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Research Article

Quality And Process Improvement in Online Distance Education Services

Çevrimiçi Uzaktan Eğitim Hizmetlerinde Kalite Ve Süreç İyileştirme

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Abstract

Sustainable Development Goal 4 aims to provide inclusive and quality education for all individuals, but its progression was disrupted during the pandemic. The COVID-19 pandemic, a traumatic event just like wars and the great depression worldwide, has affected all areas like consumers, supply chains, and education. COVID-19 and quarantines made college students more vulnerable than adults as their universities were physically closed, and they were unemployed. The current study presents operations and consumer perspectives on online education services. Therefore, this study aims to provide a map for quality and process improvement in online distance education by examining the experiences of university students during the COVID-19 pandemic. In this context, in-depth interviews were conducted with thirty-nine university students in the emerging market, Turkey. The analysis of the qualitative data was carried out using the thematic analysis approach. This study benefits from behavioral reasoning theory and lean methodology. We found reasons against online distance education adoption include universities' unreadiness, inequality in accessing sufficient technology and electricity, students' unreadiness, and stressors. On the other hand, the reasons for adopting online distance education are perceived benefits. In conclusion, suggestions for implications and future research are given.

Keywords: *online distance education, quality improvement, lean methodology, process improvement, sustainable development goals.*

Öz

Sürdürülebilir Kalkınma Hedefi 4, tüm bireyler için kapsayıcı ve kaliteli eğitim sağlamayı amaçlamaktadır. Ancak pandemi sırasında ilerlemesi sekteye uğramıştır. Tüm dünyadaki savaşlar ve büyük buhranlar gibi travmatik bir olay olan COVID-19 pandemisi, tüketicileri, tedarik zincirlerini ve eğitimi etkilemiştir. COVID-19 ve karantinalar, üniversite öğrencilerini, üniversiteleri fiziksel olarak kapalı olduğundan ve kendileri işsiz olduğundan, yetişkinlere göre daha savunmasız hale getirmiştir. Mevcut çalışma, çevrimiçi uzaktan eğitim hizmetlerinde üretim ve tüketici perspektiflerini sunmaktadır. Bu nedenle bu çalışma, COVID-19 salgını sırasında üniversite öğrencilerinin deneyimlerini inceleyerek çevrimiçi uzaktan eğitimde kalite ve süreç iyileştirme için bir harita sunmayı amaçlamaktadır. Bu kapsamda, yükselen pazar Türkiye'de otuz dokuz üniversite öğrencisiyle derinlemesine mülakatlar gerçekleştirilmiştir. Nitel verinin analizi, tematik analiz yaklaşımı ile gerçekleştirilmiştir. Davranışsal akıl yürütme teorisi ve yalın metodolojiden faydalanılmıştır. Çevrimiçi uzaktan eğitimin benimsenmesine karşı olan nedenlerin arasında üniversitelerin hazırlıksız olması, yeterli teknoloji ve elektriğe erişimde eşitsizlik, öğrencilerin hazırlıksız olması ve stres faktörleri olduğu bulunmuştur. Ayrıca, çevrimiçi uzaktan eğitimin

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benimsenmesini kolaylaştıran nedenler arasında algılanan faydalar yer almaktadır. Sonuçta, gelecek araştırmalar için önerilere yer verilmiştir.

Anahtar kelimeler: *Çevrimiçi uzaktan eğitim, kalite iyileştirme, yalın metodoloji, süreç iyileştirme, sürdürebilir kalkınma hedefleri.*

1. INTRODUCTION

United Nations notes the importance of 17 Sustainable Development Goals to ensure sustainability in diverse areas like education, consumption, production, and environment (United Nations, 2024). Yet, the COVID-19 pandemic has profoundly impacted every aspect of life, from consumer behavior and daily activities to education, like the effects of wars and major economic depressions worldwide (Güngördü Belbağ, 2022). Countries have attempted to popularize and mandate distance education due to the risks associated with resuming face-to-face education during the pandemic (Masalimova, 2022). Institutions, teachers, and students were greatly challenged due to the abrupt shift from face-to-face education to a fully online environment (Hadjeris, 2021). University students were significantly affected by COVID-19 and the resulting quarantines, as their campuses were physically closed during the pandemic (Güngördü Belbağ, 2022). Most of them were unemployed, so they were more vulnerable to the pandemic than adults (Pandita *et al.*, 2021). Sustainable Development Goal 4 ensures inclusive and quality education for all individuals, but its progression was disrupted during the pandemic (United Nations, 2024).

On the one hand, the uncertainty of the duration of compulsory online distance education significantly impacted university students' perceptions of online distance education. Students worldwide perceived the abrupt transition from face-to-face to online education as unstimulating (Singh, 2022). Even though, online distance education targets disadvantaged learners (Lee, 2020), students who are socio-economically disadvantaged and less academically prepared faced challenges in online education in the United States (Kelly and Columbus, 2020). Ndibalema (2022) reviewed the studies on distance education during the pandemic and noted challenges such as digital inequalities, lack of reliable internet access, low preparedness and technological competence among instructors and students, and limited digital solutions. The author also stated that most students encountered social-emotional difficulties due to the rapid transition to online distance learning and that the challenges experienced were due to the lack of digital culture that existed before the emergence of the COVID-19 epidemic. Hamdan *et al.* (2021) stated that self-regulated learning, internet self-efficacy, learner-content creation, learner-learner interaction, the number of e-learning theoretical courses highly contributed to online education satisfaction. On the other hand, He *et al.* (2021) noted that synchronous distance education matched traditional education in effectiveness and received higher satisfaction ratings.

