). Distance learning teaching requires a change in the pedagogical style and very careful design of the training process (Ilie 2019). While in the traditional learning all the educational processes including planning, monitoring, and evaluation are maintained by teachers, distance learning also involves the student and can be recognized as a part of socio-emotional development (Volet et al. 2009). As in conventional learning, a teacher also plays an important role in distance learning. As shown in different studies, teachers’ involvement and their ability to share knowledge have a huge influence on students’ performance and satisfaction (Viegas et al. 2018).

While distance learning has many advantages it is impossible not to mention some of its weaknesses and the associated risks. One of them, procrastination, is linked to time management and defined as the tendency to unreasonably delay the completion of a task. Procrastination is one of the most common behaviors that negatively affect the effectiveness of the teaching process, especially through distance learning. Also, the physical and psychological isolation of distance learning participants is an important problem. Minimizing this risk of the above problems or significantly mitigating their impact requires, among other issues, an appropriate way of teaching, additional student stimulation, and the development of new tools such as webinars to facilitate social interaction and collaborative learning (Croft, Dalton, and Grant 2010; Michinov et al. 2011; Hong, Lee, and Ye 2021; Stebbings et al. 2021).

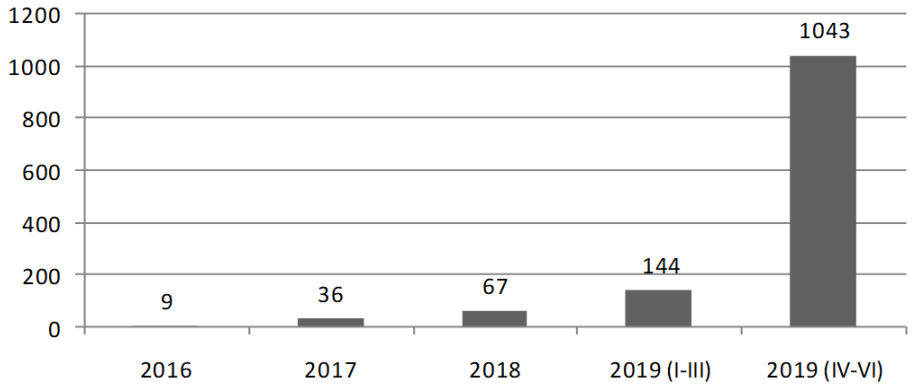
Despite its drawbacks and its advantages, distance learning is becoming increasingly important in higher education and is being introduced to the education of students in various fields around the world (Trelease 2016; Walsh 2018; Marasi, Jones, and Parker 2020).

1.1 Study Design

The present study was carried out at the University of Wrocław 7 weeks after cancellation of lectures and classes for undergraduate, graduate, post-graduate, and doctoral students, as well as participants of other forms of education, due to the COVID-19 pandemic. During this period emergency distance learning was implemented.

It is worth to note, however, that the pandemic COVID-19 is not the first time during which the University of Wrocław implemented the distance learning. This form of education has been used for 5 years (mostly in the form of e-learning). The number of classes and lectures conducted using this approach was initially small but was steadily increasing. The rapid increase in distance learning interest in the 2019/2020 academic year was dictated by the emergence of the COVID-19 pandemic. A 724% increase in the number of distance learning courses in the summer semester was observed when compared to the winter semester (Fig. 1). At the University of Wrocław, before and during the lockdown, distance learning has been carried out using an educational platform equipped with Moodle MLS, a free and open-source learning management system. Moreover, the University of Wrocław acquired Microsoft Office 365 Online in the year 2016 with free licenses for students and teachers, and full licenses in the year 2020.

Figure 1: Number of distance learning courses at the University of Wrocław in the years 2016-2020



The University of Wrocław has made efforts to improve the qualifications of the academic staff necessary to conduct distance learning including e-learning courses. These efforts included, among others, implementation and execution of training within the project “Good Staff – increasing the competence of the teaching staff of the University of Wrocław to strengthen the quality of education”, supported by the EU within the European Social Fund co-financed by the European Union. These workshops, under the name “e-learning in teaching practice” were organized in three editions in the years 2017-2019. The total number of teachers who took part in the training was 60. This resulted in the implementation of 144 courses containing elements of distance learning before the rapid increase caused by the “emergency remote teaching” due to the COVID-19 pandemic (Fig. 1). The significant number of mentioned courses is a combination of the two methodologies (conventional and distance learning), referred to as “blended learning”. This approach is popular and considered as effective since it may enhance students' satisfaction and allow them to acquire knowledge and relevant skills (Engum, Jeffries, and Fisher 2003).

This particular study is based on the survey which was conducted among the academic community (teachers and students) of the University of Wrocław. In the project, a web survey was used due to the extraordinary circumstances significantly limiting opportunities to conduct a traditional survey with face-to-face contact. Research team was allowed to distribute the questionnaire among all students and teachers but did not have an access to personal e-mails due to the data protection regulations. For this reason, a convenience sampling, instead of a random selection of respondents, was used in the study. In total, 278 teachers and 2301 students' answers from humanities and science faculty were taken into account.

In the study, two separate questionnaires were developed, one for teachers and one for students. Questions included in both questionnaires concerned the experience in using distance learning tools, attitude towards such a method after the COVID-19 pandemic and subjective assessment of advantages and disadvantages of distance learning. Respondents were also asked to express their opinions about the opportunities for wider implementation of distance learning at the University of Wrocław after the COVID-19 pandemic (it was an open question). In addition, teachers answered an additional question about the reasons for which they started to participate in distance learning practices, while students were asked to define their attitude towards distance learning before the COVID-10 pandemic. The content of each questionnaire is presented in the appendix section. It is also important to note that the survey was anonymous and voluntary. The information regarding the place of work (the particular faculty) and the sex was not obligatory as well.

Three detailed hypotheses were proposed and verified in the article. The first one is that the need to take part in distance learning activities during the national lockdown will not have a positive impact on the willingness to use distance learning in the future, i.e. after fighting the coronavirus crisis. The second hypothesis is that the previous experiences with distance learning, gained before the pandemic, strengthen the positive attitude of respondents to distance teaching in the future. The last hypothesis is that the positive attitude to distance teaching in the future is connected not only with a more positive assessment of advantages of distance learning but also with a less critical attitude to its weaknesses.

The two first hypotheses were examined based on three binary logistic regression models – two calculated for teachers and one regarding students. Logistic regression is a commonly used method in which a binary response variable is related to a set of explanatory variables. In this approach, the probability (odds) of the response taking a particular value is modelled based on a combination of values taken by the predictors. The models used in the article concern the identification of factors that affect the respondents' attitudes to distance learning in the future. The design and results of the models are described in Tables 3 and 4, section 3.1.

In the next step, aimed at verifying the third hypothesis, the Mann-Whitney *U* nonparametric test was used to compare the differences between scores obtained by the four independent categories of respondents: (1) teachers willing to use distance learning after the COVID-19 pandemic, (2) teachers not willing to use distance learning after the COVID-19 pandemic, (3) students willing to use distance learning after the COVID-19 pandemic and (4) students not willing to use distance learning after the COVID-19 pandemic. The Mann-Whitney *U* test was chosen because the values were not normally distributed and the categories of respondents did not have the same number of items. The results of the tests are described in Table 7, section 3.2.

In addition, a chi-square test of independence, which compares two variables in a contingency table, was used to see whether distributions of categorical variables differ from each other. The test was used to provide more detailed results and to compare assessments of single advantages and disadvantages among the four aforementioned categories of respondents (see Tables 8 and 9, section 3.2). In the discussion section, several qualitative opinions of the respondents (collected in the survey) were also taken into account to provide better insight into the respondents' opinions about the future of distance learning at the University of Wrocław.

2. Research Results

2.1 Predictors of positive and negative attitude to distance learning courses in the future

Identification of factors that affect the respondents' attitudes to distance learning in the future was conducted with the use of logistic regression analysis. All three models included dependent variable based on the question in which respondents were asked about their willingness to use distance learning. The distributions obtained among teachers and students are presented in Table 1.

Table 1: Distribution of willingness to use distance learning after the COVID-19 pandemic among teachers and students

			Category of respondent		In total
			Teacher	Student	
Willingness to use distant learning in the future	No	N	174	1484	1658
		%	62.60%	64.50%	64.30%
	Yes	N	104	817	921
		%	37.40%	35.50%	35.70%
In total		N	278	2301	2579
		%	100.00%	100.00%	100.00%

The first model calculated for teachers includes three basic elements that were tested as independent variables (predictors) that might influence the attitude towards distance learning in the future: type of department, sex, and reasons for which the teachers started to participate in distance learning practices. The model with all the predictors is significantly better than the constant only model (χ^2=41.321, df=7, and p<.001). It can be also concluded that the model fits the data (χ^2=3.815, df=8, and p>.05).

In the second model regarding the teachers, an additional variable describing a personal experience with distance learning was used, together with type of department, sex, and reasons for which the teachers started to participate in distance learning practices. As in the previous case, the second model with all the predictors is significantly better than the constant only model (χ^2=60.118, df=10, and p<.001) and fits the analyzed data (χ^2=7.350, df=8, and p>.05).

As for students, the same set of variables was implemented, excluding the question regarding the reasons for which respondents started to participate in distance learning practices (the question was not included in the questionnaire). Instead of this, their personal attitude to distance learning before the COVID-19 pandemic was taken into account. Also, this model with all the predictors is significantly better than the constant only model (χ^2=311.261, df=6, and p<.001) and fits the analyzed data (χ^2=2.054, df=5, and p>.05). The distributions of all predictors that were used in the three models are described in Table 2.

Table 2: Distribution of characteristics potentially determining the willingness to use distance learning after the COVID-19 pandemic

		Category of respondent			
		Teacher		Student	
		N	% of N	N	% of N
Department (41 teachers and 128 students did not specify to which department they belong)	Humanities	175	73.8%	1589	73.1%
	Science	62	26.2%	584	26.9%
Sex(40 teachers and 194 students did not specify their sex)	Female	141	59.2%	1603	76.1%
	Male	97	40.8%	504	23.9%
Experience in using distance learning methods	Since the beginning of the COVID-19 pandemic	226	81.9%	2181	94.9%
	Less than 1 year	13	4.7%	65	2.8%
	1-2 years	16	5.8%	32	1.4%
	At least 3 years	21	7.6%	19	0.8%
Positive attitude before the COVID-19 pandemic	No	-	-	1544	67.1%
	Yes	-	-	757	32.9%
Reasons for which the teachers started to participate in distance learning practices					
Time efficiency	No	224	80.6%	-	-
	Yes	54	19.4%	-	-
Rector's decision	No	207	74.5%	-	-
	Yes	71	25.5%	-	-
Desire to continue teaching during the COVID-19 pandemic	No	78	28.1%	-	-
	Yes	200	71.9%	-	-
Better effectiveness	No	205	73.7%	-	-
	Yes	73	26.3%	-	-
Willingness to use another form of teaching	No	206	74.1%	-	-
	Yes	72	25.9%	-	-

Among teachers, the need to conduct distance learning courses during the national lockdown does not have a positive impact on the willingness to continue this practice in the future, i.e. after overcoming the COVID-19 crisis. It is well confirmed by logistic regression models directed towards identification of factors which explain the teachers' willingness to use distance learning methods after obligatory emergency remote teaching during the COVID-19 pandemic.

The first model (N=231; the model does not take into account teachers who did not specify their sex or department; Table 3) shows that predictors increasing willingness of teachers to continue classes and lectures after the COVID-19 pandemic with distance learning methods are connected with the desire to achieve better effectiveness of teaching and testing a new teaching method (accordingly, Exp (B)=2.524; p<.01 and Exp (B)=2.649; p<.01). Contrary to this, factors directly related to the pandemic situation significantly reduce the probability of willingness to conduct classes and lectures in this form in the future (Exp (B)=0.374; p<.01 in the case of desire to continue teaching during the COVID-19 pandemic) or do not have a statistically significant effect (as in the case of the Rector's decision).

Similar results are provided by the second model (N=231; the model does not take into account teachers who did not specify their sex or department; Table 3), which includes an additional variable regarding the previous (i.e. gained before the COVID-19 pandemic) teachers' experience with distance learning. This extra variable not only improves parameters of the model (the change of size of Nagelkerke R from 0.221 to 0.310 indicates that Model II better predicts attitude to distance learning in the future) but also shows that a few years' experience in distance learning significantly increases the willingness to use distance learning methods in the future (Exp (B)=22.202; p<.01 among teachers with 1-2 years experience and Exp (B)=5.293; p<.05 among teachers with at least 3 years' experience).

Table 3: Predictors of willingness to use distance learning after the COVID-19 pandemic among teachers

	Model I		Model II	
	Wald	Exp(B)	Wald	Exp(B)
Type of department	2.213	1.684	3.486	1.989
Sex	0.935	0.742	1.390	0.681
Time efficiency	0.870	1.415	0.003	1.024
Rector's decision	0.125	0.880	0.361	1.255
Desire to continue teaching during the COVID-19 pandemic	8.648	**.374****	3.020	0.528
Better effectiveness	7.292	**2.524****	7.418	**2.659****
Willingness to use another form of teaching	8.167	**2.649****	8.888	**2.923****
Experience: since the beginning of the COVID-19 pandemic	-	-	13.331	
Experience: less than 1 year	-	-	0.582	1.664
Experience: 1-2 years	-	-	7.897	**22.202****
Experience: at least 3 years	-	-	6.489	**5.293***
Constant	0.833	1.697	4.709	**0.402***
Cox and Snell R2	.164		.229	
Nagelkerke R2	.221		.310	
-2 Log likelihood	270.090		251.293	

* p<.05; ** p<.01

It is also important to note that the sex and type of department represented by the survey responders are not statistically significant predictors. Therefore there is no evidence that they affect the willingness to use distance learning methods after the COVID-19 pandemic.

A similar conclusion could be made in the case of students' answers. Their need to participate in distance learning courses during the national lockdown does not have a statistically significant impact on the willingness to take part in such activities in the future, which is confirmed by the model presented below (Nagelkerke R = 0.189; N=2102; the model does not take into account students who did not specify their sex or department) (Table 4). Contrary to this, a positive attitude to distance learning before the COVID-19 pandemic increases willingness to take part in distance learning courses in the future (Exp (B)=5.260; p<.001). A statistically significant difference could also be observed in the case of type of department represented by students:

respondents who are studying science are more willing to participate in distance learning when compared to those studying humanities (Exp (B)=1.487; p<.001).

Table 4: Predictors of willingness to use distance learning after COVID-19 among students

	Wald	Exp(B)
Type of department	12.845	**1.487*** **
Sex	0.489	1.085
Positive attitude before the COVID-19 pandemic	261.433	**5.260*** **
Experience: since the beginning of the COVID-19 pandemic	2.689	
Experience: less than 1 year	0.005	1.021
Experience: 1-2 years	1.674	1.757
Experience: at least 3 years	1.053	1.728
Constant	322.925	**0.257*** **
Cox and Snell R2	.138	
Nagelkerke R2	.189	
-2 Log likelihood	2417.107	

*** p<.001

In the light of the presented results, the first hypothesis – that the need to take part in distance learning activities during the national lockdown will not have a positive impact on willingness to use distance learning in the future – should be confirmed. The second hypothesis was supported by the results as well. All presented models show that the previous experience with distance learning, gained before the pandemic, strengthens the positive attitude of respondents to distance teaching in the future.

2.2 Assessment of the advantages and disadvantages of distance learning among respondents with a positive and negative attitude to distance learning courses in the future

The regression models described above show that the attitude of teachers and students is strongly influenced by personal experiences gained before the COVID-19 pandemic. However, does the analysis presented in the article allow us to conclude that willingness to conduct distance learning courses in the future is positively correlated with a better assessment of various distance learning aspects? To answer this question and verify the third hypothesis, a set of advantages and disadvantages of distance learning was defined based on feedback received from the participants of professional development courses taught by the Centre for Distance Learning since the year 2016. Regardless of our own experiences, very similar features of distance learning were taken into account in some international publications (Olson and Wisher 2002; Suanpang, Petocz, and Walter 2004; Derouin, Fritzsche, and Salas 2005; Vu et al. 2014; Al-Azawei, Parslow, and Lundqvist 2016). In order not to miss any important feature, respondents had an opportunity to define advantages and disadvantages on their own, but they did not provide any additional information on the relevant pros and cons of distance learning.

