Evaluation of hybrid classes in Turkish universities post COVID-18 pandemic crisis

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Abstract

With the increase in the number of people who received the coronavirus vaccine and measures taken to immune the education sector against COVID-19, the concerned authorities in Turkey have eased the procedures that were previously taken to limit the spread of the disease and allowed universities to return to face-to-face education under specific conditions. Most universities have implemented a hybrid system to limit the spread of the disease. In this study, the opinions of students in some Turkish universities were surveyed about this system, its effectiveness, and its pros and cons, through a questionnaire distributed to students via e-mail and WhatsApp groups. The results were analyzed using Excel and SPSS. The results showed that the majority of students (89.2%) studied using this system, but (64.9%) of the students chose online, and the rest (35.1%) chose face-to-face education, mostly because of the students' fear of contracting the disease. With the continued spread of the disease, (51.6%) of the students believe that they will continue online in the coming semester and (25.0%) of them hybrid system. Hybrid system will continue for the next semester, so its negative aspects must be avoided, and quality of education should be improved.

Keywords: Turkey, hybrid, online, face-to-face, university

1. Introduction

After the emergence of COVID-19 vaccine and the increase in the number of those who received the vaccine, many countries have mitigated the measures previously taken to limit the spread of the disease, including Turkey, which allowed educational institutions to return to face-to-face education while maintaining some measures to prevent the spread of the disease [1]. The competent authorities have allowed universities to freely choose between face-to-face, online, or hybrid education, depending on the conditions of the university, as well as the nature of the study. Many universities have applied face-to-face education in scientific courses and online or blended in theoretical courses in order to reduce student density inside the university and in classrooms. In the hybrid system, students were allowed to choose between face-to-face or online education [2]. In some universities, lectures are recorded and uploaded to the university website in the online and hybrid system, which provides the student with the opportunity to view lectures at any time, and that is not available in face-to-face system.

COVID-19 has forced the entire world to confront one of the most difficult challenges in contemporary history, as it caused the infection of hundreds of millions (386,548,962) and the death of millions of people (5,705,754) [3]. However, it would be a grave mistake to describe this challenge as a health crisis only. It is a large-scale humanitarian crisis that brings misery and suffering to all of humanity and pushes its social and economic well-being to the brink of collapse [4]. At the national level, Turkey organized their resources to confront the severe consequences of COVID-19 pandemic on the health sector, the economy and various areas of social life by taking immediate and decisive preventive, curative and awareness-raising measures to limit the spread of the disease and protect its people, especially the vulnerable groups. However, the measures taken at the national level alone are not sufficient to keep pace with complexity of this crisis. In order to be truly able to confront this global crisis, our response must achieve effective control over this pandemic and an understanding of its nature and scale, as the situation requires coordinated and joint efforts among community members to consolidate in humanitarian emergencies.

On November 26, 2021, World Health Organization (WHO) named B.1.1.529 (Omicron) a disturbing mutant, on the recommendation of the WHO Technical Advisory Group on Virus Evolution. This decision was based on the evidence obtained by the advisory group that Omicron mutant has been exposed to several mutations that may affect its behavior, i.e. the ease of its spread or the severity of the disease it causes [5].

The current status of mutant Omicron may lead to the possibility that study at universities will continue in the same system (online or hybrid) due to the rapid spread of the virus and the increase in the number of infections. With the tremendous technological development, it has been possible to benefit from that in the field of education, in many forms, most notably online education. COVID-19 pandemic, the quarantine imposed on students and teachers, and the closure of face-to-face classrooms, were among the reasons for promoting education through the Internet. Consequently, ministries of education in different countries launched their digital platforms, through which they broadcast lessons and training to students, and this entailed a comparison between online education and face-to-face education.

1.1. Online and face-to-face education

In principle, there are various differences that can be drawn between online and classical face-to-face education, and these differences vary in form and content. Besides, each has its pros and cons [6, 7]. The views of education experts differed as there are supporters and opponents of both education platforms. On the one hand, some parties have a preference for face-to-face education, and on the other hand, some parties have a preference for e-learning, and some have even been tempted to simulate the form of a dialogue between online education and classroom education in either hybrid or blended education [8].

1.2. The difference between traditional education and e-education

We start with the difference between traditional education and e-education in terms of their definition. Traditional education is defined as: the usual form of education based on students attending their schools in the morning and receiving educational content in the classroom regularly at the hands of specialized teachers, where education is through oral and direct communication. Students can express themselves, participate in discussion and communicate their problems to the teacher [9, 10].