The current study contributes to the ongoing literature as follows. *First*, it benefits from the Behavioral Reasoning Theory (Westaby, 2005), which differentiates itself from the Theory of Planned Behavior (Ajzen,1991) by unraveling the reasons behind individuals' behavior. Reasons serve as an explanation for individuals' behavior or behavioral intention, and include two sub-dimensions like "reasons for" and "reasons against" (Westaby, 2005). Moreover, none of the previous studies benefiting from Behavioral Reasoning Theory focused on online distance education (see Sahu *et al.*, 2020 for a detailed review).

Second, the present study uses lean philosophy to offer implications. Singh *et al.* (2021) note that research on studies using lean methods in online education programs is lacking. As lean methodology helps quality improvement (Singh *et al.*, 2021), offering implications for online education services is worthwhile. Research based on the use of lean methodology in education is limited (Petrusch and Vaccaro, 2019; Singh, 2022). In addition, limited research focuses on the effectiveness of online distance education and barriers to online distance education (Adarkwah, 2021; Gautam and Gautam, 2021). Emerging markets have insufficient infrastructure for online distance education, there is resistance among teachers and students toward online distance education services, and individuals are more vulnerable in economic and social contexts than people in advanced markets (Adarkwah, 2021). In addition, online education remains underdeveloped in emerging markets (Hamdan *et al.*, 2021). Thus, there is a need for detailed research on online distance education with lean methodology in emerging markets.

This study examines the difficulties university students experience and the conveniences they face in distance education during the COVID-19 pandemic. In this context, we seek answers to the following questions: (1) What challenges were faced by university students during online distance education during the pandemic? (2) What conveniences were faced by university students during online distance education during the pandemic?

The current paper is organized as follows. Section 2 explains services from both operations and consumers' perspectives, as well as quality and process improvement in online education services from a lean production perspective. Moreover, it clarifies the Behavioral Reasoning Theory. Section 3 describes the qualitative methodology. Section 4 gives the qualitative findings. Section 5 discusses the findings, and suggests implications and future research ideas.

2. THEORETICAL BACKGROUND

2.1. Services from operations and consumers' perspectives

Services are dominantly intangible products that are produced and consumed simultaneously, and cannot be owned by consumers (Universal Marketing Dictionary, 2024; Johnston *et al.*, 2012). A service is created through a process and co-produced with consumers (Edvardsson, 1998). A service includes a complex series of operations that need to be coordinated and linked to each other, which is why it is challenging to manage services (Johnston *et al.*, 2012). Service performance, especially in high-labor areas, often varies by employee, customer, and day (Zeithaml *et al.*,1988). Especially, customers affect the added value and outcome and process quality of the service (Edvardsson, 1998). While services are provided in the operation stage, inputs, which are materials, equipment, customers, staff, technology, and facilities, are processed by providers and simultaneously experienced by consumers (Johnston *et al.*, 2012). When consumers assess the service quality, service gaps appear on the service provider's side (Zeithaml *et al.*,1988). When consumers receive the service, the outputs are products, benefits, emotions, judgments, and intentions (Johnston *et al.*, 2012). Service gaps arise from the differences between various perceptions such as management perceptions of consumer expectations and consumers' expected services (Zeithaml *et al.*,1988).

Consumers' perceived service experience differs from consumer to consumer as it includes subjectivity (Johnston *et al.*, 2012). Service performance, especially in high-labor areas, often varies by employee, customer, and day (Zeithaml *et al.*,1988). Perceptions of service vary based on interaction quality, organizational responsiveness, staff flexibility, consumer intimacy, access to information and service personnel, how valued the consumer feels, staff courtesy and competence, and interactions with other customers (Johnston *et al.*, 2012). Over the past two decades, researchers have shifted their focus from manufacturing to services, recognizing that understanding quality in service sectors, including higher education, is crucial (Sunder and Antony, 2018). Thus, we focus on higher education services in this study, as they require high student participation during service production and a wide range of demands (Petrusch and Vaccaro, 2019).

2.2. Quality and process improvement in online education services from a lean production perspective

Total quality management emphasizes continuous improvement to boost customer satisfaction (Ahire *et al.*, 1995). It encompasses Six Sigma, business process re-engineering, lean thinking, and benchmarking (Johnston *et al.*, 2012). Total quality management has long been utilized in the manufacturing sector, its application in service industries, particularly higher education, has been relatively limited (Sunder and Antony, 2018). Deming's principles emphasize customer satisfaction, data-driven management, and respect for people to foster continuous improvement by enhancing service features and benefits (Bordoloi *et al.*, 2018; Johnston *et al*., 2012). Continuous improvement implies quality and process improvement. Known as kaizen within total quality management, continuous improvement is process and people oriented, improves and maintains standards, leading to increased consumer satisfaction (Berger, 1997). Another factor enabling continuous improvement is lean thinking. Lean thinking, a key factor of total quality management, reduces process times, and costs, while boosting productivity, customer satisfaction, and supply chain communication (Johnston *et al.*, 2012). Thus, lean practices enhance value, minimize waste and enable continuous improvement in processes (Sunder and Antony, 2018). Principles of lean thinking include specifying value, identifying the value stream, creating flow,

pulling not pushing, and striving for perfection (Johnston *et al.*, 2012). Lean thinking aspires to lean production, lean services, and lean methodology.