The distance learning advantages and disadvantages were assessed among teachers and students belonging to the following four categories mentioned in chapter 2: (1) teachers willing to use distance learning after the COVID-19 pandemic, (2) teachers not willing to use distance learning after the COVID-19 pandemic, (3) students willing to use distance learning after the COVID-19 pandemic and (4) students not willing to use distance learning after the COVID-19 pandemic. This step was necessary to better understand what kind of activities should be taken into account to encourage the academic community to not discontinue distance learning after the COVID-19 pandemic. A 6-item set of questions about the advantages and a 4-item set of questions about the disadvantages were applied. The assessment was made using a five-level Likert rating of multiple items (scale ranges from Definitely no {1} No {2} Do not know {3} Yes {4} to Definitely yes {5}). The basic distributions of the assessments are presented in Tables 5 and 6.

Table 5: Distribution of assessments of distance learning advantages among teachers and students

		Category of respondent			
		Teacher		Student	
		N	% of N	N	% of N
Flexible working hours	Definitely no	15	5.4%	111	4.8%
	No	65	23.4%	239	10.4%
	Do not know	19	6.8%	129	5.6%
	Yes	97	34.9%	977	42.5%
	Definitely yes	82	29.5%	845	36.7%
Less face-to-face contact	Definitely no	100	36.0%	531	23.1%
	No	70	25.2%	534	23.2%
	Do not know	24	8.6%	289	12.6%
	Yes	41	14.7%	583	25.3%
	Definitely yes	43	15.5%	364	15.8%
Wide availability	Definitely no	8	2.9%	180	7.8%
	No	35	12.6%	395	17.2%
	Do not know	42	15.1%	404	17.6%
	Yes	120	43.2%	962	41.8%
	Definitely yes	73	26.3%	360	15.6%
Better accessibility for people with disabilities	Definitely no	2	0.7%	22	1.0%
	No	11	4.0%	38	1.7%
	Do not know	69	24.8%	647	28.1%
	Yes	108	38.8%	790	34.3%
	Definitely yes	88	31.7%	804	34.9%
Better accessibility for foreigners	Definitely no	15	5.4%	74	3.2%
	No	48	17.3%	232	10.1%
	Do not know	136	48.9%	1276	55.5%
	Yes	55	19.8%	465	20.2%
	Definitely yes	24	8.6%	254	11.0%
Better quality	Definitely no	39	14.0%	754	32.8%
	No	70	25.2%	744	32.3%
	Do not know	114	41.0%	539	23.4%
	Yes	38	13.7%	187	8.1%
	Definitely yes	17	6.1%	77	3.3%

Table 6: Distribution of assessments of distance learning disadvantages among teachers and students

		Category of respondent			
		Teacher		Student	
		N	% of N	N	% of N
High workload	Definitely no	4	1.4%	74	3.2%
	No	31	11.2%	431	18.7%
	Do not know	8	2.9%	152	6.6%
	Yes	120	43.2%	729	31.7%
	Definitely yes	115	41.4%	915	39.8%
New competencies needed	Definitely no	27	9.7%	203	8.8%
	No	105	37.8%	898	39.0%
	Do not know	11	4.0%	276	12.0%
	Yes	91	32.7%	623	27.1%
	Definitely yes	44	15.8%	301	13.1%
Less face-to-face contact	Definitely no	6	2.2%	191	8.3%
	No	29	10.4%	477	20.7%
	Do not know	20	7.2%	233	10.1%
	Yes	84	30.2%	720	31.3%
	Definitely yes	139	50.0%	680	29.6%
Lower quality	Definitely no	21	7.6%	95	4.1%
	No	71	25.5%	364	15.8%
	Do not know	99	35.6%	435	18.9%
	Yes	70	25.2%	777	33.8%
	Definitely yes	17	6.1%	630	27.4%

For more detailed analysis, the respondents' responses were converted into numerical values as follows: 0 points were given for "Definitely no", "No" and "Do not know". The "Yes" answer was assigned 1 point and the "Definitely yes" answer 2 points. The number of points scored by four different categories of respondents (teachers willing and not willing to use distance learning in the future and students willing and not willing to use distance learning in the future) and median values calculated for each category are shown in box plots presented in section 3.2 (Figures 2 and 3).

The number of points gained by teachers and students while evaluating advantages and disadvantages of distance learning suggests that the respondents' perception is correlated with the personal attitude to using distance learning in the future (Fig. 2). As the first box plot shows, the median value is greater in the case of respondents with a positive attitude to distance learning courses in the future.

It also follows that teachers and student groups with a similar attitude to distance learning courses in the future have nearly identical medians (Me=3 in the case of teachers and students who are not willing to use distance teaching in the future, and Me=4 among teachers and students who are going to use distance teaching methods in the future). According to the logistic regression models presented in Tables 3 and 4, one should note that these positive assessments may be due to the adequate training and high competencies that were gained before the emergency distance learning organized under the COVID-19 pandemic pressure. Nevertheless, given the much longer whiskers for teachers and students interested in future participation in the distance learning initiatives, it should be emphasized that their assessments of advantages vary more widely than among respondents who do not want to continue distance learning practices.

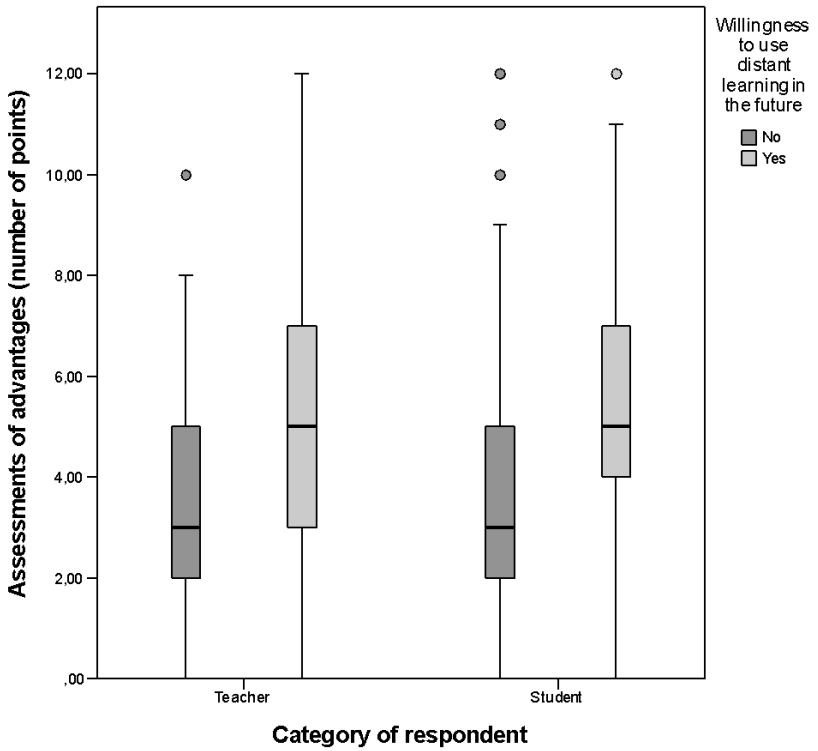


Figure 2: Assessment of advantages of distance learning among respondents (teachers – left part of the box plot, and students – right part of the box plot) with negative (dark) or positive (light) attitude to distance learning courses in the future

In turn, assessment of the disadvantages of distance learning suggests that nearly identical medians could be identified only in the case of teachers and students with a negative attitude to distance learning courses in the future (in both cases Me=4). Contrary to this, medians calculated for teachers and students who are willing to use distance teaching in the future are different (Me=3 among teachers and Me=2 among students), which suggests that the students' attitude towards distance learning is less critical (Fig. 3). Moreover, as in the case of analysis regarding advantages of distance learning, whiskers for teachers and students interested in future participation in the distance learning initiatives are longer. This result indicates that opinions about

disadvantages expressed by the distance learning supporters vary more widely than among respondents who do not want to continue the distance learning practices.

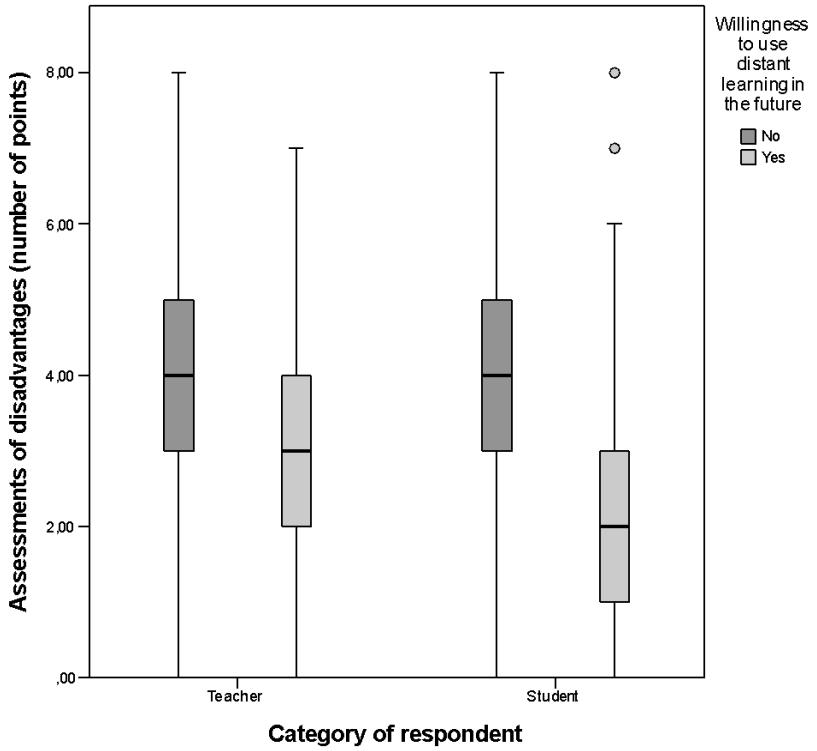


Figure 3: Assessment of disadvantages of distance learning among respondents (teachers – left part of the box plot, and students – right part of the box plot) with negative (dark) or positive (light) attitude to distance learning courses in the future

This statement is well confirmed by the results of the Mann-Whitney U test comparing differences between scores obtained by teachers and students belonging to the four different categories (teachers willing and not willing to use distance learning in the future and students willing and not willing to use distance learning in the future). The results of the study show that the academic community members, both teachers and students, who are willing to participate in distance learning after lockdown achieve greater values of medium ranks in the first and third rows of Table 7, which means that they better assess the advantages of distance learning when compared to those who are not willing to be involved in distance learning activities in the future. In turn, a positive attitude to use distance learning in the future is connected with lower medium ranks in the second and fourth rows of Table 7, which indicates a less critical assessment of the disadvantages of distance learning.

Contrary to the previous statement, the professional status of respondents is not one of the factors for which a statistically significant difference was found between opinions of students and teachers belonging to the four different categories (similar medium ranks). The only exception is the assessment of disadvantages by teachers and students who want to participate in the distance learning courses in the future. In that case, the students' attitude towards distance learning is significantly less critical than among teachers (students' medium rank is lower than teachers' rank).

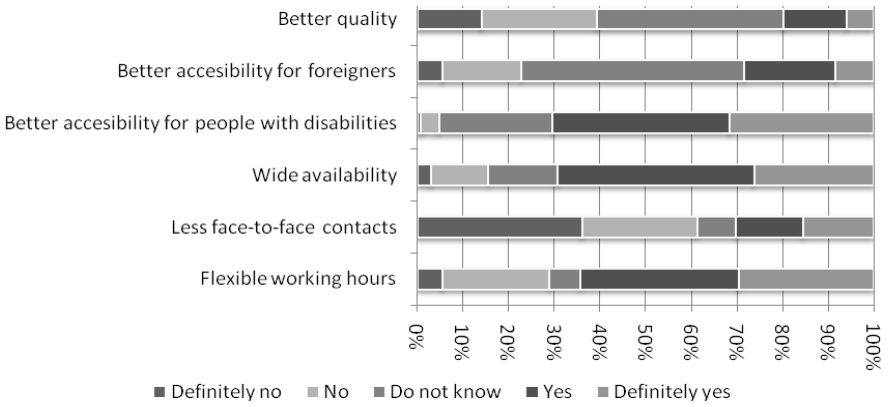
Table 7: Results of Mann-Whitney U test comparing differences between teachers and students in assessment of advantages and disadvantages of distance learning

Group 1: Teachers willing to use distance learning after the COVID-19 pandemic
Group 2: Teachers not willing to use distance learning after the COVID-19 pandemic
Group 3: Students willing to use distance learning after the COVID-19 pandemic
Group 4: Students not willing to use distance learning after the COVID-19 pandemic

Comparing groups	N	*U* value	*Z*	Significance	Medium rank for first group	Medium rank for right group
Assessment of advantages: 1 vs. 2	278	5710.5	-5.286	**.000**	171.59	120.32
Assessment of disadvantages: 1 vs. 2	278	6385.0	-4.311	**.000**	113.89	154.80
Assessment of advantages: 3 vs. 4	2301	369674.5	-15.874	**.000**	1440.52	991.61
Assessment of disadvantages: 3 vs. 4	2301	344209.0	-17.753	**.000**	830.31	1327.55
Assessment of advantages: 2 vs.4	1658	123543.0	-.953	.338	861.48	825.75
Assessment of disadvantages: 2 vs.4	1658	128038.5	-.187	.851	823.35	830.22
Assessment of advantages: 1 vs.3	921	42370.0	-.046	.963	459.90	461.14
Assessment of disadvantages: 1 vs.3	921	47830.0	-3.158	**.002**	535.87	451.47

To conduct a deep analysis of the perception of distance learning advantages and disadvantages, additional graphs with a particular feature rating (Fig. 4 and 5) were prepared. All members of the academic community agree that among the substantial distance learning advantages the flexible working hours are one of the most important. 64.4% of teachers and 79.2% of students indicated flexibility as an important or very important distance learning benefit (answers "yes" and "definitely yes"). Most of responders also admit that distance learning offers better accessibility for people with disabilities (this opinion was expressed by 70.5% of teachers and 69.2% of students participating in the survey). Another important advantage indicated by all categories of respondents is a wide availability of this form of education (69.5% of teachers and 57.4% of students) (Fig.4).

a) Teachers



b) Students

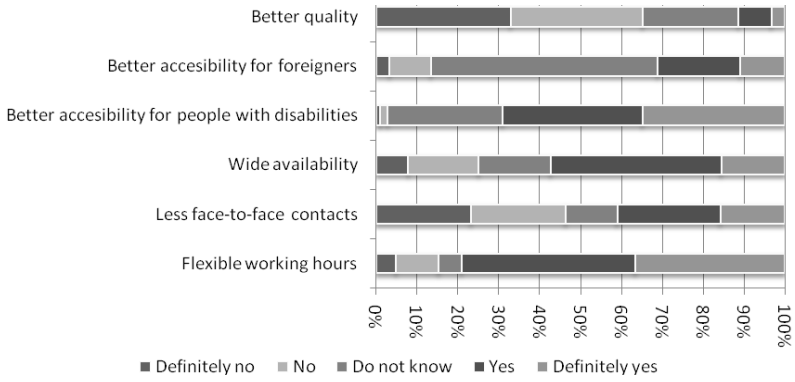
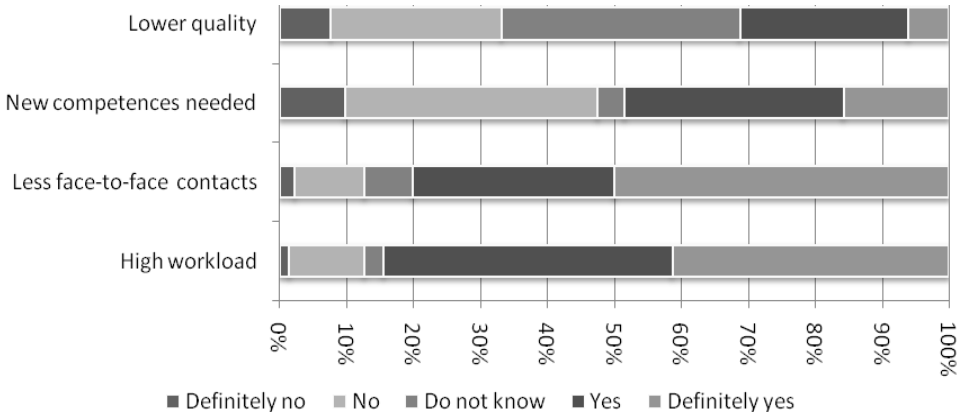