As for distance education, it is that education in which students receive their instruction without the need for regular attendance in classrooms, through the Internet network, and through educational platforms launched by the ministries of education in different countries [10]. Carbonaro et al. defined e-learning as "an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction" [11]. Digital education facilitates interaction between the teacher and students via multimedia resources, where students review the curricula written on the platform, watch videos or listen to direct explanations without the need to have direct visual interconnection [11].

Despite the great technical development in the field of e-education, and that it has saved a lot of effort for students and teachers, some people prefer face-to-face education for many different considerations, most notably the consolidation of discipline and instilling the desire to learn in the hearts of students, which is sorely lacking in e-education [10, 12].

1.3. Similarities between e-education and face-to-face education

There is no doubt that both platforms are forms of education, that is, there must be a teacher and a learner, and this is the essential similarity between them. In addition, both have an organized educational content and arranged chapters, units, etc. Moreover, both hold an exam at the end of each semester with a difference in the way exams are administered. In both face-to-face education and distance education, the teacher explains, and the student receives, even if the means and methods differ between the two types [13]. Face-to-face education depends on discussion, dialogue and visual encounter, while in distance education students receive and understand data relying on themselves and their abilities, which is called self-education or process of individualization of education [14].

1.4. Similarities and differences between distance education and face-to-face education

Although there are similarities between distance education and face-to-face education that we talked about, there are some differences between distance education and traditional classroom education, most notably are:

• Face-to-face education is based on the regularity of students and teachers in their daily classroom attendance, while distance education is done through nonspontaneous digital means of communication such as the Internet, platform applications or videos.
• Face-to-face education depends on printed educational content, unlike distance education that passes through different materials and electronic sources, some of which are audio, some visual, and some are read.
• The tasks of teachers in face-to-face education are positive tasks through which the teacher explains, discusses, guides and dialogues with the students so that they participate. Unlike the role and tasks of the teacher in distance education, which is negative and is limited to the explanation only without participation with the learner nor the exchange of visions and information.
• Face-to-face education is based on the principle of synchronization, where both the teacher and the learner are in one room, unlike distance education, which is often asynchronous in time and place [15-17].

1.5. The advantages and disadvantages of distance education

With the technological boom in which education had a large share, distance education has become an integral part of the contemporary education process, even with the presence of face-to-face education. Among the advantages of distance education are the following:

• Getting rid of difficulties of daily commuting and transportation to obtain information, as it has become constantly available.
• Allowing students the freedom to choose the time in which they receive information without being restricted to classroom attendance.
• Distance education contributes to students' self-development and acquisition of self-learning skills.
• Abandoning the stereotypical reception of education and the use of modern audio-visual materials in learning.
• Reducing the financial cost as it is less in distance education than it is in face-to-face education.
• Not relying on the teacher alone as a source of information and obtaining information from multiple sources.
• Elimination of obstacles and difficulties that were preventing learning.
• Distance education makes students more interactive and mobile than face-to-face education.
• Availability of great flexibility in distance education while it is static in face-to-face education.
• Distance education gives the teacher the opportunity for immediate assessment to know the level of students, unlike traditional methods [9, 18-20].

1.6. Disadvantages of distance education

Despite the many advantages of distance education (Cowan, J. 1995), it contains some negatives, the most important of which are:

• The financial cost of preparing the appropriate environment for distance education in a good way is relatively high.
• Lack of motivation to teach for some students who are not good at distance learning and the loss of direct communication.
• Ineffectiveness of discussion and dialogue that characterize face-to-face education, which increases the momentum of the educational process.
• Failure to train teachers well on distance education which caused it to lose much of its credibility.
• The inefficiency of the infrastructure available for distance education, such as the weakness of the Internet service.
• Scarce of financial funding required for the process of developing the appropriate environment for distance education.
• Many students suffer from distraction due to the appearance of ads on videos and platforms.
• Some students are preoccupied with playing and hyperactivity during the distance education period, which makes them lose their focus.
• Lack of educational synchronization, the student loses the desire to continue learning at a distance [9, 19, 20].

1.7. Advantages of face-to-face education

There are several advantages to face-to-face education, the most prominent of which are:

• Direct and simultaneous communication between the teacher and the learner, which creates a positive atmosphere for learning.
• Availability of discussion and dialogue options between the teacher and the learner.
• Face-to-face education provides the opportunity for education for all, even in environments that do not have a digital environment.
• It provides publications of books and educational aids that give students the opportunity to learn.
• Offering the opportunity to conduct experiments on scientific materials inside real laboratories.
• Face-to-face education serves all strata of society despite different attitudes and aptitudes [9, 21].

