

## Prospective English language teachers' perceptions of online and face-to-face education on knowledge, skills, and competencies

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### Abstract

The present study, which was conducted during the COVID-19 pandemic, aims to investigate college students' opinions regarding online and face-to-face education. The study, which is based on an explanatory sequential mixed-method approach included quantitative and qualitative data. The data were collected from 85 prospective English language teachers enrolled in a teacher-training program at a government university in Turkey. They were ranged in age from 18 to 47. The participants responded to an online two-part questionnaire. In the first part, the participants provided socio-demographic information regarding their gender and age. In the second part, they stated their previous experiences about online education, how they accessed their courses, and their frequency of participation in the courses. Additionally, they expressed their opinions about the advantages and disadvantages of both online and face-to-face learning as well as the effects of both learning platforms on their educational knowledge, skills, and social competencies. A thematic analysis approach was also used in the form of semi-structured interviews to explain the quantitative results. Interviews were conducted with six participants. Descriptive statistics was used to analyze the quantitative data. According to the results, the participants favored online lessons because of their accessibility even after their regular scheduled time but disfavored the lessons due to the fact that they had to look at a screen for a long time, had technical problems such as Internet connection, insufficient interaction with the course instructor and classmates. Moreover, the participants reported that they benefited more from face-to-face learning than online learning in terms of gaining new knowledge, skills, and competencies. To solve the issues that arise in online education, they suggested prolonging the duration of the exams but shortening the duration of the lessons due to connection problems.

Research Article

## 1. Introduction

Due to Covid-19 Pandemic, restrictions and lockdown of certain facilities all around the world marked the transformation of education from traditional classes to online learning systems at an alarming rate. Measures taken by World Health Organization (WHO) about social distancing forced governments to implement large scale restrictions in their countries. In Turkey, March 2020 marked the beginning of lockdown, which ended up in teachers and learners working and learning from home using online technologies. This emergent transformation mostly ignored that fact that online lessons require more time

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to prepare than traditional lessons since learner presence must be assured with social elements and interaction between learners, teachers and activities. Furthermore, learner abilities have changed in terms of technical knowledge and interacting with their peers and teachers in addition to coping with the pandemic (Handel et al., 2020). Some universities also had to adopt their courses by lowering their syllabi and decreasing education content and lesson time. In fact, both educational institutions and learners experimented with new methods until they found what was suitable for them to teach and learn. The psychological effects of Covid-19 cannot be ignored as it affects learners and can cause burnout in teachers due to excessive workload. For instance, loss of interaction and social distancing caused half of people in China covering 194 cities, including learners to experience psychological repercussions (Wang, Horby, Hayden, & Gao, 2020). This fact is supported by WHO (2020) that showed the scale of psychological effects on people all around the world. Triggering such a reform in education has brought both opportunities and obstacles to learning, the former being creativity in learning and teaching and the latter leaving stakeholders with technological expenses and difficulties both in pedagogy and reaching uninterrupted education. While distance education has been implemented in many universities and higher education programs, application at all levels of education was unprecedented. According to Online Learning Consortium (2015), distance education remained critical for higher education administrators and a recent report of NCES (2020) stated that 84% of learners changed in their enrollment by moving online only for some or all classes. In this situation, it is not possible to understand the efficiency of distance education programs during Covid-19 period without learner perceptions that would lead to frameworks and usability studies. Perception studies can be recognized as the first step in validating learners' opinions about and attitudes towards new technologies or methods. That is why this study aims to compare distance and face-to-face education in terms of their weaknesses and strengths and their effect on learners' knowledge, skills and social competencies by analyzing learner perceptions with the following research questions:

- a) What are the college students' opinions regarding the advantages and disadvantages of online learning?
- b) What are the effects of distance and face-to-face education on the students' educational knowledge, skills, and social competencies, as reported by the participants?
- c) What kinds of solutions do the participants provide to the problems that arise during online learning?

### *1.1 Frameworks of online learning and distance education*

Dabbagh (2005) states that e-learning framework consists of a pedagogical model, teaching strategies and what we use as technology such as Moodle, Teams, Zoom. Today, when we think about online learning or distance education, this e-learning framework manifests itself in the form of distributed learning as learning became ubiquitous whether synchronously or asynchronously. While it is not easy to form a knowledge building community, with enough support from peers, administrators and partnerships in this respect with other universities, it is possible to build online organizations where people with similar interests can benefit and boost their online learning through collaboration.