Figure 4: Assessment of distant learning advantages among teachers (upper figure) and students (lower figure)

Among the main disadvantages of distance education, both groups of respondents indicated a high workload. 84.6% of teachers and 71.5% of students indicated this issue. Taking into consideration the emergency, those responses could be influenced by specific, very stressful, and unusual circumstances. The lack of social, face-to-face interactions was assessed as a disadvantage by 80.2% of teachers and 60.9% of students (Fig. 5). Since the whole academic community, both teachers and students, also indicated that an important disadvantage of distance learning is a lack of appropriate competencies, blended learning might be a valuable and reasonable solution that provides balance in the learning routine based on traditional and distance learning techniques. Although students do not miss the face-to-face contact, they more often indicate that the distance learning methods are characterized by lower quality than traditional forms of education. According to the respondents' opinions, 61.2% of students are not satisfied with the quality of the distance teaching classes, while among teachers the dissatisfaction rate was estimated at 31.3%. It means that the way in which teachers use the distance teaching methods probably does not provide enough opportunities to effectively transfer knowledge and create new skills among students.

a) Teachers



b) Students

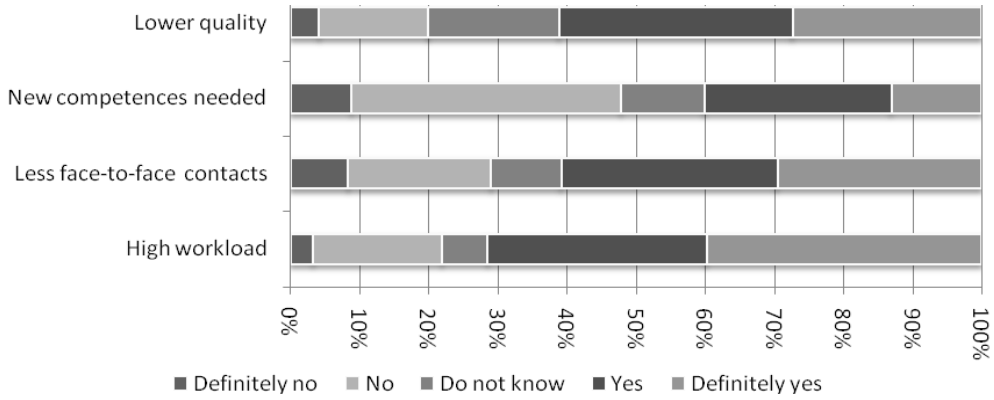


Figure 5: Assessment of distant learning disadvantages among teachers (upper figure) and students (lower figure)

To provide a detailed picture of assessments of advantages and disadvantages, an additional comparison between respondents willing to continue distance learning and not interested in distance teaching was developed. Results of the chi-square tests of independence presented in Tables 8 and 9 provide three general conclusions. Firstly, teachers and students who would like to continue this form of education in the future, more often indicate advantages of distance learning than teachers and students who are not interested in this form of education. Adherents of distance learning express a more positive attitude to all benefits that were investigated (Table 8).

Table 8: A detailed assessment of advantages of distance learning among teachers and students (in %; "do not know" answers are excluded)

Group 1: Teachers willing to use distance learning after COVID-19 pandemic
Group 2: Teachers not willing to use distance learning after COVID-19 pandemic
Group 3: Students willing to use distance learning after COVID-19 pandemic
Group 4: Students not willing to use distance learning after COVID-19 pandemic

	Not agree that this is an advantage of distance learning*		**Agree that this is an advantage of distance learning****		
	Group 1	**Group 2**	**Group 1**	**Group 2**	
Flexible working hours	18.3	35.1	75.0	58.0	χ^2=23.860, df=4, p<.001, V=.29
Less face-to-face contact	53.8	65.5	32.7	28.7	χ^2=10.244, df=4, p<.05, V=.19
Wide availability	8.7	19.5	81.7	62.1	χ^2=17.798, df=4, p<.01, V=.23
Better accessibility for people with disabilities	1.0	6.9	79.8	64.9	χ^2=13.089, df=4, p<.05, V=.21
Better accessibility for foreigners	17.3	25.9	37.5	23.0	χ^2=7.928, df=4, p>.05, V=.17
Better quality	20.5	50.6	37.5	9.2	χ^2=47.262, df=4, p<.001, V=.41

	Not agree that this is an advantage of distance learning*		Agree that this is an advantage of distance learning**		
	Group 3	Group 4	Group 3	Group 4	
Flexible working hours	5.9	20.4	91.8	72.2	χ^2=305.274, df=4, p<.001, V=.36
Less face-to-face contact	32.8	53.7	50.3	36.1	χ^2=118.494, df=4, p<.001, V=.23
Wide availability	9.3	33.6	78.9	45.6	χ^2=341.601, df=4, p<.001, V=.37
Better accessibility for people with disabilities	1.5	3.2	77.6	64.7	χ^2=91.820, df=4, p<.001, V=.20
Better accessibility for foreigners	8.1	16.2	38.6	27.2	χ^2=97.646, df=4, p<.001, V=.20
Better quality	37.1	80.5	25.7	3.6	χ^2=535.617, df=4, p<.001, V=.48

* recoded answers “no” and “definitely no”
** recoded answers “yes” and “definitely yes”

Secondly, similar conclusion could be made in the case of assessment of the distance learning disadvantages, but the results achieved here seem to be a mirror image of the previous evaluation (Table 9). Those who do not want to continue this form of teaching in the future, more often indicate disadvantages than teachers and students who are interested in the distance learning. Moreover, this more negative attitude concerns all detailed cons that were investigated in the following study.

In this context, it is worth noting that both conclusions allow us to confirm the third hypothesis assuming that the positive attitude to distance learning in the future is connected not only with a more positive assessment of advantages of distance learning but also with a less critical attitude to its weaknesses.

Table 9: A detailed assessment of disadvantages of distance learning among teachers and students (in %; answers “do not know” are excluded)

Group 1: Teachers willing to use distance learning after the COVID-19 pandemic
Group 2: Teachers not willing to use distance learning after the COVID-19 pandemic
Group 3: Students willing to use distance learning after the COVID-19 pandemic
Group 4: Students not willing to use distance learning after the COVID-19 pandemic

	Not agree that this is a disadvantage of distance learning *		Agree that this is a disadvantage of distance learning**		
	Group 1	**Group 2**	**Group 1**	**Group 2**	
High workload	16.3	10.3	82.7	85.6	χ^2=8.089, df=4, p>.05, V=.17
Less face-to-face contacts	54.8	43.1	41.3	52.9	χ^2=14.546, df=4, p<.01, V=.23
New competences needed	13.5	12.1	74.0	83.9	χ^2=14.130, df=4, p<.01, V=.22
Lower quality	51.9	21.8	13.5	42.0	χ^2=37.559, df=4, p<.001, V=.37

	Not agree that this is a disadvantage of distance learning *		Agree that this is a disadvantage of distance learning**		
	Group 3	Group 4	Group 3	Group 4	
High workload	30.1	17.5	62.4	76.4	χ^2=64.828, df=4, p<.001, V=.17
Less face-to-face contacts	60.1	41.1	48.0	67.9	χ^2=143.986, df=4, p<.001, V=.25
New competences needed	41.2	22.3	30.8	45.3	χ^2=89.555, df=4, p<.001, V=.20
Lower quality	39.0	9.4	35.7	75.1	χ^2=435.257, df=4, p<.001, V=.43

* recoded answers “no” and “definitely no”
** recoded answers “yes” and “definitely yes”

Thirdly, although teachers and students who are adherents of distance learning differ in terms of the exact percentages, the general shape of their opinions is similar. As compared to teachers and students who are not willing to use distance learning in the future, they more frequently indicate all advantages and less frequently indicate the evaluated cons. This conclusion is consistent with results of the already discussed Mann-Whitney *U* tests and supports the previously presented statement that even if the professional status sometimes influences the respondents’ opinion, usually this is not an important reason for differences between adherents and opponents of distance learning.

3. Discussion

It can be concluded that indeed the experience in the distance learning gained before the COVID-19 pandemic outbreak positively influences the academic community’s attitude towards distance learning. However, it was also found that the emergency distance teaching does not have a positive impact on the attitude to use distance learning methods in the future.

In addition, it was found that the perception of advantages and disadvantages of distance learning varies according to the willingness to use distance learning in the future: respondents with a positive attitude to distance teaching more often indicate its advantages, such as flexible working hours, flexibility, better accessibility and wide availability of this form of education. They also less frequently pay attention to its disadvantages, which include high workload and lower quality of classes. In contrast, assessment of the advantages and disadvantages is convergent for respondents with the same attitude to distance learning, regardless of their professional status (being a teacher or student).

The attitude to distance learning methods and satisfaction with their use among academic staff are of great importance for motivation and students' outcomes. The former directly affects the latter (Viegas et al. 2018). Hence, the proper training of academic staff is highly important for the effectiveness of education that takes place through distance learning. This corresponds with our results. The more experienced and acquainted with distance learning techniques the teachers are, the more willingly they declare interest in the continuing education of students using distance learning techniques after the national lockdown.

Implementing large-scale distance learning in crisis conditions such as a national lockdown is a challenge and can potentially be a source of frustration and overload. To improve the attitude to distance learning among participants, limitations such as lack of skills need to be overcome. Of great importance are, particularly in the long term, training and workshops for the development of distance learning-associated skills with consideration of various levels of participants' competencies. Another key issue is to find the right amount of time to gain or develop competences and use them during the implementation of courses containing distance learning elements (Marasi, Jones, and Parker 2020). It can be assumed that this approach might encourage academic staff to tackle a challenge presented by a situation like the one encountered during the national

lockdown. This will also translate into the further development of distance learning activities under normal conditions.

We are aware that our findings may be limited since the research was conducted just in one university. However, some other analyses are convergent with our conclusions, i.e. the comparison conducted in the USA, Mexico, Peru, and Turkey, shows that previous experience of the use of distance learning technology facilitates learning efficiency (Aguilera-Hermida et al. 2021). The same was true even for analysis performed in one academy, such as for nursing students in Turkey, where authors underline the fact that the gained experience is a factor, which improves the positive attitude (Terzi, Azizoğlu, and Özhan 2021). Taking in mind that our research outcomes may not be general, we believe that research on this level would provide valuable data in worldwide discussion regarding distance learning.

The traditional teaching techniques involving personal contact and face-to-face communication are irreplaceable, especially because of the vital role of non-verbal communication in the education process (Beebe 1980), but distance learning widens our set of learning tools and brings more powerful instruments. Also, in the opinion of the respondents, the effect of an emergency transition to distance learning during the national lockdown will be a reshaping of the education system at the University of Wrocław. Such a prognosis fits into the global trend (Krishnamurthy 2020; Whalen 2020). As one of the students' comments, regarding the future education, pointed out, "[the future] depends on how the university overcomes the situation. If it draws the right conclusions and incorporates some good solutions […] and eliminates the unfavorable, there will be an improvement. Especially as the faculty was forced to acquire certain skills that will be beneficial in the future. […]". These kinds of opinions were also true for teachers; as one of them wrote, "I think that the current situation will cause the development of new teaching procedures, which could be introduced in the case of such a crisis. Greater emphasis will be placed on distance learning, and employees will be obliged to undergo the appropriate training".

4. Conclusions and Implications

Based on the above-discussed results, some recommendations for more effective development of distance learning at large-scale institutions can be made. The most important factor that visibly changes the attitude towards distance learning is the training, experience, and knowledge regarding such a method of education. Those teachers who were fully trained in the distance learning design (based on the backward design methodology) are up to 22 times more eager to continue this kind of education after the pandemic (see table 3). A similar rule applies also to students who recognized the nature of distance learning before the COVID-19 pandemic. Their attitude towards distance learning is much more positive than their colleagues' who were taught by emergency remote teachers, which clearly shows the crucial role of teacher training in the student's success and satisfaction (see table 4). Previous experiences with distance learning were also a good opportunity to assess the effectiveness of this method. The study shows that teachers who positively assessed the effectiveness of distance learning before the pandemic were up to 2.7 times more eager to conduct similar courses in the future (see table 3).

What seems quite surprising is that the awareness of distance learning features and methods is a much more important factor than the COVID-19 crisis itself. Teachers who were forced to teach remotely because of the national lockdown have not changed their opinions about distance learning, in most cases listing more negative aspects of this type of education than their fellow teachers who did so of their own volition. This reaction plainly shows that no form of negative extrinsic motivation, even if reasonable, can be effective in the management of the transition from brick-and-mortar to online education. The only way is to create an environment where a positive attitude towards distance learning is gained step by step using "soft power" management.

One of the possibilities of transforming the institutional policy regarding distance education is to change the way the end-of-semester reports are made. This should include both teachers' and students' perspectives. Firstly, the end-of-semester reports should take into account the way of calculation of working hours, considering the differences between students which result from their abilities to achieve the learning outcomes. And secondly, what is important from the teachers' perspective, consider the differences between the working hours required to prepare a distance learning course compared to a conventional course. For this purpose, it would be useful to formulate appropriate guidelines for teachers, in the form of the so-called

Catalogue of Best Practice, concerning, among other things, how to use distance learning tools. The catalog could be developed based on a focus group interview carried out with experienced distance learning participants (Gill, Stewart, and Treasure 2008). The mentioned issues are directly connected with one of the most often chosen virtues of distance learning – self-paced learning. Disregarding the often mentioned increased workload, both teachers and students praise this form of education, as it gives them the opportunity to work in a chosen place and time frame. Self-paced learning helps students work at their own rhythm, gaining planned learning outcomes at a different time. Therefore, the reported workload of remote teachers should be tied to learning outcomes instead of anticipated working hours. This would be a way of appreciation of the course effectiveness, encouraging more teachers to thoroughly reshape their courses, thus improving the overall quality of education in the whole institution.

Increased workload, which was often mentioned by teachers and students in their responses, is also in many cases the result of the under-preparation of teachers regarding the way of planning their courses. Namely, it is not the increased workload in distance learning courses, but the decreased workload in traditional classes that causes the initial discomfort for both students and teachers. Too often face-to-face courses are limited to weekly meetings, and students' learning assessment to the end-of-semester examination. In such a case, the switch to distance education requires from students workload, much heavier than the usual one in traditional classes. This is another reason why the regular training for teaching staff should be considered the key to the high-quality online courses in higher education institutions.

The heavy load of distance education during the COVID-19 pandemic shows that the design and development of online courses (both for distance learning and remote teaching ones) require more microlearning elements. Splitting content into small units helps to avoid cognitive overload (Benedek, and Veszelszki 2016) and, hence the overall impression of the course as "heavy".

It should also be mentioned here that the higher education institutions should be aware of and clearly inform their teachers about the advantages and disadvantages of such forms of distance education as distance learning and remote teaching (Marasi, Jones, and Parker 2020). The two forms are often confused (which can easily be observed even in official documents regarding distance education), and described as distance learning. In the context of distance learning, student engagement techniques as well as the communities of learners should be specially promoted, as the interactions between all learning process participants make it engaging and effective.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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Appendices

Questionnaire for teachers (only questions used for the analysis are presented[1]):

What is the place of your teaching activity (Faculty, Department)?