1.8. Disadvantages of face-to-face education

There are several disadvantages that exist in face-to-face education, the most important of which are:

• The role of the learner in the distance education process is a passive role as it is the role of a recipient.
• Paying attention to the intellectual aspect, where the greatest purpose is to fill minds with knowledge.
• Neglecting the activities that take place outside the classroom, which creates a generation that is traditional, unimaginative, and not innovative.
• The evaluation process takes a long time in face-to-face education.
• Seeing success as the only criterion for learning, without looking at the acquisition of experience and skills [9, 21].

1.9. Hybrid Education in Universities: The Fun of Mixing the Virtual World with Reality

The current conditions that the whole world is going through from the outbreak of COVID-19 have led to the spread of the use of a new system of education, which is distance education, in many universities and institutes. Electronic lecture halls have been created through many modern applications that help the lecturer to convey the academic content and run the educational process with the same quality and effectiveness as the traditional methods [8, 22]. Indeed, these modern technologies for transferring academic content have helped increase students' creativity and interaction, as they offer new learning methods that suit the needs of this generation, which has a tremendous ability to keep pace with technological progress compared to previous generations [23]. With the replacement of traditional education completely with e-learning, students have a need to go out to reality and social life again, as many of them have become depressed and have a need for participation in group activities. The teacher also has the need to teach face to face. Therefore, some universities have resorted to applying hybrid education and presenting the plan for the new academic year as such.

1.10. Defining Blended education in universities

What is blended education? Blended education is a new learning method that combines 'face-to-face education' and 'online education.' For example, the lecturer may place educational content including videos, references, audio tapes, and CDs on the university website for students to browse for discussion face-to-face in the lecture hall [24, 25].

The time students spend outside traditional classrooms includes online education and may include experiential learning that takes place without teacher intervention.

Hybrid education in universities is not necessarily limited to the classroom and e-learning only. A course designer for a hybrid education may simply follow any curriculum that has proven to be effective [26]. On the other hand, it is possible to divide the students into groups so that one group follows the lecture from a distance, and another follows it face to face. Finally, the lecture is recorded and placed on the university's application in the event that none of the students is able to attend the lecture on time.

Thus, there is saving of time and effort. The lecture is more interactive, as it is based only on discussion and group activities. The lecturer also places a bank of questions on the university platform in order to discuss them within the video lecture.

As for blended education, it requires the presence of all students in the lecture hall with the use of some distance education methods, which are limited to placing electronic sources, references and assignments on the educational platform or the electronic application [27].

1.11. What is the difference between blended education and hybrid education in universities?

Recently we have noticed some confusion between both terms: blended education and hybrid education. We find some pages and sites refer to blended learning as hybrid, or vice versa!

This confusion began, especially with the spread of the concept of hybrid education in universities, after some ministries of education in the Arab world adopted this system. Therefore, we believe that it is our duty to define both systems and to clarify the difference between the two.

1.12. The difference between hybrid education and blended education

Hybrid education in universities differs from blended education in a distinctive way that lies in the different activation ratios of three main factors:

1. Face-to-face lectures

2. Online lectures

3. As well as the electronic educational materials used in each of them.

In blended education, the lectures are actually held within the school or college (the educational institution concerned), but the educational technology available in this model is used to facilitate the educational process, activities, tests, and study content. That is why this system is called 'integrated'. As for blended education in universities, it is exactly like its name, a mixture of two things with each other to produce a different and distinctive system that is a mixture of the two of them, but is also unique in itself! The student sits in class just like traditional education for a few days, and then the rest of the learning process takes place online (either activities or teaching).

- *Hybrid learning* is an educational approach where some individuals participate in person and some participate online. Instructors and facilitators teach remote and face-to-face learners at the same time using technology like video conferencing.

- With *blended learning*, instructors and facilitators combine face-to-face instruction with online learning activities. Learners complete some components online and do others in person [8, 24, 27].

1.13. Advantages of hybrid education in universities

- Increasing students online learning flexibility.
- Maintaining student presence in the classroom.
- Saving time and effort for faculty members.
- Learning more about the educational level of each student.
- Raising the level of interaction and creativity among students.
- The spread of applications that provide new ways of teaching away from traditional methods.
- Reducing the student density inside the lecture hall or the percentage of student attendance, which limits the spread of the pandemic.

Hybrid education in universities helps to increase the flexibility of online learning for students

The continuous development in the world of software has helped the spread of many applications that facilitates the ease use of technology of online education. Given the ability of using the Internet and their interest in modern means of communication, computers and telephones, etc., the current generation outsmarted previous ones and identified themselves with e-learning technology [8, 28, 29].