Another constituent of the e-learning framework is the instructional strategy. While it is appropriate that every learning situation begs for a different instructional strategy, in emergent online education, it may be that every learning situation is treated as similar to each other. Therefore, few instructional strategies were used and that may have destroyed the novelty of online education, decreased interactivity and resulted in monotonous online sessions. Instructional strategies are highly important because they are the keys to enabling learners' involvement and using learning strategies. First of all, instructional strategies and learning technologies should be paired as not all strategies can be used with all learning technologies and there are limits to technology. Aparicio, Bacao, and Oliveira (2016) showed how learning technologies match with instructional strategies. Online courses require more work and more detailed activities to make

up for the lack of social interaction that naturally occurs in face-to-face education and tracking of students as it is difficult to monitor students and how they react to lessons synchronously or asynchronously. Through instructional strategies, teachers implement learning strategies into learners and they consciously use these strategies because their content is scaffolded or is interwoven with metacognitive strategies, or the content is carefully organized so the output of one lesson becomes the input of another activity. Also, supporting multiple perspectives through collaborative activities motivates learners upon achievement, adds to their culture that becomes part of their learning and encourages learners to participate in knowledge building communities.

As our target learners are university students for online learning, we must also include the principles of effective adult learning as it is appropriate for the mindset of distance learners. Chin and Williams (2006) lay down the principles of adult learning that are relevant to distance or online learning frameworks in their study. The most obvious principle that comes from adult learning is that adults learn a content much better if they can relate it to their professional or personal life or interests, which can also be seen in experiential learning. In other words, the content of an online lesson should be built in a way that has clear purposes and motivates the learner by giving examples of what the learner will experience. This kind of motivation can lead the learner to owning his/her learning if properly supported by activities of reflection, prompting and monitoring because another principle of learning states that the adult learner should participate in his/her own evaluation and planning of learning. The transfer of learning depends on the design of authentic learning activities with tangible outcomes. Therefore, real-world examples and scenario-based outputs where learners can see the result of their actions help learners retain knowledge. In this way, learning can happen from different sources and that is why this framework views learning as a holistic phenomenon. Connectivism (Siemens, 2004) also adds to online learning frameworks by supporting the idea that learning requires different perspectives and deciding on what steps and content to learn is important.

We can see social and teacher presence in the community of inquiry model of learning (Garrison, Anderson & Archer, 2000) that values interaction among teachers and learners through communicative media. Pedagogical Purpose Model developed by Bosch (2016) adds to this framework by stating that using multiple modalities in activities and approaches is effective in making sure that every learner benefits from one activity or another as different media and technologies are used. Figure 1 shows the components of an integrated model of distance education. In this model, the social emotional part and self-paced study are left out and communicative part for collaborative work, reflection and discussion are supposed to increase interaction between content and learner, learner and learner and teacher and learner.

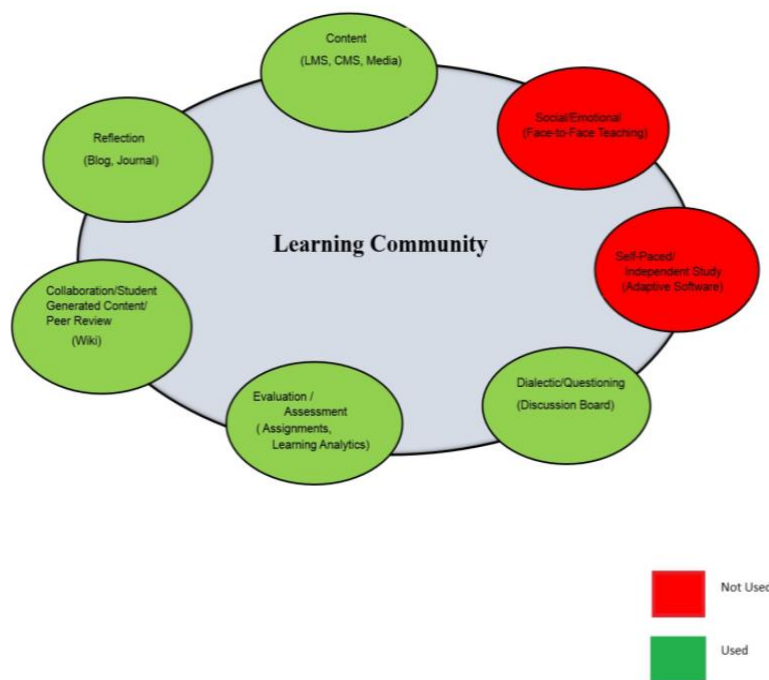


Fig. 1. Integrated Model of Distance Education (Picciano, 2017, p.20).

## 2. Literature Review

In this section, recent studies about learner perceptions of advantages and disadvantages of learning and their possible effects, especially during Covid-19 are presented with an emergent online transformation perspective. As there are major differences between online and face-to-face learning when instructional or platform support is not enough there can be problems originating from the lack of interaction, social presence and Internet skills of learners and teachers. Blaine (2019) performed qualitative content analysis of student and teacher focus groups and found differences between teacher and learner perceptions of interaction leading to social presence. Social presence of learners points to the degree of their participation in online class activities socially and emotionally. As interaction is a major influencer of social presence, in this study, teachers experienced favorable interaction whereas learners did not like the kind of interaction with their peers and teachers. They also found that the cause of low interaction was related to learners' motivation, initiative, and lack of community presence and high interaction was related to face-to-face classroom with appropriate pace and increased motivation. The researcher concluded by saying that learners' expectations as guidance were not met and they had difficulty in navigation and using self-regulatory strategies. Furthermore, Richter and Schuessler (2019) used qualitative methods to find out perceptions of learners with their online learning experiences and found that technological proficiency and time turned out to be barriers to online learning and they needed a better friendly instructional platform with increased instructional support.

