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# The Evaluation of Muğla Sıtkı Koçman University Medical School Phase 2 Programme by Students

# Muğla Sıtkı Koçman Üniversitesi Tıp Fakültesi Dönem 2 Programının Öğrenciler Tarafından Değerlendirilmesi

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**Öz**

Tıp eğitimi COVID-19 pandemisinden olumsuz etkilenmiştir. Bu çalışmanın amacı, ikinci sınıf tıp öğrencilerinin değerlendirmeleri ve koordinatörlerin raporları aracılığıyla yüz yüze ve uzaktan eğitim sisteminin avantajlarını ve dezavantajlarını araştırmaktır. Bu çalışmada, uzaktan ve yüz yüze eğitim dönemlerini karşılaştırmak için ikinci sınıf tıp öğrencilerinden alınan anketler ve koordinatörlük raporları incelendi. Kapalı uçlu sorular için Likert tipi derecelendirme ölçeği kullanıldı, açık uçlu cevaplar ise kategorize edildi. Çevrimiçi uzaktan eğitim sırasında kurul, final ve bütünleme sonuçlarının ortalamaları istatistiksel olarak yüksek bulundu. Yapılan anket ve raporlardan, uygulamalı eğitim verimliliği açısından çevrimiçi eğitimin tamamen yüz yüze eğitimin yerini alamayacağı öğrencilerden alınan yanıtlardan anlaşıldı. Bunula birlikte öğrencilerin pandemi koşullarında çevrimiçi öğrenme sürecinden memnun olduğu tespit edildi. Etkili çevrimiçi öğrenme için öğrencilerin çevrimiçi eğitime yönelik geri bildirimleri eğitmenler, kurumlar ve kurs tasarımcıları için özellikle yol gösterici olabilir. Yüz yüze eğitim çevrimiçi eğitim yöntemleri ile desteklenebilir.

**Anahtar Kelimeler:** Çevrimiçi Eğitim, Covid-19 Pandemisi, Geleneksel Eğitim, Tıp Eğitimi, Yüz Yüze Eğitim

**Abstract**

The COVID-19 pandemic has negatively impacted medical education. This study aimed to explore the pros and cons of face-to-face and distance education based on feedback from second-year students and coordinator reports. In this study, questionnaires and coordinator reports from second-year medical students were examined to compare distance and face-to-face education periods. Likert scales were used for closed-ended questions, and open-ended answers were categorized. Online distance education resulted in statistically high average scores for committee, final, and make up exams. While students indicated that online education cannot fully replace face-to-face learning in terms of applied education efficiency, they expressed satisfaction with the online learning process during the pandemic. For effective online learning, students' feedback on online education can be particularly guiding for instructors, institutions, and course designers. Face-to-face education can be supported with online education methods.

**Keywords:** Online Education, Covid-19 Pandemic, Traditional Education, Medical Education, Face to Face Education

## Introduction

The first case of COVID-19 pandemic in the world was reported in China in December 2019. Subsequently, in recognition of the widespread proliferation of the contagion, the World Health Organization (WHO) officially classified the COVID-19 crisis as a pandemic on the 11th of March, 2020 (1). Within our national context, the inaugural COVID-19 case materialized on the very same date, the 11th of March, 2020 (2). Promptly responding to these unfolding events, the Council of Higher Education (CHE) implemented a comprehensive academic hiatus, suspending educational activities for a duration of three weeks, effective from the 16th of March, 2020 (3). Amidst the global response to the COVID-19 pandemic, health security imperatives have engendered a paradigm shift towards online learning. Notably, while online learning represents a singular recourse within the exigencies of the pandemic, the paramount significance of ensuring both student and instructor contentment underscores the efficacious educational experience (4).

This investigation encompasses the documentation provided by the Muğla Sıtkı Koçman University (MSKU) Faculty of Medicine Phase 2 coordinatorship, alongside the perspectives and appraisals voiced by Phase 2 students concerning the program under scrutiny. The focus spans two academic years: 2020-2021, which aligns with the COVID-19 pandemic era, and 2021-2022, marking the return to face-to-face education post-pandemic.