Lean service is a process improvement philosophy that helps continuous improvement (Fitzsimmons and Fitzsimmons, 2011; Bordoloi *et al.*, 2018). Lean service focuses on customer satisfaction through performing value-added activities, identifying value-added and non-value-added activities, and eliminating activities that are waste for customers (Fitzsimmons and Fitzsimmons, 2011; Bordoloi *et al.*, 2018). Waste implies non-value-added activities like unnecessary movement of employees, excessive inventories, defective production, over-processing of parts due to poor technology and process design, and unnecessary transport of materials (Johnston *et al.*, 2012). Lean services achieve the right purpose (value), best methods (process), and highest sense of accomplishment (people) (Fitzsimmons and Fitzsimmons, 2011). Core concepts of the lean methodology include jidoka, just-in-time, customer-centered approach, team involvement, and standardization (Singh *et al.*, 2021). Process flow improvements, internal groups for quality improvement, better housekeeping, quality improvement in service delivery, resource flexibility, pull-system implementation, line balancing, layout improvements, superior vendor management, and looking for waste (mudas) in services enhance the implementation of lean services (Bordoloi *et al.*, 2018).

Lean methodology can be used in both traditional (Glushchenko *et al.*, 2021) and online higher education (Singh *et al.*, 2021). There is lacking research on studies using lean methods in online education programs (Singh *et al.*, 2021; Glushchenko *et al*., 2021). Lean education is rooted in lean manufacturing, and the information flows from academics to students without interruption (Singh *et al.*, 2021). It also removes non-value added activities in education (Singh, 2022). Lean methodology helps quality improvement in higher education, and also ensure competitiveness (Glushchenko *et al.*, 2021). Singh *et al.* (2021) unlocked four themes for lean education: work-life balance, lack of standardization, leaning online classes, and connection to the field for non-traditional adult learners (over 25 years old with a full-time job, single parent) in online education. Glushchenko *et al.*, (2021) suggested implications for leaning traditional education such as: reducing overproduction in terms of excessive graduates; overcoming unnecessary movements and transportation; leaning excessive stocks, possessing; dealing with waiting, readjustment of flows, unused potential of staff, underdevelopment philosophy and culture.

2.3. Behavioral Reasoning Theory

Westaby (2005) proposed the Behavioral Reasoning Theory and overcame the criticisms of the Theory of Planned Behavior (Ajzen, 1991), which is a traditional behavioral intention theory (Westaby *et al.*, 2010). The Theory of Planned Behavior extends the Theory of Reasoned Action by including perceived behavioral control in the model (Ajzen, 1991). Even though the Theory of Planned Behavior includes elements like perceived behavioral control, subjective norms, attitude, intention, and behavior (Ajzen, 1991), it overlooks the multiple and contrasting effects of the "Reasons". "Reasons" are crucial elements of the Behavioral Reasoning Theory, and they define both "reasons against" and "reasons for" behavior (Westaby, 2005). "Reasons" are context-specific motives, and justified by individuals to feel confident about and defend their decisions, behavioral intentions, and behavior (Westaby and Fishbein, 1996; Westaby, 2005; Westaby *et al.*, 2010). Reasons for behavior include factors like perceived benefits and reasons against behavior, such as barriers in prior research (Sahu *et al.*, 2020). The Behavioral Reasoning Theory consists of beliefs and values, reasons, global motives (attitudes, subjective norms, perceived behavioral control), intention, and behavior (Westaby, 2005). To initiate behavioral changes, facilitating essential reasons for performing the behavior and reducing the effect of reasons against performing the behavior (Westaby and Fishbein, 1996). Sahu *et al.* (2020) reviewed the literature related to the Behavioral Reasoning Theory, and found that prior research focused on sustainability, mobile banking, leadership decision-making, etc. None of the previous studies were related to online distance education.

3. METHODOLOGY

Previous studies primarily used quantitative methods in the context of online education systems (e.g., Zia, 2020; Hamdan *et al.*, 2021). Hamdan *et al.* (2021) called for further qualitative research on online education in emerging markets. Therefore, we carried out qualitative research. We obtained the ethics committee's permission for the qualitative study with research code no:2024/277 from Ankara Haci

Bayram Veli University. The current study utilized the snowball sampling method for data collection, which involves directing initial informants to recruit more informants (Biernacki and Waldorf, 1981). We conducted in-depth, semi-structured online interviews between April and June in 2021. Our interviews were conducted with thirty-nine university students who are all bachelors in the business administration department (see Table 1). Following Westaby and Fishbein (1996), we tried to uncover the "reasons". Thus, we asked participants about the difficulties they experienced and the advantages they encountered in online distance education during the COVID-19 pandemic. Participants told their stories. While the advantages showed us the reasons why participants would adopt online distance education, the disadvantages showed us the reasons why participants would not adopt online distance education. Thus, we tried to understand the underlying reasons for and against the adoption of online distance education. We expect the reasons for and against adopting online distance education to affect the intention to use online distance education. In this context, intentions will emerge as a reason for judgments that are good, bad, or indifferent (Johnston *et al.*, 2012). Following Singh *et al.* (2021) and Westaby (2005), our questions were: "How did online distance education affect you during the pandemic? What were the advantages and disadvantages?", "What do you think about continuing online distance education for some courses even without the pandemic?" An average interview lasted for forty-one minutes and thirty-seven seconds. We used Braun and Clarke (2021)'s thematic analysis to analyze the qualitative data. The thematic analysis involved familiarizing with data, generating initial codes, searching for themes, reviewing, defining, and naming themes, and writing the final themes with interpretations to produce a comprehensive report.