When the learners' preferences in terms of taking online courses are taken into consideration, Sellnow-Richmond, Strawser and Sellnow (2020) reported that most learners wanted to take online courses again stating that they could learn at their own pace. In addition, less competition in online learning motivated them. Similar results were obtained in Ni et al. (2021) who also found that online learning eliminated face-to-face challenges but at the same time, it enabled learners to feel social presence and trust in the online teaching system. Sellnow-Richmond et al. (2020) used open-ended questions to understand advantages and disadvantages of online learning and found interaction to be less than face-to-face learning. Moreover,

learners experienced decreased class time while struggling to complete assignments within required time. For interaction to be valid, Sellnow-Richmond et al. (2020) stated that learners needed to know their peers and more guidance from their teachers. In Dunford and Miller's (2018) study, learners also experienced lower quality interactions with less exposure to effective teaching practices. In addition, learners who took online courses previously were more likely to engage in quantitative reasoning but were less likely to engage in collaboration and student teacher interactions.

There are also obstacles to online learning that can impair communication and interaction and result in poor motivation hence decreased participation. For instance, Allo (2020) used semi-structured interviews to understand the perceptions of learners in online courses, and found problems such as Internet access, guidance and communication. Even with problems, the learners still liked online learning and preferred individual assignments. Dost, Hossain, Shehab, Abdelwahed, Al-Nusair (2020) performed a large scale survey including 40 schools and 2170 learners and found out that distraction of learners and poor Internet connection were the disadvantages but the flexibility of online learner remained an advantage. The researchers suggested using team-based and problem-based learning with discussions. In Gonçalves, Sousa, and Pereira's (2020) study, the learners were satisfied with online learning and evaluation but there were obstacles to learning such as excess activities as well as time and concentration problems.

Studies that emphasized Covid-19 in terms of online learning focused on advantages and disadvantages and provided suggestions to overcome barriers to learning. For example, Muthuprasad, Aiswarya, Aditya and Jha (2021) used an online survey to understand learners' preferences and perceptions of online learning. The majority of learners stated that they favored online classes during the pandemic. Learners reported that they preferred recorded classes with quizzes. In addition, they reported Internet connection issues as a disadvantage and convenience and flexibility of online learning as advantages. Similarly, Internet connection was found to be a major limitation in Xhelili, Ibrahim, Rruci, and SHEME (2021). The authors found that high performance learners and learners in technology-based programs had better learning experiences whereas learners, in general, preferred to take classroom lectures instead of online lessons because of lack of familiarity with online learning. A study by Serhan (2020) investigated learners' perceptions of an online conference tool for distance education learners. The results showed that the learners, in general, had negative opinions about the tool, but they found the flexibility of the tool as an advantage. Flexibility of online learning was also reported as an advantage by Laili and Nashir (2021) who also found the cost of Internet and low motivation among students to be major obstacles in their intensive English classes.

Another study by Bączek, Zagańczyk-Bączek, Szpringer, Jaroszyński, and Wożakowska-Kapłon (2021) that analyzed the perceptions of 814 medical students found learning at one's own pace and convenience as advantages of online learning during Covid-19 and disadvantages as technical problems and lack of interaction. They also stated that online learning was not as effective as face-to-face learning in terms of skills and social competencies. Examining the determinants of learners' perceived learning in his study, Baber (2020) concluded that interaction, motivation, and course structure are positive influencers on learner satisfaction. A study by Shawaqfeh et al. (2020) found that the majority of the learners were prepared to take online courses, had positive attitudes towards online learning but one-third of the learners experienced barriers to learning. Moreover, while all learners were ready for online education in Mohalik and Sahoo's (2020) study, they did not agree that online education was a good alternative to face-to-face learning. The majority of the learners felt stressed and isolated with poor confidence in online platform.

A comparison of online education before and during the Covid-19 pandemic shows that interaction, connection and communication problems are major obstacles to learning. Digital skills of learners appear less of a problem with learners who are in technical departments while learners in other departments

learners also feel ready for online education, but they need more guidance to reach that level of digital competence and gain social competencies.

### *2.1. Studies in Turkey*

Research in Turkey includes both large and small samples as case studies targeting both platforms, lesson as a whole and strategies used in emergent distance education. These studies show disadvantages, advantages about distance education and learner perceptions and their improvement of skills. In a study carried out by Aydın (2020) about the evaluation of Turkish lessons through EBATV platform, where mixed research method was used, quantitative results showed that the students generally enjoyed Turkish lessons and were able to follow lessons. However, as they stated in their interviews that the duration allocated for the lessons was insufficient and there weren't enough sample problems solved in lessons. They also stated that they couldn't ask the teacher any questions, the lessons were fast-paced and they couldn't adapt easily to having different teachers.