Please select your gender:

- Woman
- Man
- Prefer not to say

How long are you using distance learning techniques and methods in your teaching activity? since classes were suspended because of COVID-19 pandemic?

- Since the beginning of the COVID-19 pandemic
- < 1 year
- 1-2 years
- 3 years or more

Would you like to use distance learning in your teaching practice after resumption of traditional classes?

- Yes
- No

Which factor would you consider decisive at the very moment you have decided to start teaching remotely?

- Better time efficiency
- Better effectiveness of distance teaching
- Willingness to use another form of teaching
- Rector's decision
- Desire to continue teaching during the COVID-19 pandemic other (please define)
- Other

Distance learning strengths are:

	Definitely no	No	Hard to say	Yes	Definitely yes
Flexible working hours					
Less face-to-face contact					
Wide availability					
Better accessibility for people with disabilities					
Better accessibility for foreigners					
Better quality					
Other (please define)					

Distance learning weaknesses are:

	Definitely no	No	Hard to say	Yes	Definitely yes
High workload					
New competencies needed					

[1] Questionnaires included more questions concerning various technical aspects of distance learning. The additional part of the research tools is not presented since the data was collected for other purposes of the University of Wrocław.

Less face-to-face contact					
Lower quality					
Other (please define)					

What do you think about the opportunities for wider implementation of distance learning at the University of Wrocław after the COVID-19 pandemic? Please justify your opinion.

Questionnaire for students (only questions used for the analysis are presented):

What is the place of your education (Faculty, Department)?

Please select your gender:

- Woman
- Man
- Prefer not to say

How long do you attend distance learning classes?

- Since the beginning of the COVID-19 pandemic
- < 1 year
- 1-2 years
- 3 years or more

Did you express a willingness to attend distance learning courses before the COVID19 pandemic?

- Yes
- No

Would you like to participate in distance learning after resumption of traditional classes?

- Yes
- No

Distance learning strengths are:

	Definitely no	No	Hard to say	Yes	Definitely yes
Flexible working hours					
Less face-to-face contact					
Wide availability					
Better accessibility for people with disabilities					
Better accessibility for foreigners					
Better quality					
Other (please define)					

Distance learning weaknesses are:

	Definitely no	No	Hard to say	Yes	Definitely yes
High workload					
New competencies needed					
Less face-to-face contact					
Lower quality					
Other (please define)					

What do you think about the opportunities for wider implementation of distance learning at the University of Wrocław after the COVID-19 pandemic? Please justify your opinion.

Counselling Students' Perception of Online Learning during COVID-19 in Malaysia

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Abstract: The COVID-19 pandemic is of global proportions affecting Higher Education Institutions (HEIs), with online learning becoming a prominent approach to students' learning during the pandemic. However, minimal attention has been paid to researching online learning in Malaysia during COVID-19. This cross-sectional study examines students' perceptions of online learning during the pandemic. A sample of 457 counselling students has been chosen using purposive sampling. Online questionnaires in Google Forms with an appended consent form were distributed to the respondents via WhatsApp with 184 respondents and a response rate of 40.3 per cent. The online questionnaire comprised demographic, students' perception towards online learning (a closed-ended question), reasons for liking and disliking online learning (two closed-ended questions), their preferable online teaching material and delivery (a closed-ended question), and suggestions to overcome online learning constraints (an open-ended question). Data collection was carried out in approximately two weeks and analysed using descriptive statistics. The results showed that the majority of respondents (84.8%) decided that the online learning approach was essential during the pandemic. Most students liked online learning because learning can continue even during the pandemic (75.7%), it was safer to study at home than to go to campus (63.0%), and it facilitated meeting the requirements to graduate on time (44.5%). Most disliked online learning because doing group assignments online was difficult (60.3%), attending online classes was challenging (59.8%), and taking an online test was challenging (55.3%). The respondents (50.0%) also acknowledged that the most effective teaching material and delivery tool for online learning was a PowerPoint with audio (asynchronous method). The respondents recommended internet stability and speed improvements, and a convenient space for studying online at home. This study contributes to the theory and evidence necessary for future research, programmes, and interventions to promote a fully digitally connected and informed society.

1. Introduction

The 2030 Agenda for Sustainable Development (SDGs) aims to achieve peace and prosperity for people and the planet now and in the future. The SDGs recognise that information and communication technology (ICTs) is vital in driving progress towards achieving the 17 SDGs. The spread of ICTs and global interconnectedness has great potential to accelerate human progress and develop knowledge societies (United Nations, 2021). In Malaysia, the vision and mission of SDGs and ICTs are embedded in The Eleventh Malaysia Plan (11MP) (Abdul Razak, 2015). In education, online learning has translated the SDGs vision and mission by using ICTs as teaching and learning tools.

To date, ICTs have become a life necessity, particularly during the Acute Respiratory Syndrome of Coronavirus Disease 2019 (COVID-19) pandemic. The World Health Organisation (2020) declared COVID-19 a global pandemic. The pandemic has affected all aspects of life; administration, business, education, and so forth. The worsening situation is nerve-racking. ICTs have become the most important approach in dealing with all aspects of life, including education during the pandemic (Güner, Hasanoğlu and Aktaş, 2020). In the education sector, it is vital to implement online learning during the pandemic to mitigate its risks, particularly in the early phase of the pandemic when knowledge of the Coronavirus is limited and a vaccine yet to be developed. Thankfully, online learning in Malaysian education was established before the COVID-19 pandemic and has become a significant approach during the deadly pandemic. In Malaysia, National e-Learning Policy (DePAN) has been operationalised since 2015 and will end by 2025. There are three phases of its implementation; phase-1 was in 2015, phase-2 was from 2016–2020, and phase-3 is in 2021-2025 (Ministry of Higher Education Malaysia, n.d.). Surprisingly, research on online learning in Malaysia during COVID-19 has received little attention, and most studies were in foreign settings (Ali, 2020; Allo, 2020; Baloran, 2020; Demuyakor, 2020; Dhawan, 2020; Lall and Singh, 2020; Zhang et al., 2020). Thus, this study examines students' perception of online learning during COVID-19, their reasons for liking and not liking online learning, the supplied online teaching material and delivery preferences, as well as their views on how to overcome their online learning constraints.

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2. Literature Review

The Malaysia Education Development Plan for Higher education 2015-2025 outlines ten targets to empower Malaysian higher education. Recognising the importance of technology-based education and Malaysia's position in online course development, the ninth target of the plan includes a Globalised Online Learning (GOL) strategy, which focuses on expanding access to education, improving the quality of teaching and learning while allowing learning to be tailored to the current needs of students. This strategy outlines several initiatives to improve GOL, namely improving the quality of course delivery, reduce cost delivery, introduce Malaysian experts globally, enhancing the branding and prominence of local HEIs and fostering lifelong learning among Malaysians. GOL is a platform to expand access to courses offered by HEIs and liberalise higher education to become more accessible to all levels of society. Malaysia aspires to be the premier hub of education through GOL. This strategy will increase accessibility to quality education for the Malaysian people and the global community, provide efficient course delivery, constructive Malaysian education and enhance the excellence of HEIs, especially in niche areas. Thus, the National e-Learning Policy (DePAN) has been reviewed accordingly to incorporate agendas related to improving the quality of teaching and learning, promoting the Malaysian education brand, and establishing and enhancing the prominence of local HEIs in the global education landscape through their respective niche areas.

COVID-19 has led to massive global medical, pharmaceutical and public health actions and campaigns to cure or prevent the spread of the virus. Science and behavioural science play a vital role to mitigate COVID-19 (Bavel, 2020). Researchers have suggested preventive actions as the most effective weapon against COVID-19 (Güner, 2020; McAleer, 2020). During the pandemic, online learning is a constructive educational method. It has been the foundation on which learning and teaching continue to move forward, even in the most unprecedented times during the pandemic. Online learning has become a prominent approach in the time of the pandemic.

In line with global changes, studying students' perception of online learning during COVID-19 is vital because their perception will explain their attitude towards online learning. The terminology of 'attitude' refers to evaluating aspects of the social world (Baron and Branscombe, 2012). It is an element of behaviour change. The planned behaviour theory has explained how attitudes influence behaviour (Holdsworth et al., 2020; Tiwari, 2020). The theory states that individual's decision to engage in a certain behaviour result from a rational process in which they consider all of their options and evaluate the consequences of their behaviour. One's decision is reflected in intentions, which then influence his actual behaviour. Intentions are determined by attitudes, subjective norms and perceived behaviour control. Attitudes towards behaviour refer to whether positive or negative attitudes are based on predictions of positive versus negative outcomes. Subjective norms refer to one's perception of whether or not other people will approve of his behaviour. Perceived behaviour control refers to an individual's assessment of his ability to carry out the behaviour. This study focuses on the element of attitudes as one of the important factors in determining the students' behavioural intentions towards online learning (Tiwari, 2020).

Itmeizeh and Farrah (2021) noted that most of the available research employs the community of inquiry model developed by Garrison, Anderson and Archer (2000). The model focuses on the three distinct concepts of presences for learning experience; cognitive presence, social presence and teaching presence. Another well-known theory is Connectivism, coined by George Siemens (2004). The model acknowledges the way knowledge and information flows and grows because of the power of networks. Linda Harasim (2012) has proposed online collaborative learning (OCL). The theory focuses on internet facilities to provide learning environments that foster collaboration and knowledge-building.

COVID-19 has greatly impacted students' lives because they can no longer communicate face-to-face with their instructors and lecturers. This shift in education from traditional classroom learning to computer-based learning might be one of the largest educational experiments to date (Baloran, 2020; Dhawan, 2020; Lall and Singh, 2020; Tiwari, 2020). As the online teaching-learning process has become more prevalent worldwide due to COVID 19, it becomes essential to know its growth and whether it is helping the students achieve what they expect out of college or university.

Current studies show that students perceive online learning during COVID-19 positively. Both students and instructors admit that online learning is the best alternative to continue teaching and learning during the pandemic. Among them, flexibility is the main benefit that students and instructors gain from this learning

method. The other pros of online learning include its efficient accessibility of learning materials. Students also state that there are constraints that can affect the quality of their online learning. However, they seem to accept the cons of this kind of learning because they get more benefits than drawbacks. Overall, a small number of students' dissatisfaction concerns the weaknesses of online learning in terms of infrastructure, governance, online pedagogy, e-content, e-design and professional development. These problems inhibit effective online learning to take place. Online education theories have mentioned these important elements for online learning effects. Thus, the implementation of these theories matters very much. The current studies highlight the readiness of institutions, instructors and students to practice online learning. The details of the above-mentioned explanations can be seen in the following findings.

Lall and Singh (2020) examined the student's perspective, attitudes, and readiness about online classes being conducted at the university level in India. The data were collected using a questionnaire among 200 college students. The majority of students favoured studying through online classes, but they feel that there was a lack of co-curricular activities. The most important online learning motivation factors were time and place flexibility. Most students were pleased with the online teaching material and implementation and prefer their lecture being delivered through a PowerPoint with an audio recording, an asynchronous online learning delivery method.

Another recent study conducted by Allo (2020) investigated the learners' perception of online learning during the COVID-19 event among learners of the English study programme of UKI Toraja. The study showed that most learners were very positive about online learning in the midst of the COVID-19 pandemic. They considered online learning as very beneficial and motivating. This study concludes that online learning is developing during the pandemic, it also highlights the quality of internet connectivity, financial concerns, and implementation recommendations of online learning. In terms of financial problems, learners hope that lecturers can use facilities such as free messenger applications in the online learning framework. Despite the availability of internet connectivity, they said that individual tasks are best at maintaining the gap physically. They also need more group tasks to support friends who do not have internet access. They also mentioned that online learning must include a clear explanation together with the supplied material and assignment. They suggested that voice notes need to be used effectively when providing instructions. It also implied that the material and instruction implemented by the lecturer in online learning were not student friendly as they were not easy to use.

The young learners of today's generation must perceive the valuable opportunities of e-learning and participate actively in learning online during the pandemic. In this respect, Agarwal and Kaushik (2020) discovered that out of 77 respondents, the majority perceived the online learning sessions as engaging and significant to their learning needs during the pandemic. Most were very positive and seemed generally enthusiastic about the sessions, were custom-fitted to their degree of learning and found the sessions fascinating and enjoyable. All of the respondents indicated that online classes should be made as part of their curriculum. In the open comments, they clarified that these online sessions broke their dull learning routine, offered a better interaction platform and the course learning material was easy to access. They felt motivated to learn, as it is an effective way to learn safely and it helped them avoid being anxious during the global COVID-19 outbreak. Accordingly, online learning systems have been an important support to learners during the current pandemic (Itemised and Farrah, 2021). Online learning usually involved two distinct modes. Firstly, asynchronous threaded communication has been associated with delayed time to enable learning anytime. Next, synchronous (real-time) communication that allow users to communicate in real-time. Synchronous-communication technologies include instant messaging, instant messaging (IM), video-conferencing and the webinar. Whereas asynchronous-communication technologies rely mainly on e-mails and blogs (Itmeizeh and Farrah, 2021).

Baloran (2020) suggested that research concentrating on online learning technology and innovation in training is increasing due to the current deadly pandemic. They must discover potential choices that can work for learners and instructors to have a new educational approach due the closure of schools. Baloran's (2020) cross-sectional study has examined learners' knowledge, attitudes, anxiety and coping strategies during the pandemic. Results indicated that most learners had satisfactory information and high-risk perceptions. Non-clinical anticipation measures were seen as exceptionally successful.

On the other hand, an unwillingness with the virtual-blended learning approach was discovered due to technological and financial constraints. The students utilised various approaches to adapt to emotional wellness challenges. Thus, it is necessary to address students' mental health and learning attitudes towards their online learning during the pandemic. Further, this study has confirmed that the psychological well-being of young

learners, levels of tension and stress, and academic achievement are influenced by the absence of enthusiastic help and communication, family factors such as aggressive behaviour at home or troubles they experience in their personal relationship.

Notwithstanding, Rohman et al. (2020) found that the lack of readiness knowledge in the implementation of online learning is another source of online learning drawback. This study examined the perceived benefits and constraints of online learning from the perspective of students. The data were collected through an online survey that involved 128 students from the Faculty of Science and Technology in Unira Malang as respondents. The result of the study discovered that most of the students had negative perceptions of online learning, despite considering themselves physically and mentally capable of engaging in online learning. Barriers identified include online learning that was implemented without proper planning, resulting in the absence of easiness, involvement, and effectiveness of online learning. The majority of respondents encountered difficulty in adjusting learning styles, having to perform household tasks and weak communication between instructors and learners. Most of them also criticised the online learning processes which were burdened by assignments, as well as the poor internet connection. Therefore, careful planning of university management, policymakers and lecturers is needed to play a significant role in addressing these issues during the pandemic.

Zhang et al. (2020) highlighted that in China, the government has announced an emergency policy initiative "Suspending Classes Without Stopping Learning" which meant to continue teaching activities as schools in the country were closed to control the deadly pandemic. The research found uncertainty and inconsistency about what to teach, how to educate, the burden of instructors and students, the new learning nature and the recommendations for learning equity. Potential challenges of the new policy are the shortcoming of the e-learning equipment, the inexperience of teachers (namely, unsatisfactory learning outcomes due to instructors' diverse knowledge), the information gap, the unreliable background at home and so forth. To overcome these issues, researchers propose that the government needs to advance the development of online learning, consider furnishing instructors and students home-based online learning infrastructures, offer online instructor's courses, including the improvement of standard online training for the national strategic plan and strengthen academic engagement into interactive virtual learning, particularly education to help learners with e-learning challenges during the pandemic.