The Phase 2 program is structured into five distinct committees, each catering to a specialized realm of study: Committee-1 pertains to tissue biology, Committee-2 encompasses the circulatory and respiratory system, Committee-3 focuses on the nervous system, Committee-4 delves into the digestive system and metabolism, and Committee-5 addresses the excretory, reproductive, and endocrine systems. These committees encompass a comprehensive range of subjects, including Anatomy, Histology and Embryology, Physiology, Medical Biochemistry, Medical Microbiology, Biophysics, and Foreign Language instruction. Notably, the discipline of Biophysics is exclusively integrated into the curricula of the second and third

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committees, while the remaining subjects are consistently offered across all committees.

Furthermore, the Phase 2 program incorporates a series of practical modules to enhance students' applied competencies. Professional Skills Laboratory Practices (PSL), Problem-Based Learning (PBL), and Special Study Module (SSM) are essential components within this framework. PBL, specifically, is confined to the purview of the second committee, whereas PSL is exclusively administered within the context of the fifth committee. Conversely, the SSM finds its inclusion within the academic landscape of the third, fourth, and fifth committees.

The impact of PBL on the second committee examination and the influence of the SSM on the fifth course board assessment amount to 10 points. Students achieving a course committee average grade of 85 or higher, coupled with a minimum score of 60 or more in each individual course committee, are exempt from participating in the end-of-term examination. It is noteworthy that within a committee examination, distinct benchmarks are established for each course and corresponding practical/practice examination. The established threshold for attainment is set at 50%. In scenarios where a student's performance falls below 50% in one or more lectures contributing to the committee assessment, the disparity between the attained score in that specific subject and 50% of the cumulative score for that subject is subtracted from the overall examination score, thereby determining the ultimate grade for the course committee examination (5).

Within the realm of pedagogical strategies, feedback assumes an integral role as a facilitative component of the learning process (6). The evaluation of instructional methodologies encompasses a diverse array of tools, ranging from peer assessments, self-appraisals, external expert evaluations, mentor analyses, teaching portfolios, to student feedback. These evaluative mechanisms consistently contribute to the enhancement of curriculum design and the elevation of educational standards (7).

Demonstrating a commitment to comprehensive assessment, the Assessment and Evaluation Commission of our academic institution employs a structured questionnaire upon the culmination of each course committee. This questionnaire employs closed-ended and open-ended questions to garner insights from students concerning instructors, committee content, the Phase 2 curriculum, and examinations. This student-centric approach not only captures the student perspective on the educational milieu but also serves as a platform for the articulation of their viewpoints. Additionally, the Phase 2 coordinatorship orchestrates a series of initiatives, encompassing coordinator hours, course introductions, culminating-committee evaluations, interviews with dean, program assessments, and developmental progress summaries. These combined endeavors substantiate a holistic framework for continuous evaluation, refinement, and evolution of the instructional paradigm.

In light of the persistent and escalating pandemic circumstances, compounded by directives from CHE, MSKU Faculty of Medicine undertook a transformative shift in its educational paradigm. Commencing from the 16th of March, 2020, during the 2019-2020 academic year, and extending through the entirety of the subsequent 2020-2021 academic session, the institution seamlessly transitioned its pedagogical operations to a virtual framework of distance education. This momentous adaptation was necessitated by the persistent prevalence of the pandemic. In particular, the 2020-2021 academic year witnessed the sustained implementation of online, synchronous distance instruction, facilitated by the adept utilization of the university's distance education center infrastructure and resources, thereby employing the proficient course management system (distance learning system). A meticulous endeavor was undertaken to pre-emptively upload course materials onto the distance learning system platform, thus ensuring the seamless delivery of educational content.

In the subsequent academic term, spanning the duration of 2021-2022, a discernible pivot back to conventional, face-to-face educational methodologies was observed. This transition was guided by a strategic imperative to restore in-person educational engagement, thereby facilitating a comprehensive educational experience. Throughout this period, robust mechanisms for soliciting and assimilating continuous student feedback were actively cultivated, underscoring the institution's commitment to pedagogical excellence.