In their study, Tümkaya, Kayıran, Tanhan, and Arslan (2021) used Online Interpretive Phenomenological Analysis and Online PhotoVoice to collect and analyze data to investigate higher education learners' problems and support resources of online education. They also used an online questionnaire for descriptive purposes. Most of the learners preferred face-to-face education to online education and they were not satisfied with online education experience during Covid-19. They used smart phone more than personal computer for online lessons. Also, most learners selected low motivation, too much homework and technological insufficiency as barriers to learning.

Karadağ and Yücel (2020) found that most of the learners used their computers or tablets rather than their smart phones to follow online education while some learners could not attend online education. The study was performed with questionnaires sent online to about 18000 participants which is a good representation of population size of universities in Turkey. They also found that learners were not satisfied with the digital content used in online lessons and faculty/university management and their perceptions were neutral about satisfaction with synchronous lessons and technical framework.

Another study by Arık (2021) that used Distance Education Learning Environments Scale with a sample of over 3000 learners from 66 universities discovered that learners preferred online education to face-to-face education. Students who received offline distance education were neutral whereas online distance education learners could adapt to distance education and they were significantly more positive in terms of student interaction and collaboration and instructor support. Also, students who attended the lessons with computers rather than mobile phones had more positive opinions regarding distance education.

Investigating the impact of emergency distance education, the study by Karakaş and Tuncer (2020) focused on advantages and disadvantages for sustainment of language skills and most affected skills. In their thematic analysis, the researchers identified themes from data gathered via open-ended items with a sample of 118 pre-service teachers. The results showed that while half of the themes offered no advantages, the sustainment of skills was related to content and implementation of online courses, free time at home and comfortable medium for learning. The students stated that having exams as assignments caused more legible materials and improvement of writing and speaking skills and having a comfortable learning medium ensured learning at one's own pace and away from stress and noise. In addition to these, having free time gave learners good opportunities to search and read as well as summarize content and practice pronunciation at their own time. The disadvantages were found to be the lack of peer interaction, too much homework and technical issues.

## **3. Methodology**

In this section, the method, data collection tools and process of data analysis will be explained.

### 3.1. Research Model/Design

The present study, which is based on an explanatory sequential mixed-method approach incorporated both quantitative and qualitative data. This method is used to support and further explain quantitative results in more detail with qualitative data (Wisdom & Creswell, 2013). The quantitative data were in the form of questionnaires and the qualitative data were in the form of semi-structured interviews, which were analyzed according to the thematic analysis approach.

The quantitative data were collected via two questionnaires adapted from Bączek et al. (2020). The questionnaires were translated into Turkish. The translated questionnaires were consolidated by a translator in terms of meaning, idiomatic expressions, cultural context, and concepts. In the first questionnaire, which included 10 statements, the students were asked to state their gender, age, year of study, ability to use the Internet and certain Microsoft Office programs such as PowerPoint, Word, Excel as well as applications on tablet, computer or phone. Additionally, the students were asked to respond to whether or not they had any previous experience with online or distant education. They also stated the devices they used for the online courses. In the second questionnaire, the students responded to a total of 8 items. The first two items were about the advantages and disadvantages of online education. The students were allowed to choose more than one option out of 6 options. The rest of the items were about the effects of both online and face-to-face education on the increase of knowledge, educational skills, and social competencies. The responses were graded from 1 'not effective at all' to 5 'extremely effective'. The questionnaires were administered online using googleforms during class hours.

The qualitative data, which were collected to contribute to the findings of quantitative data, involved semi-structured interviews conducted with 6 students (three males and three females) selected from different years of study within the same sample. The interviews, which were in Turkish, were conducted online on Microsoft Teams platform. The students were asked to state the advantages and disadvantages of online education during the pandemic and how online education can be improved. Additionally, they stated their preferences regarding online and face-to-face education. Each student interview conducted on Microsoft Teams lasted for about 25 minutes. The students provided their opinions about the following four open-ended interview questions.

1. What are the advantages that online education offered during the Covid-19 pandemic?
2. What are the disadvantages that online education offered during the Covid-19 pandemic?
3. What can be done to solve the problems that arise during online education?
4. Do you prefer face-to-face or online education in terms of increase of knowledge and development of social and academic skills?

In order to increase the accuracy and validity of the qualitative study, the researchers used *respondent validation*, which is referred to as technique that allows researchers to increase the credibility, accuracy, and validity of a study (Yanow & Schwartz-Shea, 2006). The interviews were conducted by a trained graduate student who was enrolled in the English Language Teaching program. During the interviews, the graduate student listened to the participants first, and then summarized their responses to check for accuracy. At times, she asked participants some questions for clarification purposes.