Table 1: Sample characteristics

No	Pseudonym	Gender	Age	Grade
1	Berkay	Male	24	Extended his education
2	Doruk	Male	20	4th
3	Ferhan	Male	22	4th
4	Celil	Male	22	4th
5	Önder	Male	23	4th
6	Ekrem	Male	23	4th
7	Bahri	Male	23	4th
8	Umut	Male	23	4th
9	Derya	Male	23	4th
10	Mahir	Male	23	4th
11	Can	Male	23	4th
12	Şeniz	Female	23	4th
13	Ozan	Male	22	4th
14	Kerem	Male	24	Extended his education
15	Serhat	Male	23	4th
16	Göktuğ	Male	22	4th
17	Semra	Female	20	4th
18	Mahmut	Male	23	4th
19	Eylül	Female	24	Extended her education
20	Eren	Male	24	Extended his education
21	Bünyamin	Male	20	4th

22	Emel	Female	23	4th
23	Fikri	Male	24	Extended his education
24	Fikret	Male	26	Extended his education
25	Celal	Male	24	Extended his education
26	Yasin	Male	23	4th
27	İkra	Female	22	4th
28	Reha	Male	24	Extended his education
29	Adnan	Male	23	4th
30	Mirkelam	Male	23	4th
31	Eylem	Female	27	Extended her education
32	Betül	Female	22	4th
33	Recep	Male	22	4th
34	Mikail	Male	23	4th
35	Selen	Female	22	4th
36	Gülnihal	Female	23	4th
37	Faik	Male	24	Extended his education
38	Ela	Female	23	4th
39	Fehim	Male	21	4th

4. FINDINGS

Table 2 presents the themes and sub-themes resulting from the qualitative data analysis. Our thematic analysis showed that reasons against adopting online distance education include universities' unreadiness, inequality in accessing sufficient technology and electricity, students' unreadiness, and stressors. Moreover, the reasons for adopting online distance education are perceived benefits. This section analyzes the qualitative data with thematic analysis and gives detailed findings with related participant quotations.

Table 2: Themes and sub-themes

Reasons	Themes	Sub-themes
Reasons against	Universities' unreadiness	Slow communication with academics, obstruction of visuality
	Inequality in accessing sufficient technology and electricity	Electricity outages during exams, Internet problems, Computer problems
	Students' unreadiness	Harder to be prepared for exams, unable to socialize
	Stressors	Health stressors, psychological stressors, stressors at home
Reasons for	Perceived benefits	Increase in digital literacy, financial benefits, time benefits, research assignments, recorded lessons, no obstacles to part-time jobs, take time for yourself

4.1. Reasons against adopting online distance education services

Theme 1: Universities' unreadiness. Readiness means delivering the service promptly, being available for the customer, and offering assistance when needed (Parasuraman *et al.*, 1985; Edvardsson, 1998). Institutional readiness is a challenge in online distance education services during the pandemic (Ndibalema, 2022). Our participants noted that their universities were unprepared for the fast adoption of online education services. This unreadiness included technology and communication issues. Sub-themes of the "universities' unreadiness" theme are slow communication with academics, and obstruction of visuality. Participants noted that universities need to improve their online education systems. Doruk noted:

> "… the current period is not fully ready for this education. In general, my perspective on online education is positive… I believe it will be a much more successful education if it is improved… it is a successful education process with the developing technology and arrangements are made, distance education can be a good option for some courses."

Social interactions influenced the online course's effectiveness in Ghana (Adarkwah, 2021) and Nepal (Gautam and Gautam, 2021). Among social interactions, learner-instructor interaction was the most important interaction for Jordanian university students (Hamdan *et al.*, 2021). Therefore, the efficiency of interactions with academics is pivotal. Likewise, our participants noted that *their communication with academics is slow*. They also stated that students need fast and satisfying communication "to be and feel like" a student. Mahmut said:

> "I do not think that I have fully experienced "being a student" with the education I received. It has become more difficult for us to communicate with our teachers. We send e-mails when we get stuck or have problems, and inevitably, it takes longer to get a response."

Participants also talked about *the obstruction of visuality*. They want eye contact with their teachers. Moreover, they stated a need for visuality with the help of boards for some courses. Participants stated:

> Emel: "While in the classroom environment, faculty members and students establish eye contact and are active during the lesson. Unfortunately, we do not have such an opportunity at the moment. Some faculty members, and often students, do not turn on cameras, so productivity decreases."
>
> Önder: "Especially some applied courses never work online, unless the teacher writes it on the board and solves it together, we never understand it."

Participants define communication in online distance education as "cold communication". Their motivations towards visuality and feelings are so strong that their productivity falls during online courses. Ferhan stated:

> "Because I do not think that a student will be successful without sitting at a desk in class, without looking into the teacher's eyes, without asking the questions he/she is stuck on in class, without taking notes in his/her notebook moment by moment. These are also done in distance education, but since there is a colder communication, the student's attention, interest and motivation in their lessons decreases."