3. Research Questions

The present study investigated counselling students' perception towards online learning during the pandemic. A survey of perceptions towards online learning among counselling students received little attention and should be given priority because the nature of the counselling programme focuses more on traditional face-to-face learning. Individual or group counselling depends very much on interaction between a trainee counsellor with his or her clients. Relationship, cohesiveness, verbal as well as non-verbal cues are salient in the counselling process. Thus, a survey of their perceptions towards online learning is indispensable for further actions particularly during the drastic change to a full online teaching-learning method during the pandemic. Hence, the following research questions led this article:

1. What are counselling students' perception of online learning approaches during the pandemic?
2. Why do they like and dislike online learning during the pandemic?
3. What is the preferable online teaching material and delivery (synchronous versus asynchronous) during the pandemic from the students' perspective?
4. What can we learn from the students' views in order to help improve the future online learning experience?

4. Research Methodology

A cross-sectional study has been conducted using purposive sampling. This study aimed to include counselling university students and those in complete online learning at home during the early phase of COVID-19 in Malaysia. Online questionnaires in Google Forms with an appended consent form have been distributed to 457 counselling students via the group *WhatsApp* because this tool was widely used to communicate with students at ease and almost all of students have mobile phones facility. Out of 457, 184 respondents submitted the forms, constituting 40.3% of the respondents' response rate. The online questionnaire comprised of demographic (gender, age and year of study), a closed-ended question of students' perception towards online learning, and two closed-ended questions of reasons for liking and disliking online learning which cover respondents' agreement on online teaching, learning and assessment methods. A closed-ended question of their preferable

online teaching material and delivery (synchronous versus asynchronous) and an open-ended question of their suggestions to overcome online learning constraints. (See appendix I). This study intended to survey five questions only because of the respondents' immediate response for prompt actions caused by the drastic change in teaching and learning methods.

In addition, researchers want to minimise the time taken and burden to the respondents to complete the survey. Particularly during that time, many surveys have been conducted by other related institutions. Most of the questions were adapted from Lall and Singh (2020) and some were developed by the researchers based on interviews with several counselling students. The open-ended questionnaires were added to capture students' perspective to overcome online learning constraints. A pre-test was performed to recheck the reliability of the questionnaires. The operational definition of perception towards online learning in this study refers to counselling students' perception towards online teaching, learning, assessment method and online teaching material and delivery used at the beginning and for the first time of a full online learning (non-face-to-face traditional method) in HEIs during the emergence of COVID-19 pandemic in Malaysia. The data collection has taken place approximately two weeks from July 15 to July 28, 2020. Data were analysed using descriptive statistics. Out of the 184 respondents, 82.1 per cent were females and 17.9 per cent were males. The respondents' ages were ranging from 20 to 29 years. Most of them from year 3 (39.1%), followed by the year 2 (38.0%), year 1 (20.7%) and year 4 (2.2%).

5. Results

The result indicated that the majority of students (84.8%) agreed with the online learning approach during the pandemic (Figure 1). Most students liked online learning because they were still able to continue learning even during the pandemic (75.7%), it was safer to study at home than studying on campus (63.0%), and it facilitated meeting the requirements to graduate on time (44.5%). However, learning online was more practical (15.6%), reduced face-to-face interaction (21.4%) and its flexibility (24.9%) did not attract their attention (Figure II). The results in Figure II were derived from a closed-ended question. Most students disliked online learning due to difficulties in completing group assignments online (60.3%), attending online classes was challenging (59.8%) and taking an online test was challenging (55.3%) (Figure III). The results shown in Figure III were derived from a closed-ended question.

The majority of students suggest some improvements to overcome online learning constraints, which were derived from an open-ended question. They suggested improving internet problems, especially its coverage, stability and speed. Due to these constraints, teaching and learning delivery via synchronous approach (webinar and video-conferencing) were incompatible, resulting from the home environment not being comfortable for study. The majority also acknowledged that they did not have a convenient space at home to study. A closed-ended question was asked to the respondents and half of them acknowledged that the most effective material and teaching delivery was a PowerPoint with audio (Figure IV). This result is consistent with the constraints that they faced.

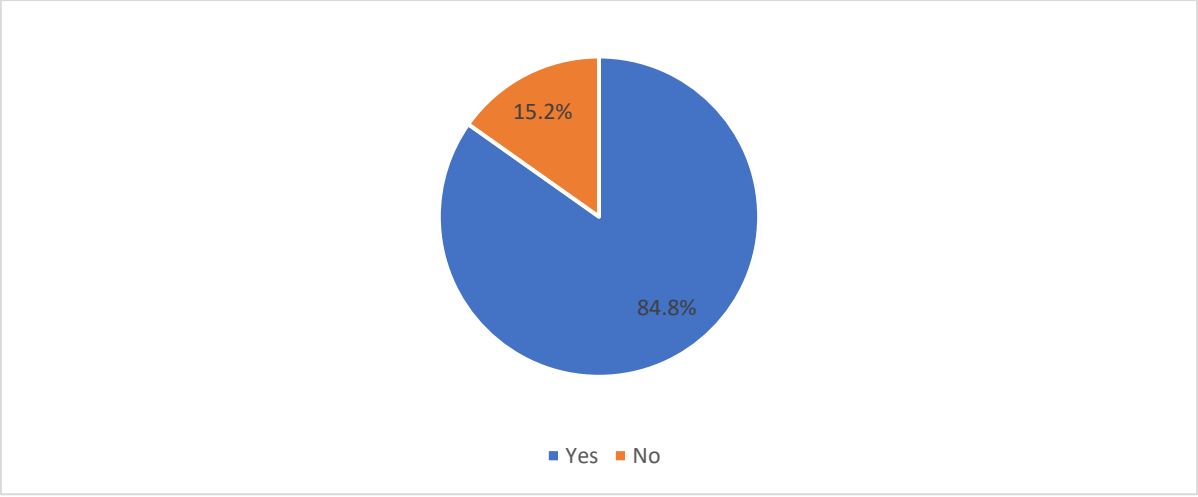

Figure I: Students' acknowledgement of the online learning approach during the pandemic

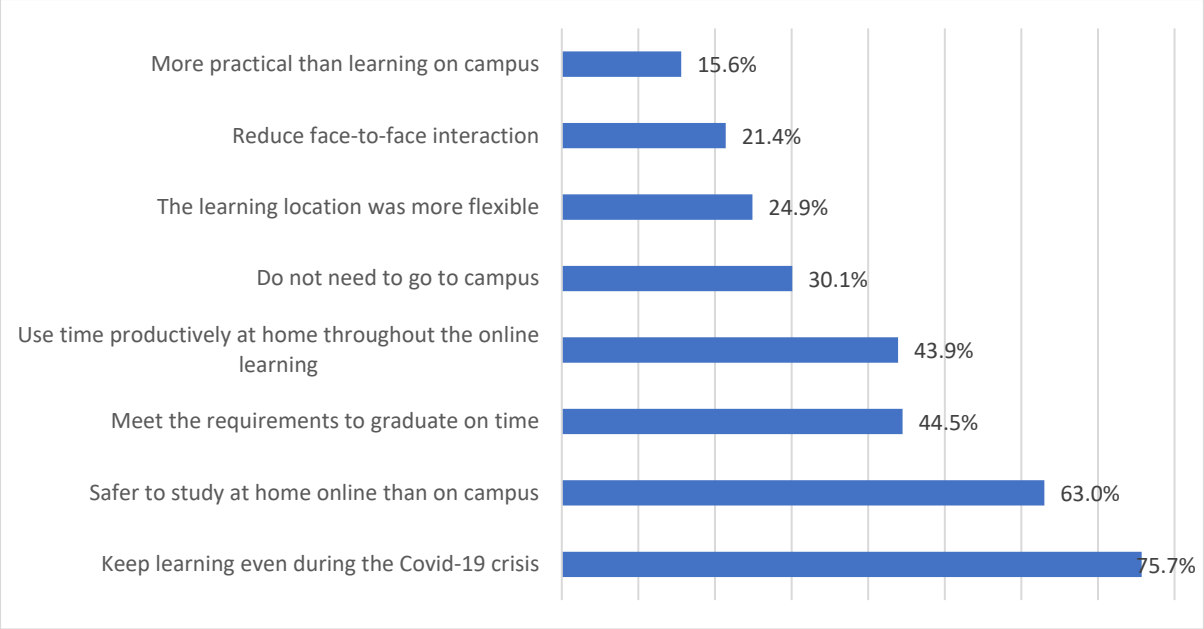

Figure II: Reasons why students liked online learning during the pandemic

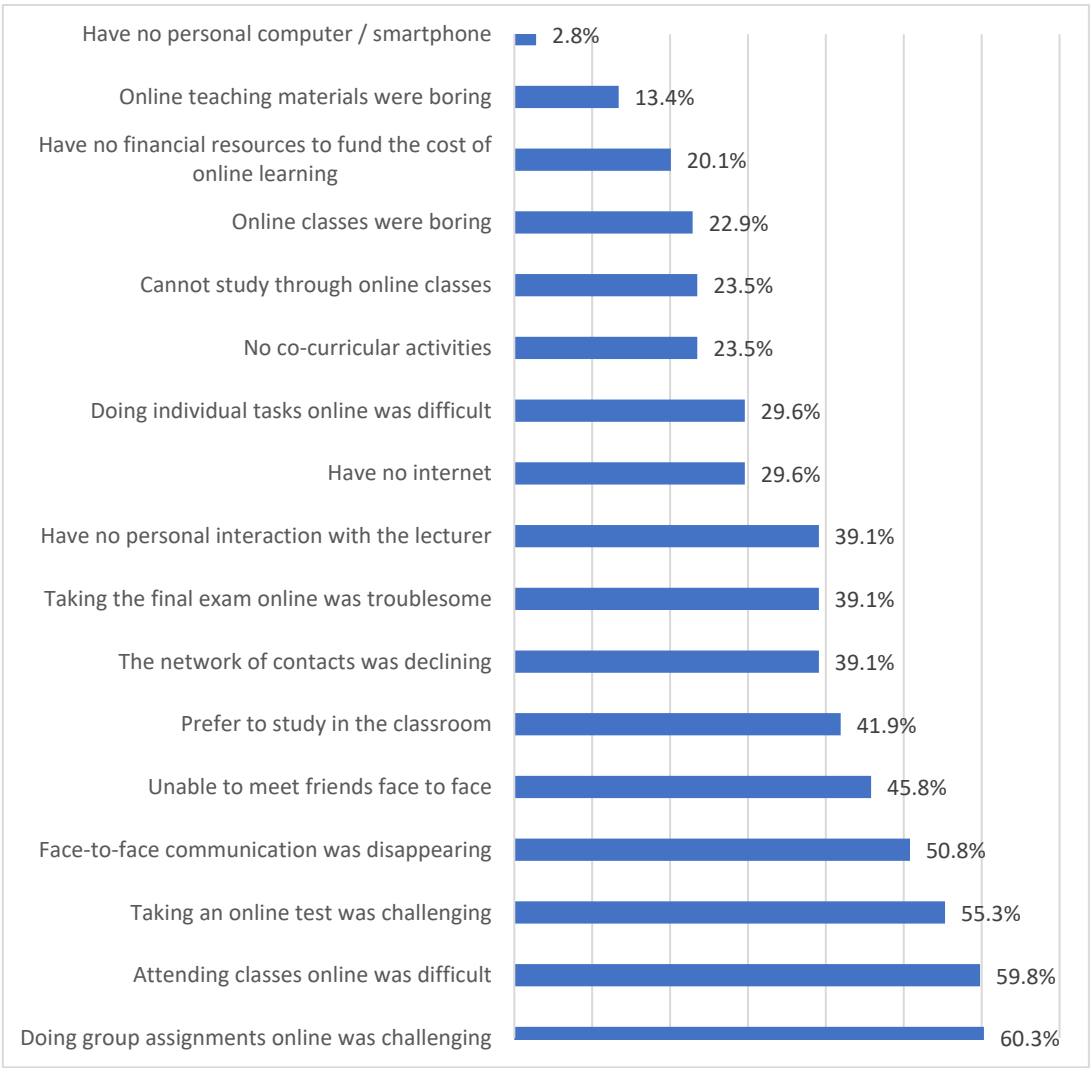

Figure III: Reasons why students disliked online learning during the pandemic

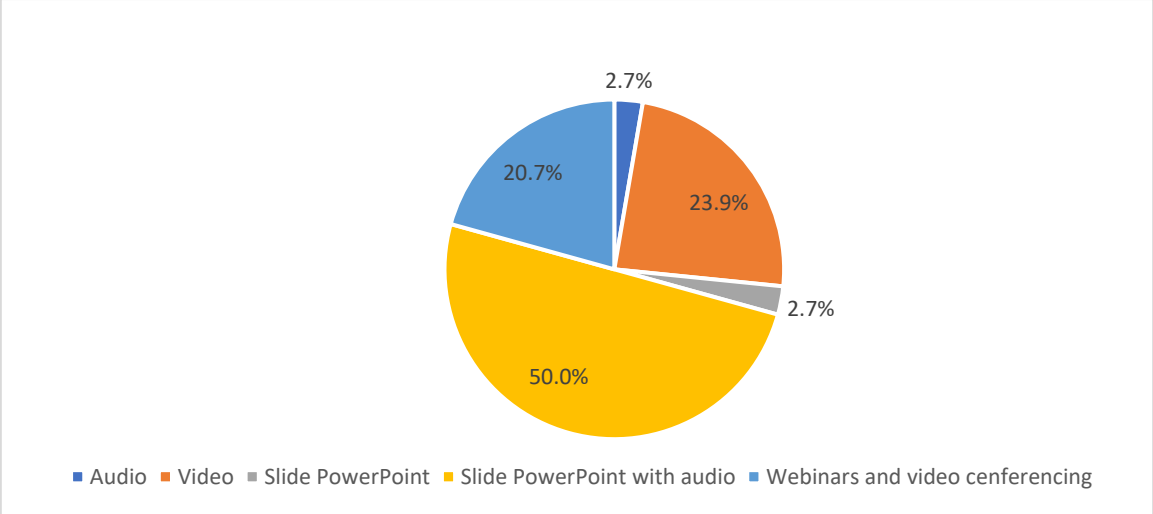

Figure IV: Online teaching material and delivery during the pandemic

6. Discussion

During the pandemic, online learning environments are characterised by place and time independence, their integrated presentation and communication facilities, and opportunities to reuse learning technologies in the form of learning objects. Many researchers claim that technological resources will enhance the quality of learning. Thus, understanding users' perception of online learning benefits and constraints of asynchronous and synchronous learning enables students to make learning more effective, efficient and appealing. When implementing online learning for learners during the pandemic, it is necessary to examine learners' perception of online learning. Essentially, understanding their views towards online learning is a crucial issue for enhancing both teaching performance and learning effects. The results of this study are compatible with other studies that support online learning during the pandemic (Ali, 2020; Allo, 2020; Agarwal and Kaushik, 2020; Baloran, 2020; Demuyakor, 2020; Dhawan, 2020; Lall and Singh, 2020; Zhang et al., 2020). However, the result is inconsistent with a study done by Rohman et al. (2020). The main reason for negative perception towards online learning was due to improper planning from learners and instructors.

This study also confirms that learners are responding positively to online learning environments to complete their learning activities during the pandemic. In other words, students perceive online learning as an alternative to achieve their learning targets. Surprisingly, flexibility in terms of time and space that online learning offers is not perceived favourably, inconsistent with Lall and Singh (2020). Future research should identify why counselling students do not favour online learning in terms of its flexibility and were more concerned with their learning goals. They prefer face-to-face instruction. The nature of the programme itself requires a combination of theoretical and practical teaching and learning methods. Besides, personality proneness should be addressed to identify online learning preferences based on personality, as a counselling programme is a social-based career. Those who were registered with this programme were prone to face-to-face social interaction. Social isolation and physical distance might have a negative impact on their psychological development. Therefore, it is important to innovate hands-on online teaching and learning methods and online practical assessment and reduce social barriers of online learning. The gap between face-to-face and online learning benefits should be minimised as much as possible. In order to promote and enculturate online learning, it is important to address home learning spaces and environments. Related government or private agencies also play important roles in setting up learning centres for each district to support convenient learning.