### 3.2. Sampling or Study Group

The present study was conducted on 85 undergraduate students, including 34 first-year, 38 second-year, and 13 third-year students, enrolled in the English language teaching department of a government university in the western part of Turkey. Out of the 85 students, 47 were female and 38 were male. The students were homogeneous in terms of their age and socio-economic status. They were all Turkish speakers. Regarding the age distribution in the sample, the majority of the students were in the 18-21 age range. 4 students were 24 years old; 3 were 22; 1 was 23; 1 was 26 and 1 was 28. There were only 7 students between the ages of 31 and 47. The following table shows the age distribution.

**Table 1.**

Learner age distribution.

Age Group	18-21	22-28	31-47
Learners	58	10	7

### 3.3. Data Analysis

During the quantitative analyses, descriptive statistics were used to calculate the rates of the items in the questionnaire. As for the qualitative analyses, the thematic analysis approach was used. Thematic analysis, according to Braun and Clarke (2019), is a method for analyzing qualitative data that include searching across a data set to identify, analyze, and report repeated patterns. After the interviews were transcribed, the following procedure was implemented to analyze the data: first the codes were assigned to the topics in the interview questions; the most frequently used codes were determined; the codes were classified into themes and sub-themes; the most relevant themes and sub-themes were determined; the themes were named and reported.

### 3.4. Findings and Discussions

This section presents the findings with respect to the quantitative and qualitative analyses and provides a discussion of the results. We first turn to the quantitative findings.

#### 3.4.1 Quantitative Analyses

The following tables present findings related to the learners' computer skills, their access to the Internet, previous online experiences, devices used to enter classes, and frequency of attendance in the online courses.

**Table 2.**

Learner skills in using the Internet, office programs and other applications.

Skills	Beginner	Intermediate	Advanced
MS Office	14 %	59 %	27 %
Internet	5 %	45 %	50 %
Other applications	4 %	57 %	39 %

As seen in Table 2, most of the learners think of themselves as skilled to the degree of advanced or intermediate in using the Internet, MS Office and other applications. As for the ability to use the Internet, 50 % of the students considered themselves as advanced, while 45 % of the students considered themselves to be at an intermediate level. The remaining 5 % considered themselves to be beginners. Additionally, the majority of the students reported that they were at an intermediate level in using different applications on their computer, tablet or phone. As for using the Microsoft Office programs such as Word, PowerPoint, and Excel, the majority of the students were at an intermediate level while 27 % were advanced.

**Table 3.**

Learner access to Internet and previous online experiences.

	Yes	No
Access to Internet	93 %	7 %
Previous Online Experience	14 %	86 %

Table 3 shows that most of the learners had Internet access. Their previous online experiences were as low as 14%.



**Table 4.**

Devices used to enter classes.

Devices	Usage rate
Computer	87 %
Phone	72 %
Tablet	4 %

Table 4 shows the usage rate of the devices that learners used to enter online classes. While computer was the most frequently used device, tablet was the least used.

**Table 5.**

Course attendance.

Attendance	Rate
Always	38 %
Often	40 %
Usually	17 %
Rarely	5 %

According to Table 5, only 38 % of the learners attended the online course regularly. Here it is prudent to explain that some of the universities in Turkey took online attendance and used it to decide whether the learner passed or failed. Here however, the question regarding the attendance was asked to add to the validity of learner perceptions. We now turn to the findings related to the advantages and disadvantages of online education. Table 6 presents the perceptions of learners about the advantages of online learning.

**Table 6.**

Advantages of online learning.

Advantage	Rate
Access to classes offline	94 %
Attending classes from home	62 %
Access to online materials and resources	57 %
Access to classes from anywhere	55 %
Attending classes in a comfortable setting	54 %
Learning at one's own pace	31 %

As the table shows, the most common advantage was accessing the classes offline, followed by attending classes from home, access to online materials and resources, access to classes from anywhere, attending classes in a comfortable setting, and learning at one's own pace. Table 7 shows the disadvantages of online learning according to the learners.

**Table 7.**

Disadvantages of online learning.

Advantage	Percentage
Looking at a screen for a long time	84 %
Technical problems	80 %
Little interaction with the course instructor	66 %
Little interaction with classmates	64 %
Inability to participate and provide self-learning discipline	52 %
Social isolation	49 %
Poor learning environment at home	46 %

According to the participants, the biggest disadvantage was looking at a screen for a long time. This was followed by technical problems, insufficient interaction with the course instructor, insufficient interaction with classmates, inability of the student to participate in the lessons and provide self-learning discipline. Let us now consider the participants' opinions regarding the effects of online and face-to-face learning on their knowledge, skills and social competencies.

**Table 8.**

Effects of online and face-to-face learning on knowledge, skills and social competencies.