In this study, hybrid system was evaluated at the end of the first semester by surveying the opinions of students in Istanbul Gelisim University and some Turkish universities about this system and its pros and cons.

2. Methodology

2.1. Research Context

In this study, the views of students were surveyed about the implementation of hybrid system in the last semester (Fall 2021) after the easing of procedures in Turkish universities as most of the population has been fully vaccinated against COVID-19. A questionnaire was designed consisting of 21 questions (Table 1) where it began with general information about the participants and then the type of education they chose last semester and what are the pros and cons of hybrid. Then the participants were asked about their satisfaction with hybrid and which type of platform they would prefer to be implemented in the next semester.

2.2. Population and sample

This study targets Turkish university students, whether they are locals or foreigners. This questionnaire was specifically distributed to students of Istanbul Gelisim University, in addition to some Turkish universities in Ankara, Istanbul and Konya. The survey did not include information about the name or data of the participants in order to maintain confidentiality and privacy of participants.

Two copies of the questionnaire, one in Turkish and the other in English, were prepared using Google Form website and distributed to the participating students by sending the link to them via university email as well as educational WhatsApp groups. The students were left free to select the language of the questionnaire that suits them.

2.3. Data analysis

After the questionnaire period ended, the students' answers were collected, then the questions were sorted by type, and the options in some of the questions were given numerical values, for ease of analysis. SPSS Version 25 was used to analyze the students' answers in the questionnaire.

3. Results and Discussion

In this study, the opinions of students in some Turkish universities were surveyed about the application of hybrid system in the fall 2021 semester (Table 1). 601 students participated in it, of whom 41.6% were males and 58.4% were females. The percentage of Turkish students was 60.1%, while the percentage of non-Turkish students was 39.9%, and this percentage is considered close to reality in private universities in recent years, especially in scientific departments. Students of the first year constitute 18.0% of the participants, the second year 40.8%, the third 23.0%, and the fourth 18.2%, as shown in Table 2.

Table 1. Mean and standard deviation of participants' responses on the questionnaire (n=601).

	Question	Mean	SD
Q1	Gender		
Q2	Faculty		
Q3	Academic year		
Q4	Nationality		
Q5	Do you live near or far from the university?		
Q6	What types of classes did you join in the fall semester 2021 (First semester)?		
Q7	If you have hybrid courses, did you attend these courses online or face-to-face?		
Q8	In the hybrid courses, if you chose online classes and not face-to-face, what was the reason?		
Q9	In the hybrid courses, if you chose face-to-face not online classes, what was the reason?		
Q10	Do you think you succeed more in company of other classmates?	3.49	1.10
Q11	Do you think casual interactions with other students help you release anger and express gratitude?	3.31	1.03
Q12	Suppose you could choose again (online, face-to-face), would you choose the same format in hybrid or would you change to the other system?		
Q13	Which of these formats do you find the best in your opinion at the moment?		
Q14	How would you rate the hybrid format?	3.67	1.20
Q15	Do you agree with the use of hybrid in practical courses?	3.00	1.30
Q16	How was your class attendance, whether online or face-to-face?	4.25	0.87
Q17	Has your fear of catching COVID-19 affected your choice of classes?	3.70	1.34
Q18	What type of classes do you want to join next spring 2022 semester?		
Q19	What are the advantages of hybrid classes?		
Q20	What are the disadvantages of hybrid format?		
Q21	Do you agree with strict attendance policies in both face-to-face and online to control repeated absence of students?	2.80	1.27

Response scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree and 5 = Strongly Agree.

Response scale: 1 = Bad; 2 = Unacceptable; 3 = Neutral; 4 = Acceptable; 5 = Good.

Response scale: 1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Always.

Table 2. Socio-demographic profile of participants (n=601).

Variable		Frequency	Percent
Gender	Male	250	41.6%
	Female	351	58.4%
Nationality	Turkish	361	60.1%
	Non-Turkish	240	39.9%
Academic year	First	108	18.0%
	Second	245	40.8%
	Third	138	23.0%
	Fourth	110	18.2%
Living	Near	130	21.6%
	Far	281	46.8%
	In between	190	31.6%
College	Science	312	51.9%
	Social	289	48.1%