Given the students' internet instability and accessibility issues, asynchronous methods of a PowerPoint with audio for teaching and learning activities might be the best alternative to sustain online learning. Visual notes and audio could offer better learning effects to students and in Lall and Singh (2020). Therefore, for the time being, as internet accessibility is still unstable, asynchronous methods or synchronous methods together with recordings are important to meet students' learning needs. Besides, the assessment method becomes troublesome due to a poor internet connection. Whereas, personal computers or smartphones and financial resources are not critical issues, as supported by other studies (Allo, 2020; Baloran, 2020). The Malaysian government has subsidised the internet lines for students during the pandemic as immediate action taken to

facilitate distance online learning, where most students study online from their home. In addition, computers or smartphones have become life necessities, and most students in Malaysia possess such tools.

7. Conclusion

This study of students' perception of online learning is relevant to the 'Dasar e-Pembelajaran Negara' (DePAN) or National e-Learning Policy of Malaysia, particularly the enculturation aspects during a pandemic. Perception is a subset of human attitude. Attitude is a basic element of behaviour change that contributes to the enculturation of the lifelong learning process and implementation. Students in higher education are very important, as they are role models and future leaders for societal changes. This study contributes to the National Policy objective to promote a civil society where information-based services will provide the basis of continuing enhancements to the quality of work and life, which is significant to networked media, content, industry, regulatory or policy perspectives. This study discovers students' views, preferences, challenges, and obstacles facing the enculturation process towards civil society. The Malaysian Counselling Board and those institutions offered counselling programmes could benefit from these initial findings. The researchers suggest expanding this study to a larger population with more samples for a greater impact. This study also suggests that several improvements have to be made to improve the quality of online learning in Malaysia. It is in line with implementing e-learning policy in Malaysia which focuses on six major domains of infrastructure, governance, online pedagogy, e-content, professional development and enculturation. In particular, to upgrade internet coverage and speed, to minimise the gap between traditional face-to-face and online learning, to facilitate learning space and environment and to innovate audio and visual tools.

The anywhere-anytime aspect of online learning offers meaningful and robust solutions during times of crisis to help higher education learners communicate and learn virtually without the need for face-to-face interaction. Such learning needs to be established in HEIs to ensure that no student is being impaired because of their location, social class and financial constraint. Malaysia is currently in the third phase (2021-2025) of e-learning implementation. Hopefully, these findings uncover the current reality of e-learning in Malaysia partially and could boost or redirect its implementation for better achievements. The findings contribute to theoretical and evidence-based practical implications during the pandemic. This will, in turn, inform the related institutions or agencies, programmes and interventions with regard to online learning in the time of crisis. Consequently, it will sustain the efforts promoting a fully digitally connected and informed society.

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Appendices

Survei Pembelajaran atas Talian (Online Learning) ketika Pandemik Covid-19 dalam kalangan Mahasiswa Program Kaunseling

Assalamualaikum & Salam Sejahtera,

Saudara/saudari yang dikasihi,

Kami sedang menjalankan survei tentang PEMBELAJARAN ATAS TALIAN (ONLINE LEARNING) KETIKA PANDEMIK COVID-19 DALAM KALANGAN MAHASISWA PROGRAM KAUNSELING. Penyertaan saudara/saudari AMAT DIHARGAI agar MAKLUMAT YANG TEPAT dapat diperoleh. Seterusnya membantu untuk membentuk polisi pembelajaran di sektor pengajian tinggi.

JUTAAN TERIMA KASIH di atas SOKONGAN saudara/saudari meluangkan masa 5-10 minit untuk berkongsi PENGALAMAN saudara/saudari secara JUJUR dan IKHLAS.😀

Identiti saudara/saudari tidak perlu dinyatakan dan maklumat yang diperoleh akan dikendalikan secara rahsia dan sulit.

Jika saudara-saudari bersetuju untuk menyertai tinjauan ini, sila ke bahagian seterusnya. Saudara-saudari pada bila-bila masa boleh menarik diri daripada penyertaan dalam survei ini.

Jika ada pertanyaan, samada sebelum atau selepas penyertaan dalam survei ini, boleh hubungi/wasap (Dr. Nazilah), Tel: 019-9539808/Email: nazilah@umt.edu.my, Fakulti Perniagaan, Ekonomi & Pembagunan Sosial, Universiti Malaysia Terengganu (UMT)

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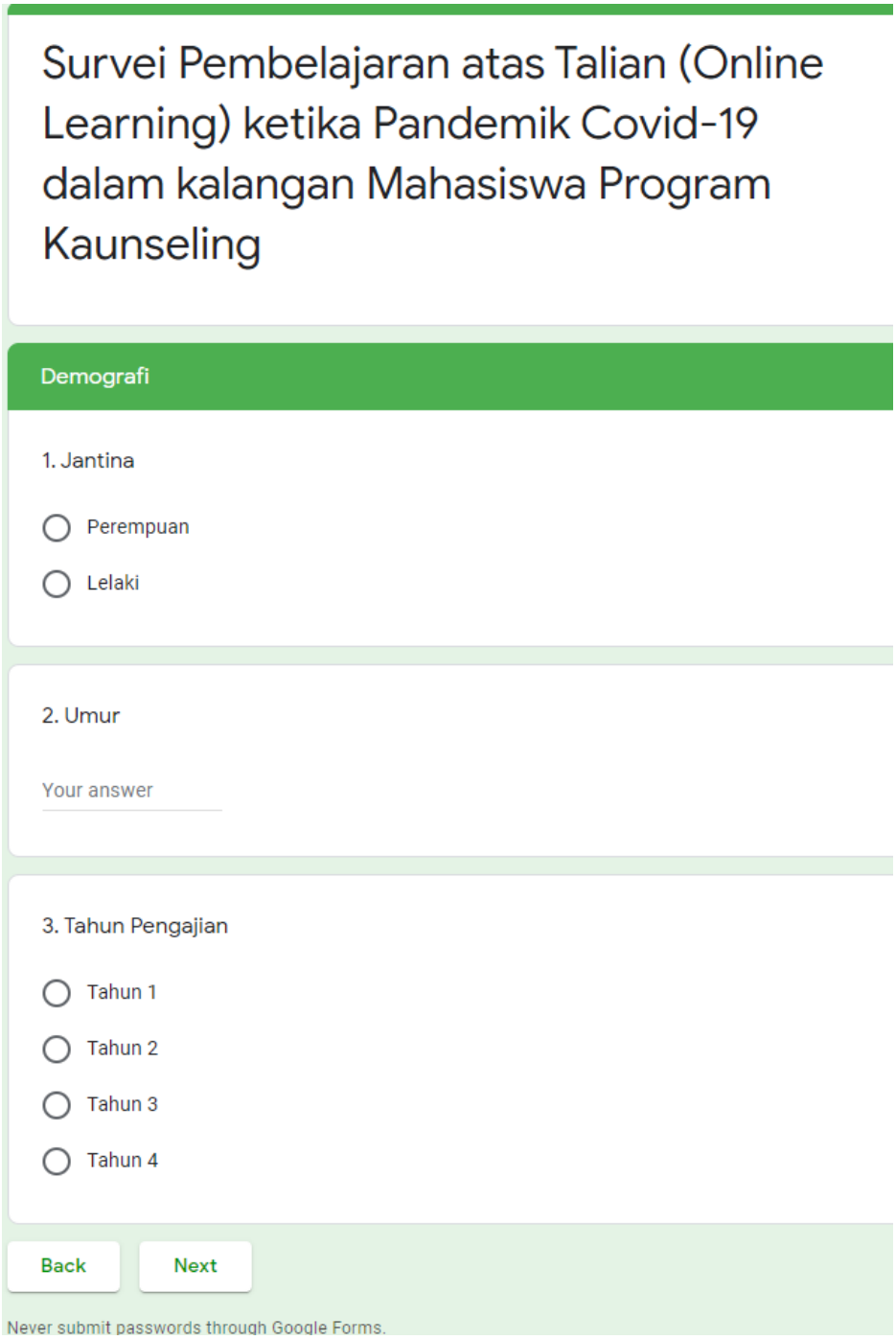

Survei Pembelajaran atas Talian (Online Learning) ketika Pandemik Covid-19 dalam kalangan Mahasiswa Program Kaunseling

Demografi

1. Jantina

- Perempuan
- Lelaki

2. Umur

Your answer

3. Tahun Pengajian

- Tahun 1
- Tahun 2
- Tahun 3
- Tahun 4

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Survei Pembelajaran atas Talian (Online Learning) ketika Pandemik Covid-19 dalam kalangan Mahasiswa Program Kaunseling

Survei terhadap Pembelajaran atas Talian (Online Learning) ketika Pandemik Covid-19

Soalan berikut adalah berkaitan pandangan anda tentang PEMBELAJARAN SECARA ATAS TALIAN (ONLINE LEARNING) ketika COVID-19

1. Adakah anda bersetuju dengan pendekatan pembelajaran dalam talian (online learning) semasa penularan Covid-19?

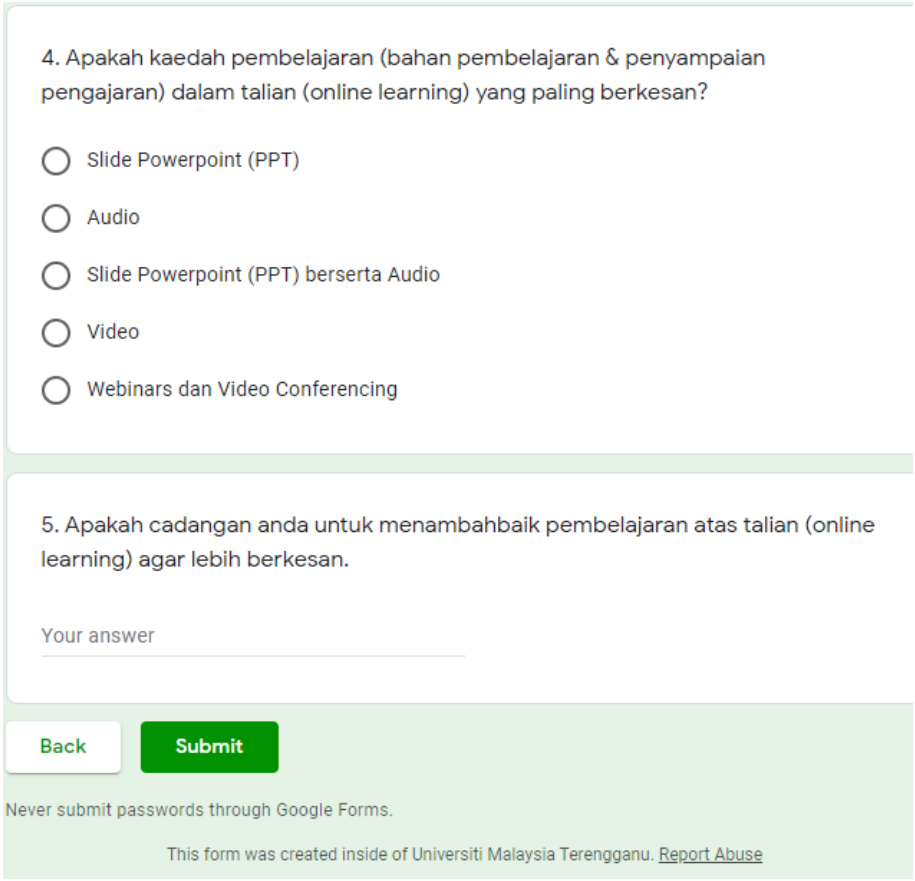
- ◯ Ya
- ◯ Tidak

2. Sebab-sebab saya suka pembelajaran dalam talian (online learning).

- ☐ Lokasi belajar lebih fleksibel
- ☐ Tidak perlu pergi ke kampus
- ☐ Mudah untuk melakukan ulangkaji
- ☐ Dapat kurangkan interaksi bersemuka
- ☐ Lebih praktikal daripada pergi ke kampus
- ☐ Lebih selamat belajar di rumah daripada pergi ke kampus
- ☐ Kaedah pembelajaran yang sesuai semasa krisis penularan Covid-19
- ☐ Keperluan untuk bergraduat dapat diselesaikan seperti yang dirancang
- ☐ Pembelajaran dapat diteruskan walaupun ketika krisis penularan Covid-19
- ☐ Masa dapat diisi dengan baik ketika di rumah apabila pembelajaran diteruskan secara dalam talian

3. Sebab-sebab saya tidak suka pembelajaran dalam talian (online learning).

- [ ] Tidak mempunyai internet
- [ ] Tiada aktiviti ko-kurikulum
- [ ] Komunikasi semakin kurang
- [ ] Kawasan tiada liputan internet
- [ ] Tidak dapat jumpa kawan-kawan
- [ ] Lebih suka belajar di dalam kelas
- [ ] Akses internet tidak laju/perlahan
- [ ] Kelas dalam talian membosankan
- [ ] Jaringan hubungan semakin kurang
- [ ] Suasana di rumah tidak selesa untuk belajar
- [ ] Akses internet kerap tergendala/tidak stabil
- [ ] Bahan pengajaran dalam talian membosankan
- [ ] Mengikuti kelas dalam talian adalah mencabar
- [ ] Mengambil ujian dalam talian adalah mencabar
- [ ] Saya tidak dapat belajar melalui kelas dalam talian
- [ ] Tidak mempunyai komputer peribadi/telefon pintar
- [ ] Tiada ruang yang sesuai/selesa untuk belajar di rumah
- [ ] Tidak mempunyai interaksi peribadi dengan pensyarah
- [ ] Melakukan tugasan individu dalam talian adalah mencabar
- [ ] Mengambil peperiksaan akhir dalam talian adalah mencabar
- [ ] Melakukan tugasan berkumpulan dalam talian adalah mencabar
- [ ] Tidak mempunyai sumber kewangan untuk membiayai kos pembelajaran dalam talian



4. Apakah kaedah pembelajaran (bahan pembelajaran & penyampaian pengajaran) dalam talian (online learning) yang paling berkesan?

- ◯ Slide Powerpoint (PPT)
- ◯ Audio
- ◯ Slide Powerpoint (PPT) berserta Audio
- ◯ Video
- ◯ Webinars dan Video Conferencing

5. Apakah cadangan anda untuk menambahbaik pembelajaran atas talian (online learning) agar lebih berkesan.

Your answer

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Challenges and Effectiveness of Using the SHAD Social Network During COVID-19 According to Teachers, Parents and Students

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Abstract: The present research analysed the challenges and effectiveness of using the SHAD social network in the COVID-19 era from the perspective of teachers, parents, and students of middle schools in Tehran. The sample size for the present qualitative research was based on theoretical saturation, and the data were collected through purposive judgements and snowball techniques. Thematic analysis was used to consider the qualitative data from 75 interviews. Eight themes were attained from 43 subcategories extracted from the verbal predicates; these themes related to the problems using SHAD, including lack of software and hardware infrastructures, user lack of familiarity with the new educational technology, lack of appropriate space for effective interaction, unconstructive interference in the education process and the impossibility of appropriate evaluation of operations, as well as psychological and behavioural disorders. According to the research findings, there were considerable differences between private and state schools in facing the problems and challenges. Participants believed that the quality of teaching in an online environment is lower than in face-to-face teaching, which they viewed as preferable. The degree of learning also decreased in the COVID-19 era, although both teachers and students spent more time and energy teaching and learning, and parents (notably) had considerably more involvement. In addition to using SHAD or the learning management system (LMS), all schools received help from social networks and were more satisfied with these external networks. However, teachers specified that student autonomy improved in the COVID-19 era, and the resulting environment was more suitable for introverted students, allowing them to be more involved. Finally, the research results indicate that creating a social network unique to education is not welcomed by the social network users, who preferred to use their favourite ones. This research supports e-learning practice by revealing that some widely-used social networks could become e-learning tools. In a few cases, due to the technical developments of these apps, these social networks have advantages over new e-learning systems. Solving technical problems is key to improving the performance e-learning systems, and teachers need to improve their ability in using online tools, while parents also need to be more involved in the learning process.