<b>Knowledge, skills and social competencies</b>	<b>Extremely effective(%)</b>	<b>Very effective(%)</b>	<b>Moderately effective(%)</b>	<b>Somewhat effective(%)</b>	<b>Not effective at all(%)</b>
The effect of online learning on the increase of knowledge	7	14	42	29	8
The effect of face-to-face learning on the increase of knowledge	18	47	30	4	1
The effect of online learning on the increase of skills	5	9	39	34	13
The effect of face-to-face learning on the increase of skills	28	46	22	4	0
The effect of online learning on the increase of social competencies	1	0	14	18	67
The effect of face-to-face learning on the increase of social competencies	55	24	15	4	2

As seen in Table 8, face-to-face learning was more effective than online learning in terms of increase of knowledge, skills, and social competencies.

### 3.4.2 Qualitative Analyses

As this is an explanatory study, the analysis was done in a deductive manner and aimed to support the quantitative results. Four themes were identified based on the analyses of the interviews with the students. These were accessibility of online classes, Internet connection problems, duration of the lessons and exams, and socialization and interaction in face-to-face education.

#### *Accessibility of online classes*

Regarding the first interview question, the most frequently emphasized theme was the accessibility of online classes. According to all the students, being able to access the recorded course material was the biggest advantage of online education. As one of the students stated:

“One of the most important advantages of online education is that our classes were recorded, so even if we could not enter the classes on time, we still had a chance to listen to the lectures later. In my case, my father who had a barber shop had to close his business due to the pandemic. I had to work to support my family and therefore, most of the time, I could not enter the classes on time, but I was able to listen to them when I had time later” (Male, third-year student).

### *Internet connection problems*

One of the most commonly mentioned disadvantages of online education was the Internet connection problems.

“One disadvantage of online education is the Internet connection. Due to the insufficient infrastructure in Turkey, I had serious connection problems. One time I had to complete an exam earlier than I was supposed to because I was afraid that my Internet would disconnect again. In addition to the insufficient infrastructure, my financial situation was another reason for the Internet disconnection. Sometimes, my family could not afford to pay the monthly fee for the Internet” (Male, second-year student).

### *Duration of the lessons and exams*

As for the third interview question, almost all the students were of the opinion that duration of the lessons should be shorter because their attention spans tend to be shorter during online education.

“The lessons last for at least two hours. Sometimes, instructors do not even take breaks. I cannot focus on the lessons for more than an hour. Lessons should be shorter.” (Female, first-year student).

The students also suggested that the duration of the exams should be longer. This was due to the fact that the students had Internet connection problems.

“Exams need to be at least two hours, which is enough time to finish an exam just in case we have Internet connection problems. For example, I have two brothers who are younger than me. Since their lessons are not recorded, they have to attend every lesson synchronically. We have only two computers at home and they had to use both computers to enter their lessons. If the duration of the exams is longer, I would still have time to finish the exams even if my brothers use the computers. They would give one of the computers back to me after their lessons were over” (Male, third-year student).

### *Socialization and interaction in face-to-face education*

With respect to the fourth question, all the students preferred face-to-face education. They not only emphasized the importance of socialization with other students but they also mentioned that lack of interaction with the instructor in online lessons prevented them from learning the subject-matter. One of the students stated that:

“I prefer face-to-face education. I am looking for a social environment. I cannot socialize during online education. Additionally, I do not have enough interaction with the instructors. Sometimes, I do not get a chance to ask questions to them. In classrooms, instructors are more accessible, of course” (Female, first-year student).

#### *3.4.2 Combining Qualitative and Quantitative Results*

Within the lines of explanatory mixed methods, the interpretation is based on how qualitative results were used to give more depth and provide insight to quantitative results (Creswell & Creswell, 2018). Qualitative results enabled us to further our inquiries about the quantitative results and revealed several background issues. Access to online materials and recorded lessons even they couldn't attend the lesson was a big

convenience in the pandemic situation for learners because some learners had to make efforts to support their family. While quantitative data shows that most of the learners have internet connection, the quality of internet connection matters in keeping learners motivated and learning without interruption. This same situation applied to having low internet connection as it was not affordable due to insufficient funds for better internet connection. Also, we learn that in some parts of the country and cities, the infrastructure is not strong enough to support a sustained internet connection for online lessons. This also affected the time needed for online exams and affected assessment as some learners had to carry on exams at a faster pace being afraid of losing internet connection. Qualitative results also supported that long lessons without a break made it difficult for learners to focus on content. In fact, this was the biggest disadvantage revealed by quantitative analysis such that looking at the screen for a long time, the learners lost motivation and when combined with technical problems, this disadvantage gave learners hard times. In crowded houses with learners of different ages, the participants had problems in sharing their computers as the the hours of online lessons coincided with their relatives. We can understand that the problems explained with the results of the quantitative analysis are related to each other from the results of the qualitative results. In this respect, the qualitative analysis made it possible to connect the questionnaire items to other items and actually found the cause of the problem of a few quantitative results. Due to low interaction with classmates and teacher during the lesson, the learners could not find the social environment to become motivated and this prevented them from asking questions to understand concepts better.