Theme 2: Inequality in accessing sufficient technology and electricity. The theme of inequality in accessing technology and electricity included sub-themes of electricity outages during exams, internet problems, and computer problems. Zia (2020) found no significant effect of technology on online education courses. Yet, students in Ghana reported inequality in accessing sufficient technology and electricity (Adarkwah, 2021). Students in Nepal stated that they had Internet, electricity, and computer-related problems (Gautam and Gautam, 2021). Students in Algeria noted that there was a lack of access to the Internet (Hadjeris, 2021). Slower Internet speed, inconsistent power supply, and computer-related problems were evident in Guyana **(**Oyedotun, 2020). Reviewing related studies, Ndibalema (2022) reported digital inequalities and a lack of reliable internet access during the pandemic. Likewise, our study noted that participants had problems with the Internet, electricity, and their computers. Can indicated on *internet-related issues*:

> "…I do not think it is fair in terms of internet access either. For example, last semester, I was living in a village where I did not have internet access. I had to follow the lessons on my phone's Internet, but my Internet was barely enough to research homework topics, and sometimes it was not even enough. Limited resources were also a disadvantage for me."

Participants also expressed their concerns over *electricity*. Umut stated:

> "I had a power outage during the exam, and my exam was interrupted because my laptop charger was broken. Even though the electricity came on after 12 minutes, my exam time had already been halved. It was an exam where I worked hard but could not get the grade I wanted."

Participants also fear that something will happen to their *computers*. Some participants already experienced computer-related problems:

> Berkay: "… of course, there is also the fear that the internet will go out during the exam or something will happen to the computer."

> Ferhan: "When the pandemic first started in April-May 2020, because of my computer malfunctioning, I had to prepare dozens of pages of homework by hand and with the working half of my keyboard. Some of my assignments had to be done on the computer, but since I did not have such an opportunity, I had to prepare them by hand. I was upset that my teacher gave me a low score even though I stated my excuse in my homework. Maybe if I did it on the computer, I would still get the same score; that is unclear, of course."

Theme 3: Students' unreadiness. Ndibalema (2022) noted that students' low readiness affected online distance education services during the pandemic. Similarly, our participants stated that students' unreadiness, which involved sub-themes like harder to be prepared for exams, and inability to socialize, is vital for adopting online distance education services. Participants noted that it is *hard to be prepared for exams* in online education. Recep said,

> "The lessons were easier to understand and more memorable when they were face to face, and it was enough to study for only 1 hour before the exam. Even if I did not have time to study for the exam back then, I could easily succeed in my classes. Currently, I cannot get any benefit from the lessons, and unfortunately, no matter how much I study, it is not the same as in face-to-face lessons."

Participants stated that they are *unable to socialize*. One participant highlighted that "online education has negatively affected students' social interactions". Another participant said, "It is more fun to listen to the lesson with our friends around us." The university life is more than education; it is more about communication and socializing with others for our participants. Önder talked about this issue:

> "Since the school I attended was a university, I felt like the life I could see and live was taken away from me… for most young people, it is not really about education. It is just about losing that perfect life you lived as an individual... It is not about education, it is about the fact that it is the only four years we can see and spend freely on our own, because even when we were side by side with the teachers during the lesson, our heads were always away… We were already seeing the course as a kind of distance (online) course, because most of us never listened to those lectures; they were there just to be there, so the issue is not that the education is distanced."

Theme 4: Stressors. Social-emotional challenges created resistance to adopting online-distance education services during the pandemic (Ndibalema, 2022). Likewise, Kelly and Columbus (2020) stated that students reported financial, familial, and health-related stressors on education during the pandemic. Students faced heightened anxiety and fear during the pandemic (Gautam and Gautam, 2021; Oyedotun, 2020). Our study revealed that stressors included health, psychological stressors, and stressors at home. Participants noted health stressors as a reason for heightened anxiety. Ferhan noted:

> "Personally, distance education wore me out psychologically. I have experienced the disease colloquially called ringworm several times…"

Students' poor home learning environment is a barrier to adopting online distance education services (Ndibalema, 2022). Students in Guyana noted the distractions at home (Oyedotun, 2020). Stressors at

home included interruptions from parents, obligations to work at their parents' family business, and a noisy environment. For instance, Emel stated that the online education process was inefficient due to the stressful environment at home with diverse interruptions:

> "Because I think I cannot get enough efficiency because I am not in a classroom environment. As a result, since I am at home, the bell ringing, the cars passing by with loud music on the street, and my parents forgetting that I am in class and calling out can distract me."

Ekrem told us about an inequality in being obliged to work at parents' business:

> "Education was suspended, everyone returned to their hometowns, but the conditions were not equal for everyone. When I arrived, I could not attend my classes as I was helping my father with his work. I had a hard time working from morning to evening and spent late nights looking at the presentations and videos of the lessons, if any."

Önder stated that he felt distressed at home:

> "We are never comfortable, especially because our homes are where we listen to lessons. Especially if you are a girl, you must constantly peel beans while listening to the lesson. Even while listening to our teachers, we cannot easily raise our voices and participate in the lesson because of the worry that someone will open the door and shout at any moment, or that there will be an argument in the environment."