Keywords: SHAD social network, COVID-19, eLearning effectiveness, eLearning challenges, learning

1. Introduction

The COVID-19 pandemic has been a big challenge for educational systems worldwide (Crawford et al., 2020) because educational systems suddenly found themselves in the critical condition of needing to use the internet and eLearning in a short period of time and with limited access to the necessary facilities. Families, teachers, and students also felt the stress of coping with an unknown virus on a daily basis, which complicated the situation along with the issues related to the new educational environment and its requirements.

As Houlden and Veletsianos (2020) have argued, the essential question is whether there is enough and necessary preparation for developing online courses in schools and educational institutes. There are more issues that can be raised for which it is difficult to find an answer:

- How can lessons proceed when students and teachers are not permitted to have a physical presence in the classroom?
- How can learning be effective under these conditions, given different learning needs and social backgrounds? (Torrau, 2020).

As the pandemic persists and the home quarantines and social distancing continue, teaching and learning need to be seriously re-engineered, although there is not enough time, information and knowledge to do so in the circumstances created by COVID-19. The change from traditional and face-to-face contexts to eLearning environments also requires different infrastructures, including high-speed internet and proper connection devices that are not easily accessible.

The next step is for teachers and students to acquire the necessary skills for teaching and learning in this new educational environment. The selection of learning platforms has also been challenging. Reference to social networks for educational use increased during this period. As Cavus et al. (2021) have pointed out, social networks in education during the COVID-19 era have helped overcome many of the challenges in learning

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management system (LMS) environments. Olusola-Fadumiye, Harun and Oke (2020) also supported this finding; their research showed that the use of social media in learning improved the teachers' digital skills in transferring new knowledge to pupils and removing the restrictions related to learning-based technologies. Aduba and Mayowa-Adebara (2020) have shown that using WhatsApp during COVID-19 improved the teacher-student relationship and turned the teaching-learning process into an interactive, cooperative and dynamic activity for all students. The successful educational use of these networks in the COVID-19 era may be due to their features and potential uses in education. Akbari et al. (2016) have shown that teachers and students were positively affected by using social networks in education and welcomed it. Agbo et al. (2020) have indicated some of the ways social networks have improved cooperative learning. Different studies (Liao et al., 2015; Rice and Spence, 2016; Sharma, Joshi and Sharma, 2016; Alenazy et al., 2019) have shown that SNSs are preferred to LMSs because of the easy transfer of educational resources, and Cavus et al. (2021) noted that many people replaced LMSs with social networks for this reason. These sites also support cooperative learning opportunities, as well as leading to an increase in teacher/student cooperation, so say nothing of the fact that they are often easier to use than LMSs.

Measures were immediately taken in Iran to begin online courses for schools. Within a short time, the social network SHAD (شاد), meaning happy in Persian, stands for "شبکه اجتماعی دانش آموزان " (student social network; at https://shad.ir) was provided for teachers all over Iran to organize online education. This application authenticates the identification of school principals, teachers and students is, and it is possible to hold online and offline classes using the platform, while a forum is provided to ensure dialogue between teachers and students. According to official statistics from the Ministry of Education, about 14 million students are identified in this network, and over three million groups has been developed to hold classes. Further, around 1.62 billion messages have been sent between teachers and students.

The present research investigated the efficacy of SHAD in teaching and learning via a qualitative approach. This study sought to analyse the problems and challenges of using this network for teachers and students during the COVID-19 era to address the following general research question (RQ):

- Was the use of SHAD in teaching and learning effective for students?

Our specific RQs were:

- What were the most critical problems related to the use of SHAD according to teachers, parents and students?
- What are the differences among the perspectives of teachers, students and parents regarding teaching quality through the SHAD system (eLearning courses) under COVID-19?
- What are the differences among the perspectives of teachers, students and parents regarding the quality and degree of learning through the SHAD system?
- Have eLearning and SHAD influenced and changed the degree and quality of parental involvement according to teachers, students and parents?
- How has student achievement been influenced by the COVID-19 era according to teachers, students and parents?

2. Research Methodology

The present research was based on an interpretivist research philosophy. It was conducted through a deductive approach using a case study strategy. A mono-method qualitative methodology was adopted because thematic analysis was used. As the research was exploratory and because of time considerations, a cross-sectional method was used. Structured interviews were used as the research instrument. The research participants included teachers, parents and students from different geographical divisions in Tehran. A schedule was developed in advance for interviewing key people by phone. The following are the questions raised in the interview.

1. Have you already experienced online courses?
2. Have you been trained on how to participate in eLearning courses through SHAD?
3. What problems have you encountered using the SHAD network? How do you evaluate the quality of teaching/learning through SHAD?
4. How do you evaluate the quality of parents' and students' involvement in the learning process through SHAD?

5. Compare students' degree of achievement after using SHAD during COVID-19 and in face-to-face/traditional education before the COVID-19 era. What differences have you observed between these two educational approaches?

A combination of purposive judgement and snowball techniques was used to perform the sample selection, following a non-probability method. Ultimately, 20 teachers, 20 parents and 15 students were interviewed, and the resulting data were investigated through thematic analysis. The interviews lasted for 25 to 60 minutes based on the participant's condition and inclination. Although the interviews were mainly administered via telephone due to coronavirus restrictions, both the researcher and participant were present.

Content analysis is an approach for identifying, analysing and reporting the patterns available in qualitative data. It is a process through which text data are analysed and divided, allowing a detailed, enriched understanding of the data. Content analysis was performed through the following stages: 1) get acquainted with the data; 2) develop the initial codes and performing the coding; 3) search for and identify themes; 4) draw up a thematic network; 5) analyse the thematic network and 6) write up the report.

Validity was obtained through the interview process. Namely, the use of detailed and straightforward questions and the way questions were raised and their sequence, as well as confirmation of interview quality and quantity by the colleagues; voice recording, exact transcription of the interview data by the researcher and taking notes when interviewing were considered. To calculate the reliability of the present research interviews, the test-retest reliability technique was used, which refers to the consistency of data categorization over time. In each interview, codes similar to each other were recognized as consistent, and those dissimilar were specified as inconsistent. The following formula was used to determine the reliability of the codes:

$$\text{Test reliability percentage} = \frac{2 \times Number\ of\ agreements}{total\ number\ of\ codes} \times 100$$

The present research used the data from the interviewed students, and the researcher coded the data twice at an interval of two weeks. The results of the recording are presented in Table 1. There were 32 total codes, and 24 total consistencies among codes after a two-week interval. Given the above formula, the test-retest reliability value is 87.5 per cent. Because this is higher than the suggested minimum value of 60 per cent, the interviews appear to have adequate reliability.

Table 1: Test-retest reliability

Test-retest reliability value	Number of disagreements	Number of agreements	Total number of codes
87.5%	8	24	32

3. Research Findings

Each interview had a different number of predicates, so there could be 15 meaningful predicates in one interview and 6 in another. In general, there were approximately eight predicates in each interview. After extracting meaningful predicates, open coding was conducted. In general, from the 64 meaningful predicates in these interviews, 43 codes were extracted, which resulted in nine themes after eliminating the repeated codes.

3.1 RQ1 – Critical Problems

When asked about the problems related to SHAD, students, parents and teachers discussed the main challenging issues related to the use of this network. The extracted codes relevant to RQ1 are shown in Table 2; there were 31 final codes and six themes related to SHAD's problems. 'Lack of software and hardware infrastructures' was among the most critical problems mentioned by the three interviewee groups. Lack of access to the required instruments such as smartphones, tablets or computers for students – especially in geographical divisions of Tehran with lower incomes – challenged eLearning. One student said: 'my sister and I had to use a single cell phone while we had to be online simultaneously online.' However, this situation differed in geographical divisions with medium and high incomes. Many parents also did not want their children to have a private phone, depending on the child's age; one parent noted, 'We are unwilling to buy private cell phones for them.'

Some teachers also did not enjoy access to facilities such as high-quality microphones, which influenced their interaction quality. Using the internet was also costly for some families and teachers, and the Ministry of

Education took no measures to reduce these costs. Students also stated that they did not have the opportunity to interact with their classmates through SHAD, so they could not learn from each other. Compared to face-to-face interactions, they did not feel any positive psychological or mental effects.

Low-speed and disconnected internet, non-responding servers and limited facilities in SHAD such as low-speed voice and video sending were among the issues that troubled SHAD users. One student said that 'our absence was counted as unexcused while the internet had disconnected. So I got lower scores, and this bothered me more than anything else'. One teacher stated that the low-speed internet was due to the simultaneous use of the internet by all organizations and schools, and this indirectly influenced the operation of the SHAD system. There were also technical difficulties such as repeated problems in sending and receiving podcasts, videos, pictures and the incompatibility of the files to be transferred with the host system. Appropriate content production instruments should be provided for teachers to support eLearning, but some teachers had little (if any) access to such instruments. Students require appropriate prerequisite conditions and instruments for effective eLearning as well. Unfortunately, parents' inattention or economic problems in providing support such as cell phones, tablets or a silent and calm physical space resulted in lowered effectiveness.

The second central theme was 'users' unawareness of the new educational technology'. The effective use of every new technology means acquiring knowledge and information on how to use it. The interviewees stated that the training courses held by the Ministry of Education on how to use SHAD were insufficient. Such courses are essential because the eLearning environment is new and novel for many families, students and teachers. Teachers in particular emphasized their lack of knowledge of digital content production and comfort in teaching in the new environment.

According to the qualitative data analysis, the third theme was 'lack of appropriate space for effective interaction'. Teachers and students are unwilling to leave the traditional educational environment and join this network because they learn when they are beside each other. Online, they no longer directly interact with each other. Difficulties in the interaction and communication between teachers and students, as well as the absence of live and visual communication, are part of the reason why students and teachers are not interested in this network. The remarkable thing in the findings was that the private schools replaced SHAD with different LMSs to compensate for SHAD's problems, but state schools had to continue to use SHAD. All schools also declared that they used facilities in different social networks such as WhatsApp and Bale (an Iranian social network) to support teaching and learning. Besides the hardware infrastructure problems using SHAD, teacher, and students preferred to use their favourite, familiar social networks instead of a new one.

Among the problems emphasized by the interviewees was 'unconstructive interference in the education process', because teachers (in private schools) believed that parents interfered in their teaching process. One teacher stated, 'it is the parents who participate in the class and criticize it.' Many teachers felt that their class privacy was lost and felt that the online teaching environment was like an aquarium from the outside. Everybody, especially the parents, could observe classes and constantly scrutinize the teachers' behaviour, acting and judging them and their teaching accordingly. Such negative judgements could harm the students' trust in the teacher.

Teachers also argued that this parental observation could make some of them anxious. They complained that parents judged their teaching while they (the teachers) are still learning in the new environment and do not have complete control over the eLearning teaching environment. Many families noted, however, that teachers repeatedly called to check students' presence in the class. Some students who used their parents' cell phones said their parents' friends and acquaintances often called several times during the class, and the phones disconnected from the course.

'Generation of psychological and behavioural disorders' was the last theme related to SHAD problems. Many students believed that this network was boring and made them unhappy. Parents assumed that students were anxious and stressed during class and suffered from physical complications such as headaches and eye strain. Students were also in greater danger of becoming addicted to the internet and dependent on smartphones or tablets because of their attractive features. Teachers, especially in private schools, suffered from psychological problems because they encountered actions such as their screenshot pictures being turned into GIFs by students. As mentioned earlier, they also worried about parental judgements.

Table 2: SHAD problems – final codes and themes

Final codes	Theme	Key axis
Lack of access to required instruments such as smartphones, tablets or computers for students	Lack of software and hardware infrastructures	Problems in SHAD network
Lack of appropriate facilities such as high-quality microphones for teachers		
Internet costs		
Low-speed and disconnected internet		
The server not responding when logging into the system		
Limited facilities in SHAD, such as the impossibility of online classes and interaction with classmates		
Repeated problems in receiving and sending audios and videos		
Incompatibility of sent files with the host system		
Low-speed uploads and downloads		
Lack of content production instruments for teachers		
Inattention on the part of parents to the provision of required facilities for eLearning in students		
Lack of privacy		
Use of LMS in private schools instead of SHAD		
Use of social networks		
Little (if any) training courses for learning how to use the network	Lack of familiarity with new educational technology in users	
Being unfamiliar with the eLearning environment		
Being unfamiliar with content production on the part of teachers		
Unawareness of how to teach in the new environment		
Difficulty in content production		
Impossibility of students learning from each other	Lack of proper space for effective interaction	
Impossibility of direct interaction between students		
Difficulty in the interaction between the teacher and students		
Lack of direct communication between teachers and parents		
Parents' interruptions of teaching	Unconstructive interference in the education process	
The judgement of teachers and their activities by parents		
Calls to parents' phones during student use		
Repeated calls by the teacher to the parents to check student's presence in the class		
Difficulty in student evaluation	Impossibility of appropriate evaluation of the operation	
Lack of time for studying students' assignments		
Students' addiction to the internet and their dependency on smartphones or tablets	Psychological and behavioural disorders	
Psychological and mental problems for teachers		
Students' anxiety during class time		
Physical complications such as headache and eye strain		
Making GIFs by students of the screenshot picture of their teacher		
Tiresomeness of the system		

3.2 RQ2 – Teaching Quality

Table 3 presents the final codes related to teaching quality in SHAD according to the interviews. In general, one central theme and three final codes were extracted. The theme agreed upon by the teachers was 'inability to recognize students' capabilities. Both students and teachers emphasized that there cannot be a proper understanding of students' learning in the classroom for teachers via SHAD. One teacher noted, 'you cannot understand students from far away, here you cannot see their mistakes and remove them. In physical classrooms, you get from their faces whether they have understood the lesson or not'. In virtual environments, teachers were not able to appropriately perceive students' personality features and potential abilities. Finally, teachers considered online teaching to be more time-consuming than face-to-face teaching. They had to record videos of themselves and the whiteboard or audio components and send these to students, which required more time and energy than in-person classrooms.

Table 3: Teaching quality – final codes and themes

Final codes	Theme	Key axis
Teacher inability in perceiving learning degree in students	Inability to recognize students' capabilities	Teaching quality
Teacher inability in identifying students in the online space		
The time-consuming nature of online teaching as compared to face-to-face teaching		

3.3 RQ 3 –Quality and Degree of Learning

Table 4 presents the codes extracted related to quality of learning. Three final codes and one theme were extracted from the interviews on this topic. As students and their families said, the quality of learning through SHAD was not very satisfactory and resulted in the theme of 'low effectiveness of eLearning'. Similarly, students stated that more learning happens in face-to-face classes, and they had to try harder to learn course concepts in an online environment. One student said: 'I liked it when the teacher repeated the lesson in the class because it made me learn better, and in general I do not like eLearning' and 'you cannot ask your question as easily as in face-to-face classrooms'. Many students noted that because they could not ask their questions during class, less learning occurred.

In general, students reported lower degrees of learning. They indicated dissatisfaction with the online settings mainly because they considered online teaching tedious and preferred face-to-face classrooms that provided simultaneous and cooperative questioning when teaching. Teachers mentioned this as well. One teacher declared that 'several students with bad performance became so much worse because they either did not have cell phones or it was difficult for them to work in the new environment' or 'some good students became so weak'.

Nevertheless, it was noteworthy that some teachers believed that introverted students demonstrated more learning and cooperation. One teacher also stated, 'one student with a stammer who was not active in the face-to-face class has shown more involvement and increased learning in the new environment'.

Table 4: Learning quality and degree – final codes and themes

Final codes	Theme	Key axis
Decreased degree of learning	Low effectiveness of eLearning	Learning quality
Dissatisfaction with teaching online		
Tediousness of online teaching		

3.4 RQ4 –Parental Involvement

The final codes and theme related to parental involvement are shown in Table 5. All interviewees agreed that parents showed increased involvement and cooperation in students' eLearning process, although some teachers argued that there was no significant difference in parental involvement. Parents who were not already involved did not show any increased participation, but parents who had been involved in traditional education courses continued their participation in the new environment.