In the following, we discuss the findings related to both the quantitative and qualitative analyses. The quantitative and qualitative analyses unearthed several important factors related to the benefits and drawbacks of online and face-to-face learning as well as their effects on the students' knowledge, skills, and social competencies. The first research question focused on the advantages and disadvantages of online learning. Both the quantitative and qualitative analyses revealed that the most important advantage of online learning was the opportunity to access the classes offline. The participants reported other advantages of online learning such as attending classes from home, access to online materials and resources, access to classes from anywhere, attending classes in a comfortable setting, and learning at one's own pace. Being able to access online courses that were recorded and accessible for a period of time was especially important for those who had to work during class hours to support their families and could not access the courses at their regular scheduled time due to poor internet connection. These findings are supported in Muthuprasad et al., (2021) and Baczek et al., (2021) where the flexibility of learning online in terms of time and place was listed as an advantage. Truly, the availability of recorded lessons and means of evaluation is successful in carrying education to learners when they are most available and ready for learning. These results are also supported by the work of Serhan (2020), Dost et al. (2021), Laili and Nashir (2021), and Sujarwo et al. (2020) in which learners had positive perceptions of online learning due to its flexibility and ubiquitous access during the Covid-19 pandemic. According to Serhan (2020), this flexibility comes from written communication which makes it possible to ask questions without publicly speaking and asking real-time questions without going to instructors' offices during online office hours. Access to online materials and learning at one's own pace were also highly rated by learners in Baczek et al. (2021). However, it is also important to note that factors such as lack of learner confidence in using technology and usability of online platforms may cause frustration in learners, which may prevent online learning from being an alternative for face-to-face learning, as reported in Mohalik and Sahoo's (2020).

When the disadvantages were considered, looking at a screen for a long time, technical problems such as internet connection, insufficient interaction with the course instructor and classmates, inability to participate in the lesson and lack of self-learning discipline, social isolation, and poor learning environment at home were the most commonly reported disadvantages. The quantitative results showed that the most important disadvantage was looking at a screen for a long time. This finding was also emphasized in previous studies. For instance, Laili and Nashir (2021) reported that looking at screen for a long time and thus insufficient use of skills lowered learners' enthusiasm. According to the authors, certain skills such as conversational,

psychomotor and practical need better environments than online meetings can provide. Similarly, Yigitalieyna (2021) found focusing too much on a screen to be a disadvantage of online learning.

Another important disadvantage reported by the participants in the present study was technical problems such as Internet connection, which caused serious learning problems for the students. This was a finding that both the qualitative and quantitative results revealed. This result was also reported in previous studies by Dost et al. (2020), Laksana (2021), and Mohalik and Sahoo (2020) where only 25 % of learners had good Internet access. According to the participants in the present study, the technical problems occurred due to the insufficient infrastructure in Turkey and lack of affordable access to the Internet, which prevented the students from accessing the courses for extensive periods. The other disadvantages were insufficient interaction with the course instructor and classmates. The participants stated that not being able to ask the instructor questions in person made it difficult for the students to understand the lessons. Additionally, lack of interaction with classmates prevented socialization. Similar results were obtained in Dunford and Miller (2018), Sellnow-Richmond et al. (2021) and Blaine (2019) who reported a relationship between high interaction and face-to-face education with increased motivation. The participants, therefore, preferred face-to-face education, which gives them the opportunity to interact with their peers as well as instructors.

Lack of interaction with both peers and instructors is a major problem as reported by researchers in previous studies (Blaine, 2009; Dunford & Miller, 2018; Laksana, 2021; Sellnow-Richmond et al., 2020; Serhan, 2020). Since the Covid-19 pandemic, learners in their daily lives have been interacting with others much less than before so it seems quite normal that interaction and poor learning environment at home as well as social isolation are all related to one other and affect learners' perceptions of online learning. Interaction in online courses is found to be a major influencer on success and motivation. It may also be the origin of many problems when it is not supported through proper interfaces and support mechanisms. Blaine (2019) showed that teachers and learners had opposite perceptions of interaction. Sellnow-Richmond et al. (2020) tied low interaction to decreased class time and time in completing assignments. While learners need all types of interaction with any programs they use and with their teachers and peers, the design of the lesson, the activities, the method of presentation, the degree of difficulty and learning styles of learners affect interaction in terms of asking questions and carrying on an activity. According to Serhan (2020), interaction is one the main differences between online and face-to-face lessons, where in online learning, learners are mostly not in synch with one other whereas in face-to-face learning it is easier to understand if a learner is having difficulty. Here, the instructor's responsibility is to draw the learners' attention and overcome the distractors and barriers to online learning, however, as mentioned before, if the learning platform is user-friendly, this eliminates some of the problems. Nevertheless, the instructor still has to develop special interaction modes such as discussions and examples about the learning material that relates to the real-world. This was also mentioned in Dunford and Miller (2018) who attributed lack of interaction to less effective teaching practices. Furthermore, Sellnow-Richmond et al. (2020) added that interaction may increase if learners know one other more via collaborative activities or other means and if they receive more guidance from their teacher.