In order to limit the spread of the disease, Turkish universities have divided class attendance into fully face-to-face, fully online, and the third section is hybrid. The student has the right to choose between face-to-face and online. The results show that half of the participants (50.2%) had most of their subjects as hybrid, while the rest of the students are divided almost equally between face-to-face (25.3%) and online (24.5%), as shown in Table 3. It is worth noting here that each university has decided which class is face-to-face or online or hybrid. The results show that 89.2% of the students have courses that follow hybrid system, and of these students (64.9%) chose online, while the rest of the students (35.1%) chose face-to-face education, as shown in Table 3. When these students were asked about the reason for choosing online instead of face-to-face system, most of the students (69.4%) stated that the reason was due to their fear that they or their families become COVID-19 positive. 12.3% of them stated that the reason was due to the location of their homes far away from the university, and 6.6% stated that online is more comfortable than face-to-face. It was observed that while 6.2% of these students believe that online education is better than face-to-face education, and the rest of the students (5.5%) believe that saving costs of accommodation and transportation is the reason for their choice, as shown in Figure 1. These results are an indication that the state of anxiety from COVID-19 infection still affects a large percentage of students, which is evident in the media campaigns that some students carry out from time to time on social media to demand the return to the online system. The results also show that the percentage of students who are worried about contracting the disease is still close to the same percentage of students at the beginning of the crisis [30].

Table 3. Participants' responses on education systems questions (n=601).

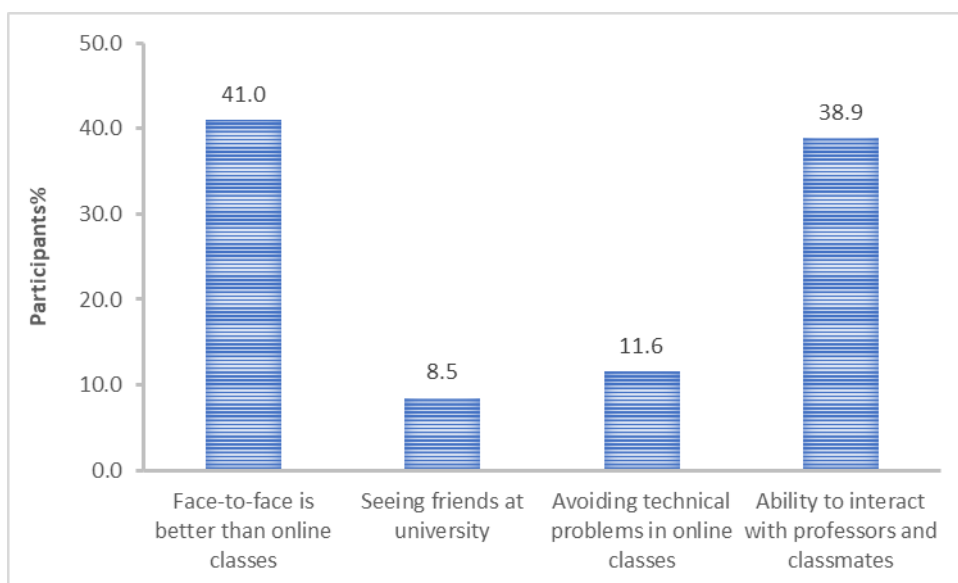|	Face-to-face	Hybrid	Online
Q6	152 (25.3%)	302 (50.2%)	147 (24.5%)
Q7	188 (35.1%)	-	348 (64.9%)
Q13	134 (22.3%)	175 (29.1%)	292 (48.6%)
Q18	141 (23.5%)	150 (25.0%)	310 (51.6%)
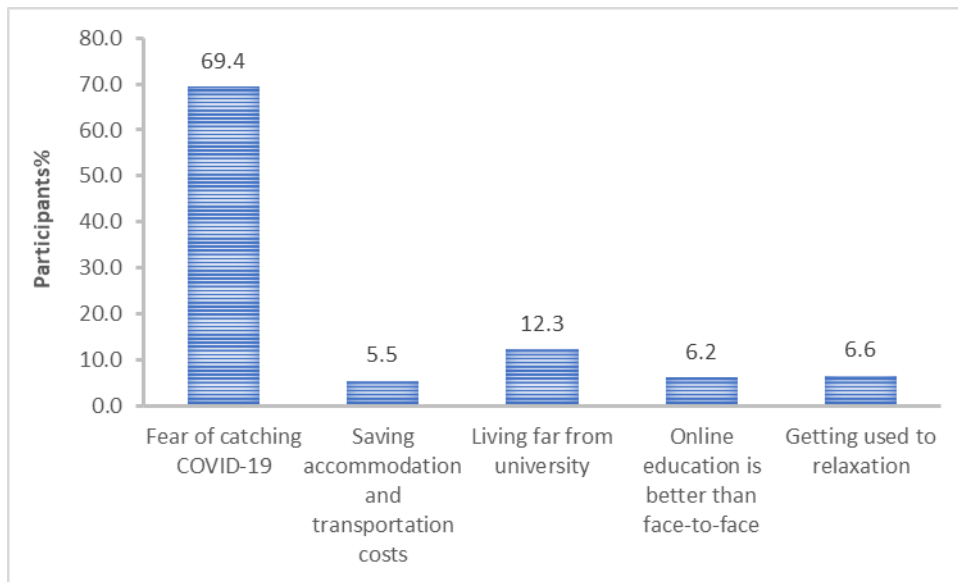
Fig. 1: The reasons behind choosing online classes and not face-to-face in the hybrid courses.