Participants also talked about psychological stressors. Similarly, students in Nepal feared not completing their degree because of online distance education during the pandemic (Gautam and Gautam, 2021). In our study, Ferhan highlighted this issue:

> "… Tight homework deadlines made the atmosphere even more tense. In the 2020-2021 fall semester, probably because of the effects of the previous semester, I would get nervous and lose my mood whenever I heard something about school. I would feel distressed and worried for no reason. This anxiety and nervousness reached its peak as a result of a mistake I made in one of my classes (an assignment that progressed week by week), causing me to skip classes completely and delay my graduation by half a semester. Of course, later, I realized that what I did was unnecessary. … Maybe I would have been worn out under that pressure, but I could have handled that period one way or another, but I chose to give up, and my half year flew by in a moment of tension."

Participants perceived face-to-face education as "normal", and online distance education as "abnormal". Serhat said:

> "When I went out of the routine of normal education, and there was no physical classroom or environment, I was demoralized, and unfortunately, I had problems attending classes."

4.2. Reasons for adopting online distance education services

Theme 5: Perceived benefits. Zia (2020) found that online education courses were affected positively by motivation, and negatively by curriculum during the pandemic. However, in our study, participants favored perceived benefits such as increase in digital literacy, financial benefits, time benefits, research assignments, recorded lessons, no obstacles to part-time jobs, and take time for yourself. Digital literacy is vital for adopting online distance education services (Adarkwah, 2021). An increase in digital literacy included using computers, Microsoft Word, and applications like Zoom. Likewise, students in Nepal stated that their information technology skills were strengthened (Gautam and Gautam, 2021). Students in Guyana increased their use of available resources like Moodle and Zoom **(**Oyedotun, 2020). Similarly, in our study, Umut noted:

> "We learned how to use the computer, do homework, and send e-mails better. We learned applications we did not use, such as Google Meet, and Zoom."

Lean methodology reduces waste by clarifying the activities that generate a non-added value. Financial benefits correspond to the cost advantage in lean production, such as transportation, rent, food, and beverage costs. Participants told us about *financial benefits*. Participants stated:

> Mahmut: "My financial expenses were higher in the city where I studied at university, but expenses such as house rent, travel money, and food needs have almost disappeared. These are positive aspects."
>
> Reha: "The biggest advantage was financial. Since students' needs such as accommodation, food, and transportation are limited, they have become more comfortable financially."

Time benefits cover efficient time management in lean methodology, saving students time wasted on transportation to university. Participants also noted *time benefits*. Some examples are:

> Recep: "… for example, we used to have to get ready and go to school an hour in advance. Now, you can prepare 5 minutes in advance and attend classes…it is advantageous in terms of time."
>
> Semra: "It is easier to attend classes with online distance education. I am always at home and do not have to worry about going to school or getting ready, so I have not lost any time."

Higher education institutions provided students with asynchronous and synchronous learning in online distance education during the pandemic. Participants noted that *research assignments* were beneficial for understanding and learning during online distance education. Participants noted:

> Şeniz: "Thanks to the assignments, I did more research and had the opportunity to meet different sources. I think I have acquired reading skills. Because I do research, the information stays in my memory longer because I think that when we study for exams, we memorize it instantly, so I do not remember it permanently. I noticed that I listened better with recorded videos or online lessons."
>
> Ela: "You are more focused than face-to-face education, you do not stress, you do not have time constraints in some courses, you prepare homework by understanding and learning during exams, and it is more permanent and productive."

Participants also noted that *recorded lessons* increase their productivity. Adnan said:

> "… the lessons were easier because my success rate increased by constantly repeating the lesson that I did not understand or had difficulty in, and by constantly repeating the points (notes) the teachers said were important in the lessons. It should not be continued; only the lessons taught should be repeated on the online platform, so that it is better not to have difficulty in repeating a lesson that I missed or got sick. Having both face-to-face and online increases success."

Participants also highlighted another benefit: *no obstacles to part-time jobs*. Some examples are:

> Recep: "Our friends who work like me were more comfortable because exam times [during face-to-face education] were not arranged for people working long hours, and this caused us to have problems with the place we work."
>
> Can: "If we look at the advantages of distance education… I could study and work at the same time..."

The sub-theme of time to yourself indicates an increase in productivity. Participants also noted the benefit of *taking time for yourself*. Bahri stated:

> "… I spent more time for myself. In distance education, I attended the online courses that I could attend, and the ones that I could not attend, I reviewed the course documents later and repeated them."

Table 3 presents a benchmarking of online distance and face-to-face education according to our participants.

Table 3: Benchmarking online distance and face-to-face education

	Online distance education	**Face-to-face education**
Advantages	Efficient in theoretical courses More research assignments Financial benefits Time benefits Recorded lessons Increase in digital literacy No obstacles to part-time jobs Taking time for yourself	Efficient in hands-on (practical) courses Ability to socialize Face-to-face and instant communication with academics Visuality
Disadvantages	Slow communication with academics Obstruction of visuality Electricity outages during exams Internet problems Computer problems Harder to be prepared for exams Unable to socialize Health stressors Psychological stressors Stressors at home	Fewer research assignments Financial costs Time costs Not recorded lessons Obstacles to part-time jobs No taking time for yourself