In the context of practical applications in the pandemic, students encountered a notable deviation from established protocols. Under the constraints of the pandemic, the traditional engagement in practical laboratory exercises was curtailed, leading to an adaptation wherein students resorted to video-based observations in lieu of hands-on participation. The pandemic-induced restrictions engendered a transformative pivot, redefining the dynamics of practical learning and propelling an exploration of alternative modes of pedagogy.

The disruptive ramifications of the pandemic permeated various facets of the academic landscape, ushering in a series of consequential alterations. Specifically, the conventional implementation of PBL encountered hindrances, rendering it unfeasible during the academic year of 2020-2021. Consequently, the pedagogical focus shifted towards alternative avenues, as remote and online platforms became the conduit for the application of other theoretical lectures, encompassing PSL and laboratory practices.

The diminution of Foreign Language instruction by 6 hours within the 2020-2021 academic year was attributed to public holidays. Noteworthy, the introduction of the SSM marked a significant enhancement in the Phase 2 curriculum, a development observed for the first time in the subsequent academic year of 2021-2022 (Table 1).

**Table 1.** The instructional hours during the academic periods of 2020-2021 and 2021-2022.

| | Academic Periods | |
|---|---|---|
| | **2020-2021** | **2021-2022** |
| **Theoretical Hours** | 580 | 615* |
| **Practice Hours** | 140 | 192** |
| **Total Hours** | 720 | 807 |

*Reason for Increase in Theoretical Hours: PBL 12, Foreign Language 6, Anatomy 3, Histology and Embryology 14 hours. **Reason for Increase in Practical Hours: SSM 40, Anatomy 6, Histology and Embryology 1 and Medical Microbiology 5 hours

A notable divergence lies in the absence of the dam system during the 2020-2021 academic year, a period characterized by the prevalence of distance education. In this context, the threshold for successful completion, previously set at 85 without a final examination, underwent adjustment to a benchmark of 65.

Furthermore, compensatory arrangements were orchestrated to address the disruption in practical instruction. Remedial sessions for PSL and Anatomy practices were meticulously devised and executed in a face-to-face format, strategically inaugurated at the outset of the 2021-2022 academic year.

Phase 2 lectures in the 2020-2021 academic year were seamlessly migrated to online platforms, facilitated through the distance learning system. However, a paradigmatic transformation was evident in the subsequent academic year of 2021-2022, as the educational encounters underwent a complete transition towards traditional face-to-face education, signifying a return to familiar pedagogical methodologies.

## Material and Method

The research protocol was authorized by both the Dean of MSKU Faculty of Medicine (dated 2022/451397) and the MSKU Ethics Committee (dated 2022/220076), ensuring compliance with ethical standards. Notably, the investigation upheld a stringent approach to data protection, wherein no personally identifiable or sensitive student information was incorporated into the study.

All students enrolled in the 2020-2021 and 2021-2022 academic years were invited to participate in the study on a voluntary basis to respond to the scale items. Data from students who did not consent to participate were not included. The survey data from students who agreed to participate in the study were used retrospectively. Within the study's framework, a meticulous evaluation of the MSKU Faculty of Medicine Phase 2 curriculum encompassed an appraisal of its five committees. This comprehensive assessment was conducted through a retrospective examination of responses provided by students, encompassing a questionnaire featuring a blend of nine closed-ended and one open-ended questions at the conclusion of each course committee. The qualitative data stemming from the open-ended question were systematically categorized and subjected to a thorough evaluation. Significantly, both the open-ended question and the nine closed-ended questions were designed to correlate with the prevailing mode of education, distinguishing between distance education during the 2020-2021 academic year and in-person instruction during the 2021-2022 academic year. This open-ended format facilitated an in-depth exploration of participant sentiments.

Elaborating upon the specifics of the questionnaire's closed-ended queries, comprehensive details are expounded in Table 2.

In addition to the aforementioned data sources, the analysis encompassed the Phase 2 coordinator's report, coordinatorship hours, insights garnered from the dean's interview, and student feedback extracted from the course evaluation meeting. Notably, the evaluation process incorporated feedback received from a minimum of three distinct individuals, thereby enriching the robustness of the assessment.