To make sure of this, we asked the students whether the fear factor of infection was the reason for their choice, as 60.9% of them supported that, while 21.4% of them did not agree with this opinion as it is clear in Table 1. The results also show that living far away from the university did not affect students' choice in any way as only 21.6% of students live near the university as shown in Table 4. Students who chose face-to-face education instead of online were also asked about the reason behind this choice. 41.1% of these students believe that in general face-to-face education is better than online, and 38.9% of them said that face-to-face education provides a better opportunity to communicate with both professors and fellow students. While 11.6% of the students mentioned that the technical problems that they may encounter during online education are the reason for their choice of face-to-face education. The rest of the students (8.5%) answered that the reason is that face-to-face education provided them with the opportunity to see and meet their fellow students at the university, as shown in Figure 2.

Table 4. Participants' responses on agree/disagree questions (n=601).

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Q10	32 (5.3%)	61 (10.1%)	219 (36.4%)	159 (26.5%)	130 (21.6%)
Q11	30 (5.0%)	75 (12.4%)	262 (43.6%)	147 (24.5%)	87 (14.5%)
Q15	102 (17.0%)	119 (19.8%)	132 (22.0%)	170 (28.3%)	78 (13.0%)
Q17	56 (9.3%)	73 (12.1%)	106 (17.6%)	127 (21.1%)	239 (39.8%)
Q21	117 (19.5%)	130 (21.6%)	182 (30.3%)	99 (16.5%)	73 (12.1%)

Fig. 2: The reasons behind choosing face-to-face classes and not online in the hybrid courses.

The results show that more than half of the students (58.7%) are satisfied with their choice of the education system they chose in the hybrid system, while almost a quarter of the students (24.1%) believe that they would change the system they chose if they had the opportunity to choose again. While 17.1% of those still have not decided which system they will choose again as shown in Figure 3.
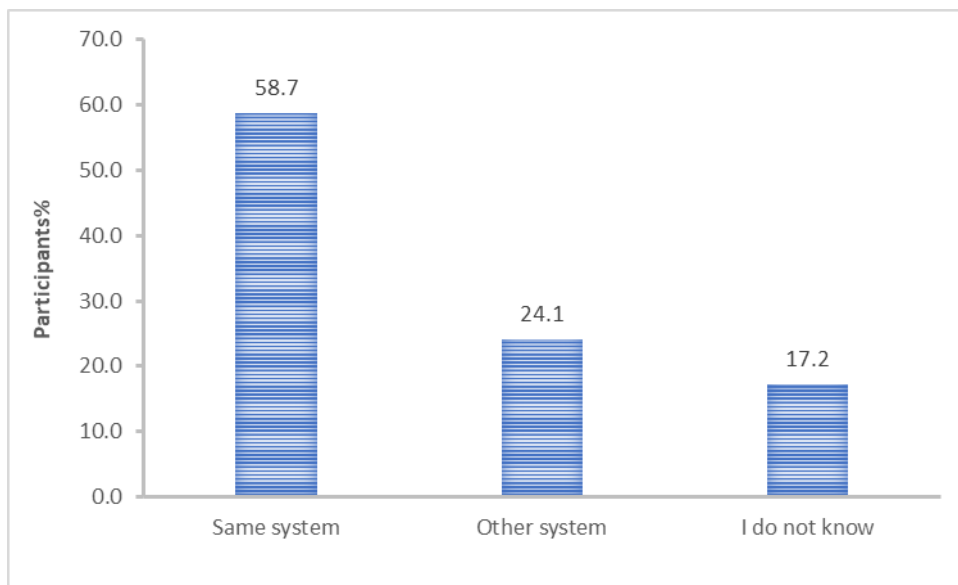
Fig. 3: The students' choices if they are given the opportunity to choose again between face-to-face and online system.