Many students stated that their parents constantly controlled them. In some cases, this control was unusual; as one student said, 'my mother was always in contact with the school principal and teachers and continuously encouraged me to use SHAD'. It was interesting that some parents were happy that they could watch the class educational videos to learn and help students as well. Parents also monitored more student assignments, as well as their presence in the class or even held the class. In other words, parents had a closer relationship with the school's parent community. It was noteworthy that parental involvement in low-income regions differed from involvement in wealthier ones. In private schools, parents concentrated more on the teaching method, but parent concentration was put on the student and his/her presence and activities in state schools.

Table 5: Parental involvement – final codes and the themes

Final codes	Theme	Key axis
Increased control by parents of students' presence in the class	Increased involvement in parents	Involvement quality
Parents' cooperation in holding eLearning courses		
Parents learning concepts and transferring learning to students		
Difference in parental involvement in private and state schools		

3.5 RQ 5 – Student Achievement

When asked about the degree of achievement in eLearning through SHAD, the interviewees mentioned different points. Some argued that there was a minor achievement in the COVID-19 era. One student believed that 'I was more successful and satisfied before the COVID-19 era'. One of the parents said, 'both my daughter's teachers and I were more satisfied with her before the COVID-19 era'.

One teacher assumed that students showed decreased educational achievements because they are physically remote, but some interviewees had different views. They believed that there was more student achievement than in the pre-COVID-19 era. One teacher stated, 'after the COVID-19 era, students became more self-reliant and learned new apps' because students were more enthusiastic about using technology. They even tried to produce content. However, another teacher assumed that some students performed worse, while some had promising breakthroughs.

4. Discussion

The primary purpose of the present research was to analyse the challenges and effectiveness of the SHAD social network during the COVID-19 outbreak era from the perspective of teachers, parents and students. The RQs resulted from an in-depth analysis of 70 interviews administered to teachers, parents and students who used SHAD for eLearning and teaching. There were 64 meaningful predicates in these interviews from which, after eliminating the repeated ones, 43 codes and nine themes were extracted.

The research results showed that, in general, since the onset of COVID-19 and eLearning, both teachers and students have encountered different software and hardware problems, but there were sometimes differences between private and state schools. For example, in content production, teachers in private schools tried to produce content through various types of software. Within state schools, teachers tried to teach using cell phones, whiteboards or writing on paper and recording videos. This seems to be because, in private schools, teachers were introduced to digital content production by participating in a series of training courses, but such courses were not provided for state schools, so the teachers had to learn how to work with SHAD on their own. It is therefore suggested that relevant institutions provide necessary training to develop teachers' professional competencies in online environments. Users were also not familiar with the new educational technology, which was a challenge for the interviewees.

For teachers and students, the use of social networks was a solution to some of their problems, and all interviewees (teachers and students) agreed that they were more satisfied with social networks than with LMSs and SHAD. This may be because social networks are naturally designed for sharing different file types, and previous studies have shown that these sites are effective instruments in education (Akbari and Simons, 2018). Another research finding was that some parents worried about their children's cell phone and internet use and the negative impacts on physical health. Research by Delen et al. (2015) has shown that parents worried about their children using communicative technologies, and they were especially concerned about online threats; this is in line with the findings of Madden et al. (2012).

The participants assumed a lack of face-to-face (emotional) interaction and communication with the teacher or classmates was a disadvantage of online courses. This is in line with previous research. Markus and King (2003) emphasized that a lack of interpersonal and direct interaction resulted in dissatisfaction for students participating in eLearning courses. The results of Paechter, Maier and Macher (2010) also supported our data regarding students' preference of face-to-face online education, and Johnson, Aragon and Shaik (2000) noted that students have more positive attitudes towards teachers and their operation in face-to-face courses. The majority of teachers and students stated that they preferred face-to-face education to eLearning, because they thought teaching quality was lower in the online environment and that they were more successful in face-to-face instruction. Teachers argued that it was complicated for them to understand students' degree of learning and know the students individually. Nevertheless, other researchers (Díaz and Entonado, 2009; Dell, Low and Wilker, 2010) indicated no vital difference between face-to-face and online teaching quality. Therefore, low teacher satisfaction with their teaching quality in the present research may be due to a lack of control over this environment. If teachers get the required necessary training, their teaching quality would probably improve.

Another finding was about types of eLearning. Students preferred the asynchronous approach because of the opportunity to repeat the teacher's lecture and, by watching and listening again and again, to increase learning.

Research by Georgouli et al. (2006) has shown that asynchronous platforms reinforced students' learning. To be more productive in the COVID-19 era, teachers should be encouraged to use asynchronous teaching. They should be introduced to digital content production, or students should be provided with standard educational packages. Nevertheless, as both teachers and students declared, the degree of learning and achievement decreased under COVID-19, which is in line with a report entitled 'COVID-19 and student learning in the United States: The hurt could last a lifetime' by Dorn et al. (2020). One of the reasons for this may be, as the participants stated, that long-term presence in an online setting is tedious.

Changes in the degree of parental involvement was also investigated in the present research. The results showed that parents were more involved during COVID-19 through their excessive control and monitoring, which sometimes annoyed students and teachers. Students interpreted this increased supervision as an indication of their parents' worry and stress. Teachers had not previously experienced such interference from parents regarding teaching content and methodology before the COVID-19 era, and this change was particularly prevalent for teachers in private schools. Moreover, less-educated and lower-income parents tried to control and monitor their child's education process more, but did not consider the education content and teaching methods.

This research has some limitations that should be kept in mind when interpreting the results. The present research was on eLearning through SHAD, so the results may not be generalizable to other eLearning systems; the study was performed on students, parents and teachers in Iran, so the results are exclusively applicable to Iranian participants. The results may not be generalizable to other countries.

5. Conclusion and Summary

The results of the study showed that the most critical problems related to the use of SHAD according to teachers, parents and students included: lack of adequate software and hardware infrastructures, users' unfamiliarity with the new educational technology, absence of an appropriate environment for effective interaction, and unconstructive parental interference in the educational process. Participants had a negative attitude towards teaching quality through SHAD. Both students and teachers emphasized that teachers were not able to form a proper understanding of the students' degree of learning in the SHAD environment.

Teachers also believed that it is more complex and time-consuming to teach online than in person. Regarding learning quality, participants argued that there was considerably less learning online and that more learning occurs in face-to-face classrooms. However, online environments demand more effort and energy than face-to-face instruction, resulting in more fatigue. Teachers and students considered themselves more successful in face-to-face education. However, teachers stated that student autonomy increased under COVID-19, and such an environment was more appropriate for introverted students and allowed them to be more involved. Based on the research results, parental involvement increased considerably during the COVID-19 era. Finally, the research results indicate that creating a social network uniquely for education is not welcomed by the social network users, who preferred to use their favourite social networks for educational purposes.

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Editorial for EJEL Volume 19 Issues 1 and 4

Dear readers of the EJEL,

The previous academic year 2020/21 will certainly be one to remember for many years to come. The global pandemic has brought suffering, uncertainty and anxiety to many people around the world, and it has fundamentally transformed the way we communicate in formal and informal settings. The impact of this change has been particularly visible in education, where COVID-19 has achieved in a few months what years of promoting e-learning could not have achieved previously. Schools, colleges and universities around the world have swiftly switched to online delivery modes despite the steep- earning-curves and a lack of time for preparation and detailed planning. Students too had to adapt quickly to the new modes of teaching with Zoom, Teams, narrated Powerpoint slides and other e-learning tools in order to complete their courses and programmes of study. This special issue of EJEL is devoted to this change and in particular to evaluating how educational institutions around the world have implemented the change.

The (virtual) COVID-19 issue comprises eight research papers and one experience report split across two issues - 19(1) and 19(4) - written by authors from Australia, China, Greece, Hong-Kong, Indonesia, Iran, Jordan, Malaysia, Poland, and Russia who are reflecting on implementations of e-learning in their institutions during the COVID-19 crisis. This is from both teachers' and students' perspectives, and through different research lenses spanning from auto-ethnography (Lin and Nguyen) at one end of the spectrum to very robust quantitative studies at the other end (e.g. Migocka-Patrzałet et al.). In addition to the research papers, and for the first time in EJEL, the issue 19.1 includes a brief experience report prepared by Dr Ken W. Li, a member of our Editorial team. The report describes how, during the COVID-19 pandemic, a group of teachers and students of Chinese calligraphy in Hong Kong have adapted to the online mode of teaching using tools such as WhatsApp, AR and YouTube.

The first research paper in the special issue (listed as the third paper in 19(1)) is by Daria V. Kolesova, Leonid V. Moskovkin and Tatiana I. Popova from the Russian Federation. The article investigates the views and opinions of international students studying Russian as a foreign language at St. Petersburg State University, and those of their teachers, on the benefits and challenges of the urgent transition to group online instruction during the COVID-19 crisis. The findings based on a survey of 100 students and 45 teachers indicate that although difficulties in the online training of the language skills were recognised by both teachers and students, their relationship became less hierarchical in the virtual environment due to greater engagement and independence of students in online lessons. In addition to that, many teachers missed personal communication with students, and noted lack of specialised online tools for teaching Russian and for monitoring students' engagement with online materials. The latter findings may be interesting for tool providers in the Russian Federation.

Angelos Giannoulas, Aglaia Stampoltzis, Kalliopi Kounenou and Antonios Kalamatianos from the School of Pedagogical and Technological Education in Athens, Greece are the authors of the first paper in issue 19(4), on the experiences of Greek students on online education during the COVID-19 pandemic. Their study is founded on a survey of 370 students from 25 academic institutions in Greece. The attendance for online lectures, as reported by the students, was high, but the technical difficulties, such as poor internet connection and low quality of audio, prevented satisfactory communication. That and long lectures, use of slides and lack of interactions with other students were noted as the main issues, and causes of stress for many students. Despite these challenges, the majority of students have expressed interest in continuing online in combination with classroom-based learning. That suggests that the institutions need to invest in training and supporting staff, as well as in technologies, in order effectively to support the online learners.

In the second paper in issue 19(4), Ahmad Fauzi, Raju Wandira, Domi Sepri and Afdhil Hafid from the Faculty of Science and Technology at UIN Imam Bonjol West Sumatra, Indonesia explored students' acceptance of Google Classroom use during the COVID-19 pandemic. Their research employs the Technology Acceptance Model (TAM) by considering relevant factors such as (perceived) ease of use, usefulness, facilitating conditions and price value and examining their effects on the acceptance of Google Classroom technology. The sample comprised 383 student studying at universities in West Sumatra and the data collected with the survey were analysed using the Structural Equation Modeling (SEM) method. The findings indicate the perceived ease of use and facilitating

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conditions such as: knowledge about the technology and technical support are significant factors for perceived usefulness of the technology; and usefulness had a positive impact on attitudes towards use and intention to use the technology. The implications are that the institutions need to invest in making the technologies accessible and in providing necessary technical support in order for students to realise the full benefits ('usefulness') of the technology, which in turn could incite students' higher engagement with online learning.

The third paper in issue 19(4) is by Yuqi Lin and Ha Nguyen from Monash University, Clayton, VIC, Australia. This paper provides an interesting critical view on online learning during COVID-19 in Higher Education in Australia, from the perspective of an international student from China. The paper employs the auto-ethnographic method and Biggs' 3P model to analyse the student's approach to online learning and its effectiveness. The study focuses on issues experienced by international students who have not studied online prior to the pandemic, and it challenges the notion that the virtual university is a means of achieving educational equality. The findings show that while the participant could engage with the curriculum to some extent, and with the help of supporting tutors, the challenges related to isolation and lack of confidence to engage in online interactions with other course participants have led to frustration and emotional instability. The authors suggest that the online programme designers should consider individuals' socioeconomic status and the cultural background of *all* students and provide necessary support to those who are new to online learning.

Reema Karasneh, Sayer Al-Azzam, Suhaib Muflih , Sahar Hawamdeh , Mohammad Muflih and Yousef Khader from Yarmouk university and Jordan University of Science and Technology are the authors of the fourth paper in issue 19(4). Their focus is on attitudes and practices of educators towards online learning during the pandemic. The study is based on a web-based survey of university lecturers in public universities across Jordan. The analysis of responses from 508 educators who participated in the survey indicates positive attitudes towards online teaching and satisfaction with institutional support for online learning. The main barriers were related to the technical issues (internet connection), non-professional (family home) environment for teaching, time constraints, lack of training, demotivation, equipment costs, internet subscription fees, and number of students (in online sessions).

The fifth paper in the special issue 19(4) is by Marta Migocka-Patrzałek, Magda Dubińska-Magiera, Dawid Krysiński, and Stefan Nowicki, all from University of Wrocław, Poland. They examine how the pandemic has affected the attitudes of students and teachers from their university towards online learning. Their findings, based on well-executed quantitative analysis of data obtained from 278 teachers and 2301 students from humanities and science faculties, indicate a strong correlation between previous experience with online learning and willingness to use it in the future for both students and teachers. Interestingly the link between the use of 'emergency' online teaching during the COVID-19 crisis and the willingness for its future use could not be established. Moreover, the perception of advantages and disadvantages of online learning varies according to the attitudes i.e. participants with a positive attitude to online teaching more often report its advantages (e.g. flexibility, accessibility and availability) and less often its disadvantages, such as high workload (for teachers) and lower quality of learning (for students). The authors draw some important implications for practice which emphasise the importance of systematic and long-term planning for a successful implementation of online learning.

The authors of the sixth paper in 19(4), A. Nazilah, Che Wan Ida Rahimah Che Wan Ibrahim, Nor Aizal Akmal Rohaizad, Norillah, A. , Raja Zirwatul Aida Raja Ibrahim, and Mazidah Dagang are reporting on the perceptions of counselling students in Malaysia on online learning during the COVID-19 pandemic. Their findings based on the survey responses from 184 students suggest positive attitudes of the students towards the online learning during the pandemic due to its safety and necessity, and the issues reported were in the area of assessment, in particular groupwork, and online tests, as well as the lack of interaction with other students. The preference was for an asynchronous mode of learning, such as PowerPoint with audio, due to the issues with internet stability and speed, and finding a convenient space for studying online at home. Interestingly nearly 30% of the students reported not having internet and 20% not having financial resources to fund the cost of online learning, despite the government's subsidising the internet lines for students during the pandemic. This is an area that requires further investigation and action from the educational institutions in Malaysia.

The final paper in this special issue is by Elham Akbari from the University of Teheran, who investigated the challenges of using a purposely designed educational social network (SHAD) for learning during COVID-19 in middle schools in Teheran. Her findings are based on qualitative analysis of data obtained from 75 interviews

with students, their parents and teachers. The main themes emerging for the data were related to the technical issues with software and hardware infrastructures, lack of students' familiarity with the new tool, lack of appropriate space for effective interactions, unconstructive interference (from parents) in the education processes, the impossibility of adequate assessment of learning, as well as psychological and behavioural disorders by both students and teachers. Moreover, the author found that the quality of learning has decreased despite additional time spent by teachers and parents in learning and teaching processes. On the positive side, students' autonomy improved, and the new environment helped more introverted students to become more involved. Finally, the research results indicate that creating a social network unique to education is not welcomed by the users, who preferred to use their favourite (external) networks. This opens up some interesting questions regarding the importance of stakeholders' perspective on the introduction of new tools in learning and teaching processes.

The articles in the special issues 19(1) and 19(4) provide diverse perspectives on online learning during the COVID-19 pandemic across different countries, disciplines, levels of study, research methodologies, e-learning technologies and from both students and teachers. Interestingly, despite the level of previous e-learning development, similar issues and challenges seem to resurface in different contexts. The importance of stable and accessible infrastructures, suitable learning design that takes into account new issues such as feelings of isolation, online fatigue, private learning spaces, the increased need for interactions with teachers and peers and the need for improvements in online assessment design and implementation are some of the common themes that form a rich ground for further evidence-informed research in e-learning.

Journal Editors,
Marija Cubric and Heinrich Söbke