The evaluation parameters for the closed-ended questions within the questionnaire were appraised using a Likert-type rating scale, presenting respondents with a selection from five distinct options encompassing "strongly disagree, disagree, partially agree, agree, and strongly agree." Concomitantly, the responses to the nine closed-ended questions underwent quantification, with Strongly Disagree assigned 1 point, Disagree attributed 2 points, Partially Agree denoted as 3 points, Agree designated 4 points, and Strongly Agree associated with 5 points.

Calculation of total scores ensued by amalgamating the responses for each question within the questionnaire, subsequently multiplying these responses by their corresponding point values. The derived scores for each question were then normalized by dividing the cumulative scores by the number of participants engaged in the survey, thereby yielding the weighted average values for each question, delineated distinctly across the academic years (as delineated in Table 2).

**Table 2.** Weighted Average Scores Derived from Responses to Closed-Ended Queries in the Committee Evaluation Questionnaire.

| Closed Ended Questions | Mean (±) SD | | *p* |
|---|---|---|---|
| | 2020-2021 | 2021-2022 | |
| 1. Instructors adhered to the stipulated commencement and conclusion times of the lectures | **3.90±0.05** | 3.55±0.13 | <0.001 |
| 2. The instructors recommended accessible sources of information that I could readily avail | 3.78±0.05 | 3.66±0.10 | <0.001 |
| 3. I experienced a pleasant and constructive interaction with the instructors | 3.84±0.07 | 3.75±0.17 | <0.001 |
| 4. The instructors dedicated an adequate amount of time to fostering discussions and facilitating the expression of students' personal viewpoints | 3.89±0.09 | 3.59±0.10 | <0.001 |
| 5. Adequate time was allocated for personal learning pursuits | 3.58±0.16 | **3.19±0.23** | <0.001 |
| 6. Adequate practical applications corresponding to the program's subject matter were available | **3.45±0.13** | 3.54±0.09 | <0.001 |
| 7. The practices were carried out in a way that supports my individual learning | 3.49±0.12 | 3.57±0.10 | <0.001 |
| 8. The exams accurately gauged my knowledge level and encompassed questions spanning the entirety of the knowledge taught | 3.71±0.12 | 3.43±0.12 | <0.001 |
| 9. The adoption of distance education negatively influenced the attainment of learning objectives (2020-2021)<br>The adoption of face-to-face education positively influenced the attainment of learning objectives (2021-2022) | 3.55±0.21 | **3.76±0.13** | <0.001 |

It is noteworthy that the numerical scale was assigned corresponding levels of interpretation: 1 point represented a state considerably below expectations, 2 points signified a level below expectations, 3 points indicated an alignment with expectations, 4 points indicated performance surpassing expectations, and 5 points reflected an achievement substantially beyond expectations.

The information amassed within our investigation underwent rigorous analysis employing the software application "SPSS for Windows 23.0." Descriptive statistical techniques, encompassing frequency (n), percentages (%), mean ± standard deviation (SD), were harnessed to elucidate the dataset's characteristics. Disparate continuous variables characterized by a normal distribution were juxtaposed through Student's t-test (specifically, the independent samples t-test) for comparison, with a significance threshold of $p<0.05$ deemed statistically significant. Additionally, the narrative was enriched with the inclusion of notable appraisals and insights derived from the responses to open-ended questions.

## Results

The MSKU Phase 2 Turkish Medicine Program witnessed an enrollment of 179 students during the academic year 2020-2021, while the subsequent academic year, 2021-2022, recorded a slightly reduced student count of 157. The research scope encompassed surveys from committees, specifically those with a participation rate of 50% or greater, while omitting the first committee survey of the 2020-2021 academic year and the third committee survey of the 2021-2022 academic year.

Based on the outcomes of the closed-ended survey administered to students enrolled in the Turkish Medicine program during the 2020-2021 academic year, the most favorable rating was garnered by the inaugural query, "Instructors adhered to the stipulated commencement and conclusion times of the lectures." Conversely, the sixth inquiry, "Adequate practical applications corresponding to the program's subject matter were available," received the lowest rating, signifying an area of concern.