It seems that the current circumstances still affect the student's decision, as 48.6% of the participating students believe that online education is the most appropriate during the current condition, while 29.1% of them think that hybrid education is the most appropriate. Whereas the remainder (22.3%) believes that face-to-face is the best as shown in Table 3. When students were asked about their general evaluation of hybrid education, most of the students (27.4%) answered that it was good or acceptable (36.9%), while a few of them answered that it was bad (8.7%) or unacceptable (7.5%), however, 19.5% of the students were neutral somewhere between the negative and the positive, as shown in Table 5. These results still confirm what we have found in our previous studies about students' feeling of satisfaction with online education, which may be due in part to anxiety and the availability of recorded lectures on university website, but other aspects should not be overlooked, such as comfort and getting high grades without much effort, as students usually exert in face-to-face education [30].

**Table 5**. Participants' responses on good/bad questions (n=601).

	Bad	Unacceptable	Neutral	Acceptable	Good
Q14	52 (8.7%)	45 (7.5%)	117 (19.5%)	222 (36.9)	165 (27.5%)

Then we asked the students about the pros and cons of hybrid education, as the results show that most of the students (43.2%) believe that avoiding infection with Covid-19 is the most important pros of hybrid education, while 30.1% of them believe that it is the availability of lectures recorded on the university's website which can be viewed at any time without restriction on number of views. While the opinions of the rest of the students differed about rest and comfort (4.7%), or saving financial costs (3.0%), and on the contrary, 11.5% of them believed that there are no advantages to this type of education or (7.5%) that there is no difference between among these types of education, as shown in Figure 4. While 36.0% of the students believe that one of the biggest negatives of hybrid education is the lack of communication between all students, because part of them chooses online and the other part chooses face-to-face. 25.2% of students think that the biggest negatives are the teacher's limited movement and the limited teaching methods he uses because the teacher is forced to stand in front of the computer to communicate with the other section of students who attend the lesson online. While 19.9% of the participants believe that the biggest negatives are the limited participation of students and the weak competition among them during the lecture, and 19.0% of the participants believe that the students' lack of commitment to attend lectures due to poor follow-up to the absence via the Internet may be the biggest negatives of hybrid education as shown in Figure 5.

Fig. 4: Advantages of the hybrid educational system.
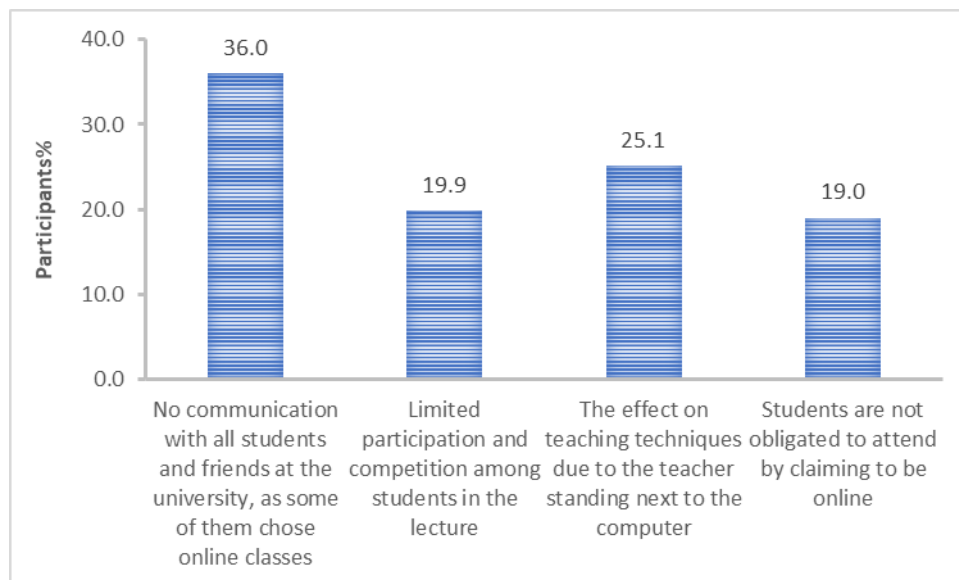
Fig. 5: Disadvantages of the hybrid educational system.

The issue of absence during the crisis constitutes a problem, especially during hybrid education, where it may take longer than necessary to follow up on absence due to the division of students between face-to-face and online, and the entry and exit of students during online due to technical problems may cause a negative impact on the accuracy of follow-up of absence via the Internet, and some students may take advantage of this to evade attendance or attention during the lesson. We asked the students about their opinion of tightening the attendance and absence procedures. The students were roughly divided between supporters (28.6%) and opponents (41.1%) and those who stand on the fence (30.3%). The results show a high percentage of opponents, as shown in Table 4. The reason may be the impact of the crisis on the motivation and commitment of students. The results show the extent to which students are committed to attending lectures, whether online or face to face, during hybrid education, where 46.3% of students attend permanently, while 38.3% often attend lectures, and 11.0% sometimes, while 2.8% rarely attend and 1.5% do not attend lectures at all, as shown in Table 6.