Contrary to these results, Laili and Nashir's (2021) research revealed that online learning made interaction simpler and easier using Whatsapp and other social media for discussion. In the study, most of the learners felt more courageous to discuss their arguments and opinions than in face-to-face learning. However, they suggested that a good online teaching strategy was needed to avoid communication problems. Moreover, learners stated that direct explanation as in class, could make it easier to understand course materials and instructions. Adding to this research, the learners in Laksana's (2021) study rated the quality of academic interactions as high as 70%.

When we apply the Integrated Model of Distance Education, as mentioned in section 1.1, to our research, we can speculate that the usage of a blog, peer review and discussion board could further increase social presence and interaction between learners but for this to happen, also the content should be motivating with

the use of media and feedback. In Ellis and Bliuc's (2019) research, student perceptions were found to be strongly related to student achievement. While our research did not look at learner achievement, social isolation and low interaction show problems of integration of online learning with context, thus falling behind traditional education. This can also explain why learners perceived that they gained less knowledge, skills and social competencies as opposed to face-to-face learning. However, this requires more research to understand whether they were overwhelmed by workload or they perceived task completion negatively or tasks were not compatible with online learning environment in the way they should be. The inefficiency of teaching practices in emergent online education from the results obviously shows the absence of a pedagogical model lacking the necessary interaction between peers and a common learning culture. Everyone learned and practiced without the advantage of collective learning, learning from others and reflecting on their own practices. Therefore, learners could not see good examples of each other or share a vision beyond the limits of their online course. To support these kinds of activities, in an e-learning framework, the teacher always must be ready to offer more and challenging content to learners when needed.

The second research question explored the effects of both learning types on the students' educational knowledge, skills, and social competencies. The results showed that face-to-face learning was more effective than online learning in terms of increase of knowledge, skills, and social competencies. Since learners had problems with interaction with both their peers and instructors, it is understandable that social competencies did not increase with online education. Low interaction resulted in a decrease in communication levels and increase in social isolation. This finding is supported by Alawamleh et. al (2020) who found that online learning had a negative impact on communication. Likewise, Muilenburg and Berge (2005) found social interaction to be the strongest influencer on learning enjoyment. They also stated that learners' decision to take more online courses and the number of online courses taken were related to social interaction in online courses. Zhang et. al. (2020) emphasized lack of discipline as a barrier to increase in knowledge and competencies due to the fact that materials were not prepared systematically but suddenly in line with emergent transformation in learning.

The third question was related to the possible solutions to the problems that arise during online education. This question was explored in the qualitative part of the study. According to the participants, duration of the exams and lessons needed improvement. This result is in line with previous studies that found time to be a major barrier to learning in online education (Richmond et al., 2021; Richter & Schuessler, 2019). The students were of the opinion that the duration of the exams should be longer due to the Internet connection problems and the lessons should be shorter because of the students' short attention span.

#### **4. Conclusion and Suggestions**

The purpose of the present study was to examine college students' opinions regarding the advantages and disadvantages of online learning, the effects of online and face-to-face education on the students' educational knowledge, skills, and social competencies and determine solutions for the problems that arise in online education. Regarding the first research question which explored the advantages and disadvantages of online learning, both the quantitative and qualitative analyses showed that the most important advantage of online learning was the accessibility of the online lessons after their regular scheduled time. Looking at a screen for a long time, technical problems such as Internet connection, insufficient interaction with the course instructor and classmates were reported as the major disadvantages by the learners. As for the second research question, which was about the influence of both learning types on the students' educational knowledge, skills, and social competencies, the learners reported that face-to-face learning increased their knowledge, skills, and social competencies more than online learning. Finally, the third research question was related to the solutions to the problems that occurred in online education. To solve the problems, the

learners especially emphasized the importance of prolonging the duration of the exams but shortening the duration of the lessons due to Internet connection problems.

In light of the lessons learned from emergent online education, the researchers suggest the following for what could have worked in this phase:

- If the delivery method is synchronous, we can not expect to deliver as much content as we deliver in-class so content should be less in online lessons. Most of the online content should be delivered asynchronously as long lessons prevents learning.
- To create social learning medium, instructors should use more discussion, collaborative work and possible means of peer assessment.
- Some online lessons should be dedicated to consolidation to understand the progress of learners and listen to their problems.
- Learners should receive feedback from their peers and teacher on a regular basis about their projects and works.
- The instructor should make use of media and certain useful social learning platforms in lessons for group and individual work.
- There should be detailed instructions and assessment scales throughout the course.
- Learners should have more control over what they learn so the use of self-regulated learning and metacognitive strategies should be implemented by the instructor.

The study is not without limitations. Students were selected from one area of study only. Further studies can also include students majoring in other areas such as engineering or medicine. Future studies can also include different age groups such as secondary and high school students. Finally, the students in the present study came from a relatively low socioeconomic background. A further study can explore the perceptions of students from higher socioeconomic status and compare the two groups of students in terms of e.g. access to the Internet.

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