Our participants favored the continuance of online education, and some stated that the choice can be left to students. Our participants compared these two types of education models and offered hybrid education. They implied that having both face-to-face and online increases success. Their proposed hybrid education model involved theoretical courses conducted online and practice courses conducted face-to-face. Likewise, students in Ghana preferred hybrid education (blended learning) (Adarkwah, 2021). Hamdan *et al.* (2021) also emphasized the importance of blended learning in emerging markets. Likewise, in our study, participants noted on this issue:

> Bahri: "I was in England/London for 3.5 months in the summer of 2018. While there, I observed that most applied courses were face-to-face, and most theoretical courses were online or via video conferencing. I would like some theoretical courses to be taught via distance education even after the epidemic… I am in favor of hands-on courses being held face-to-face. A medical student learning about vascular access through online education would only be a hypothetical learning."
>
> Göktuğ: "In my opinion, distance education should continue for some courses that are only about understanding what you read or hear, so I think the same efficiency can be achieved with online education."

5. DISCUSSION

The current study aims to examine the difficulties university students experience and the conveniences they face in online distance education during the COVID-19 pandemic. In-depth, semi-structured online interviews were conducted with thirty-nine university students who are all bachelors in the business administration department. Participants were asked questions about the difficulties they experienced and the conveniences they encountered in online distance education during the COVID-19 pandemic period.

Braun and Clarke (2021)'s thematic analysis was used to analyze qualitative data. Behavioral Reasoning Theory helped us to classify our themes. The present study also benefits from lean methodology rooted in the lean production philosophy.

Our thematic analysis showed that reasons against adopting online distance education include universities' unreadiness, inequality in accessing sufficient technology and electricity, students' unreadiness, and stressors. Universities' unreadiness involved slow communication with academics, and obstruction of visuality. Inequality in accessing sufficient technology and electricity consisted of electricity outages during exams, Internet, and computer problems. Students' unreadiness involved sub-themes like harder to be prepared for exams, and unable to socialize. Stressors consisted of health stressors, psychological stressors, and stressors at home.

Furthermore, the reasons for adopting online distance education are perceived benefits. Perceived benefits included sub-themes such as an increase in digital literacy, financial benefits, time benefits, research assignments, recorded lessons, no obstacles to part-time jobs, and take time for yourself. Financial benefits correspond to the cost advantage in lean production, such as transportation, rent, and food and beverage costs. Time benefits cover efficient time management in lean methodology, saving students time wasted on transportation to university. The sub-theme of time to yourself indicates an increase in productivity.

The limitations of the current study are as follows. *First,* the current study conducts qualitative research on university students. Future research can merge these results with a study focused on teachers or management in university. Moreover, there can be a holistic approach by involving online distance education centers in universities into further research. *Second,* this study uses bachelors as the sample. Reasons for and against adopting online education services will vary for master's or doctorate students. *Third,* as the current study is qualitative, future research should use mixed methods or carry out longitudinal studies.

Suggestions for implications and future research can be listed as follows. Lean methodology reduces waste by clarifying the activities that generate a non-added value. Thus, instructors should eliminate or lessen unnecessary activities in the class (e.g., checking attendance to the class or straying from the topic), whether they stem from the instructor or students. Instructors should intervene in any misunderstandings related to the course topic just in time and take regular feedback from students to eliminate them as much as possible. Therefore, communication is essential. Instructors should offer standardized courses so that participants can easily follow the topic. Instructors can group students to help them solve their problems with the help of their group mates. Instructors should provide fast solutions, and management should actively participate in process management. Using Web 2.0 technologies such as Prezi can increase the visuality of the information given by instructors.

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Araştırma Makalesi

Quality And Process Improvement in Online Distance Education Services

Çevrimiçi Uzaktan Eğitim Hizmetlerinde Kalite Ve Süreç İyileştirme

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Genişletilmiş özet

Sürdürülebilir Kalkınma Hedeflerinden dördüncüsü, tüm bireyler için kapsayıcı ve kaliteli sağlamayı amaçlamaktadır. Ancak pandemi sırasında bu hedefin ilerlemesi sekteye uğramıştır. Savaş gibi travmatik bir olay olan COVID-19 pandemisi, tüketicileri, tedarik zincirlerini ve eğitimi derinden etkilemiştir. COVID-19 sonrasındaki karantinalar sebebiyle üniversitelerin fiziksel olarak kapatılması ve öğrencilerin herhangi bir işte çalışmaması, üniversite öğrencilerini yetişkinlere göre daha savunmasız hale getirmiştir. Mevcut çalışma, çevrimiçi uzaktan eğitim hizmetlerinde üretim ve tüketici perspektiflerini sunmaktadır. Bu çalışma, COVID-19 salgını sırasında üniversite öğrencilerinin deneyimlerini inceleyerek çevrimiçi uzaktan eğitimde kalite ve süreç iyileştirme için bir yol haritası sunmayı amaçlamaktadır. Bu kapsamda, bir yükselen pazar olan Türkiye'de otuz dokuz üniversite öğrencisiyle derinlemesine mülakatlar gerçekleştirilmiştir. Nitel verinin analizi, tematik analiz yaklaşımı ile gerçekleştirilmiştir. Davranışsal akıl yürütme teorisi ve yalın felsefe metodolojisinden faydalanılmıştır. Bu çalışma kapsamında şu sorulara cevaplar aranmaktadır: (1) Pandemi döneminde çevrimiçi uzaktan eğitimde üniversite öğrencileri ne gibi zorluklar yaşadı? (2) Pandemi döneminde çevrimiçi uzaktan eğitim üniversite öğrencilerine ne gibi kolaylıklar sağladı?