Table 6. Participants' responses on always/never questions (n=601).

	Never	Rarely	Neutral	Sometimes	Always
Q16	9 (1.5%)	17 (2.8%)	66 (11.0%)	231 (38.4%)	278 (46.3%)

In light of the spread of Omicron mutant, which increased the number of infections, as well as the students' experience of hybrid education during the last semester, we asked the students about their opinion about the type of education they prefer during the next semester (Spring 2022), where the results showed that more than half of the students (51.6%) support online education and (25.0%)

of them support the application of hybrid education, while (23.4%) of them support face-to-face education, as shown in Table 3. These results reflect the effect of students' anxiety about disease and other factors that were mentioned previously. The results also show that students are clearly divided about the use of hybrid education in courses that contain practical lessons, as 41.3% agreed with this, while 36.8% of them opposed that, and 22.0% of them were neutral, as shown in Table 4. Despite the importance of the practical aspect, the impact of the crisis also had a clear impact on the percentage of students who support the application of the hybrid system. Part of students choose online although they might not have an opportunity of acquiring the required practical skills [31].

With the increase in the number of infections as a result of the rapid spread of the Omicron mutant, it is expected to continue in the second semester with the same system that was applied in the first semester, which means continuing to apply hybrid system. So here are some recommendations that can improve the quality of education across hybrid system and reduce the low points that both students and teachers faced during the previous semester.

The results show that about half of the students tend to continue with online education, and about a third of them prefer hybrid, due to their fear of infection or their fear of causing infection to their loved ones, as well as the privileges of recorded video lectures uploaded to the university website. We expect that factors of comfort, financial costs, and distance from the university play an important role in the student's choice of online education. Therefore, the student must be encouraged to choose face-to-face or blended instead of online, by applying practical procedures within the premises of the university to make the student feel secure and safe for himself and his loved ones. Time and effort must be distributed between face-to-face and online students so that the discussion includes all students and try to use programs that provide this opportunity while encouraging online students to discuss and attend.

Teachers should receive the right training to use supporting technologies, which enable them to communicate with all students, whether online or in person, and do not limit their movement. The attendance system should be modified to enforce attendance and minimizes repeated absence in a way that it does not affect the lecture time.

COVID-19 will eventually end or become a seasonal disease, and therefore face-to-face education will return completely, so we recommend applying the blended education system as a preliminary stage in the next semester. Students can be divided into two groups, one of them attends face-to-face and the other is online and vice versa weekly. Periodically, layout of two groups can be jumbled up to increase communication among students. This method is characterized by giving equal opportunity to all students in both online and face-to-face education. Thus, this system reduces the chance of contracting the disease by half in transportation and university, and the material costs are also reduced by half. On the other hand, this system gives all students, not a specific group, the opportunity to communicate directly with each other within the university premises, as well as with professors, which leads to increased exchange of experiences and enforces competition among students, and maintains direct discussion with teachers during lectures. Moreover, the social and scientific activities on the university campus may increase the students' desire to choose face-to-face education.

Students can also be encouraged towards fully face-to-face education by uploading lectures that were previously recorded during the last period on the university's website so that they are available to all students at any time as students preferred online or hybrid education because it provides them with recorded lectures to go back to anytime.

4. Conclusion

After the approval of the concerned authorities in Turkey to reopen universities for study again under specific conditions, most universities have implemented face-to-face, online, and hybrid education systems, depending on the nature of the subject and the number of students in this subject. In this study, the opinions of students in some Turkish universities were surveyed about the hybrid system, its success, and its pros and cons. A questionnaire was distributed to students via e-mail and WhatsApp groups in both Turkish and English. The results were analyzed using Excel and SPSS programs. The results showed that the majority of students participating in the study (89.2%) had studied using this system. The results also showed that the majority of these students (64.9%) chose online and the rest (35.1%) chose face-to-face education. Students choose online for several reasons, the most important of which is their concern about the possibility of getting infected and transmitting the disease to their families. It is also believed that education will continue through this system during the next semester due to the spread of the mutant Omicron, so most students prefer to continue online in the next period (51.6%) and the hybrid system (25.0%). It is recommended if hybrid system continues in the coming period, its negatives must be avoided and efforts should be directed towards enhancing the quality of education by improving the electronic applications used, encouraging students to choose face-to-face education, encouraging online students to participate, and controlling the problem of students' absence and lack of attention.

Conflicts of Interest: The authors declare no competing interests.

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