Mevcut çalışma devam eden literatüre şu şekilde katkıda bulunmaktadır. *İlk olarak,* bireylerin davranışlarının ardındaki nedenleri ortaya çıkararak Planlı Davranış Teorisi'nden (Ajzen, 1991) farklılaşan Davranışsal Akıl Yürütme Teorisi'nden (Westaby, 2005) yararlanmaktadır. Bu teoriye göre, nedenler, bireylerin davranışlarına veya davranışsal niyetlerine bir açıklama olarak hizmet eder ve "nedenler" ve "aleyhte nedenler" şeklinde iki alt boyut içerir (Westaby, 2005). Dahası, Davranışsal Akıl Yürütme Teorisi'nden yararlanan önceki çalışmalardan hiçbiri çevrimiçi uzaktan eğitime odaklanmamıştır (Sahu vd., 2020).

İkinci olarak, mevcut çalışma, çıkarımlar sunmak için yalın felsefeyi kullanmaktadır. Singh vd. (2021), çevrimiçi eğitim programlarında yalın felsefe yöntemleri kullanan çalışmalara ilişkin araştırma eksikliği olduğunu belirtmektedir. Yalın felsefe metodolojisi kalite iyileştirmeye yardımcı olduğundan (Singh vd., 2021), çevrimiçi eğitim hizmetlerine yönelik çıkarımlar sunmak için faydalıdır.

Çevrimiçi uzaktan eğitimin benimsenmesine karşı olan nedenlerin arasında üniversitelerin hazırlıksız olması, yeterli teknoloji ve elektriğe erişimde eşitsizlik, öğrencilerin hazırlıksız olması ve stres faktörleri olduğu bulunmuştur. Üniversitelerin hazırlıksızlığı, akademisyenlerle yavaş iletişim ve görselliğin engellenmesi alt temalarını içermektedir. Yeterli teknolojiye ve elektriğe erişimde eşitsizlik, sınavlar sırasında elektrik kesintileri, internet ve bilgisayar sorunlarından oluşmaktadır. Öğrencilerin hazırlıksızlığı, sınavlara hazırlanmanın daha zor olması ve sosyalleşememeyle ilgilidir. Stres faktörleri, sağlık stres faktörleri, psikolojik stres faktörleri ve evdeki stres faktörlerinden oluşmaktadır.

Çevrimiçi uzaktan eğitimi benimseme nedenleri ise algılanan faydalardan oluşmaktadır. Algılanan faydalar arasında dijital okuryazarlıkta artış, finansal faydalar, zaman faydaları, araştırma ödevleri, kayıtlı dersler, yarı zamanlı işlerde engel olmaması ve kendinize zaman ayırma yer almaktadır. Finansal faydalar, ulaşım maliyeti, kira maliyeti, yiyecek ve içecek maliyetleri gibi yalın üretimdeki maliyet avantajına karşılık gelmektedir. Çevrimiçi uzaktan eğitimsayesinde öğrenciler bu maliyetlerden kurtulmaktadır. Zaman faydaları, yalın metodolojideki verimli zaman yönetimini kapsamakta ve öğrencileri üniversiteye ulaşımdan kaynaklanan zaman kaybından kurtarmaktadır. Kendinize ayırdığınız zaman alt teması ise öğrencilerin üretkenliğindeki artışı göstermektedir.

Mevcut çalışmanın sınırlılıkları ise şunlardır. Birincisi, mevcut çalışma üniversite öğrencileri üzerinde nitel bir araştırma yürütmektedir. Gelecekteki araştırmalar bu sonuçları üniversitedeki akademisyenlere veya yöneticilere odaklanan bir çalışmayla birleştirebilir. İkincisi, çalışma nitel olduğu için gelecekteki araştırmalar karma yöntemler kullanmalıdır.

Sonuçlar ve gelecekteki araştırmalar için öneriler ise şu şekilde sıralanabilir. Yalın metodoloji, katma değer yaratmayan faaliyetleri açıklığa kavuşturarak israfı azaltır. Bu nedenle, eğitmenler, eğitmenlerden ya da öğrencilerden kaynaklanan sınıftaki gereksiz faaliyetleri (örneğin, derse katılımı kontrol etme veya konudan sapma) ortadan kaldırmalı veya azaltmalıdır. Eğitmenler, ders konusuyla ilgili herhangi bir yanlış anlaşılmaya zamanında müdahale etmeli ve bunları mümkün olduğunca ortadan kaldırmak için öğrencilerden düzenli geri bildirim almalıdır. Bu nedenle eğitmen ve öğrenciler arasındaki iletişim esastır. Eğitmenler, katılımcıların konuyu kolayca takip edebilmeleri için standartlaştırılmış dersler sunmalıdır. Eğitmenler, öğrencileri, grup arkadaşlarının yardımıyla sorunlarını çözmelerine yardımcı olmak için gruplandırabilir. Eğitmenler, hızlı çözümler sağlamalı ve yönetim, süreç yönetimine aktif olarak katılmalıdır. Prezi gibi Web 2.0 teknolojilerinin kullanılması eğitmenlerin verdiği bilgilerin görselliğini artırabilir.