In correlation with the students closed-ended questionnaire outcomes for the subsequent academic year, 2021-2022, the ninth query emerged as the highest scorer, affirming that "The adoption of face-to-face instruction positively influenced the attainment of learning objectives." Conversely, the fifth question, "Adequate time was allocated for personal learning pursuits" received the lowest evaluation. Remarkably, this particular question exhibited the most prominent discrepancy in average ratings between the two academic years, a trend expounded upon in Table 2.

The academic landscape of the 2020-2021 year, characterized by the online education, notable statistical elevation was discerned in the academic achievements of students across board exams, final examinations, and make-up assessments. A demonstrable correlation between the adoption of distance education and the attainment of elevated grades emerged as a salient observation.

There were fewer students in the 2021-2022 academic year. Paradoxically, within the initial phase of resuming face-to-face education after the pandemic, a notable increase was observed in the proportion of students to retake the Phase 2, The juxtaposition of these phenomena is comprehensively illustrated in Table 3.

**Table 3.** Mean of Examination Scores Across Different Years.

| | Academic Periods | |
|---|---|---|
| | 2020-2021 | 2021-2022 |
| Committee 1 Exam Score | 78.1±12.1 | 63.4±16.8 |
| Committee 2 Exam Score | 79.5±12.8 | 58.5±15.8 |
| Committee 3 Exam Score | 84.9±9.8 | 58.1±19.4 |
| Committee 4 Exam Score | 84.2±11 | 67.4±18.8 |
| Committee 5 Exam Score | 84.5±11.7 | 72.3±18.2 |
| Final Exam Score | 82.96±9.8 | 65.7±19.4 |
| Make-up Exam Score | 52±5.7 | 46.8±21.8 |
| Rate of Participation in Make-Up Exam | 1.67 | 2.14 |
| Number of Students Required to Repeat Phase 2 | 3 | 22 |
| Total Number of Students | 179 | 157 |

The open-ended question in the study garnered responses from a minimum of three distinct individuals, and these feedbacks were subsequently subjected to a comprehensive categorization. Within each categorized segment, affirmative and adverse remarks were meticulously organized based on their respective frequencies of occurrence, resulting in a descending sequence from the most prevalent to the least. This systematic presentation strategy was employed to facilitate a comparative evaluation between the two academic years, effectively illustrated through the juxtaposition of data in both Table 4 and Table 5.

## Discussion

Our nation has been confronted with the contemporary challenges of the COVID-19 pandemic, necessitating an immediate shift towards remote learning, and the consequential impact of the Kahramanmaraş-centered earthquake, which reverberated across 11 provinces. In light of these adverse circumstances, conventional in-person instruction has been supplanted by distance education as a viable alternative (8). The subsequent adoption of online learning for distance education has engendered a constellation of concerns encompassing student contentment, the efficacy of both practical and theoretical lessons, the safeguarding of examination integrity, and the complex interplay of psychological well-being, spanning stress and anxiety, in tandem with health issues arising from prolonged screen exposure and heightened internet utilization.

**Table 4.** Grouped Positive Responses From The Open-Ended Question Within The Committee Evaluation Questionnaire.

| 2020-2021 Academic Year | 2021-2022 Academic Year |
|---|---|
| **Positive feedback regarding the execution of the lectures** | |
| The faculty members and the administrative office demonstrated dedicated efforts to ensure the seamless advancement of education and training during the epidemic. | Face-to-face education is useful, I am inclined to continue with traditional education rather than transitioning to online platforms. |
| The pandemic situation was effectively handled, fostering a secure and productive working environment. | Following the pandemic, face-to-face learning provided a sense of liberation. |
| I perceive the distance education process as proficient and fruitful. | I express contentment with both the instructional content and the teaching methodology. |
| The viability of distance education can be extended to theoretical courses. | The student affairs offered valuable assistance. |
| | Participation in the PBL yielded productive outcomes. |
| The theoretical lectures are of high quality and yield favorable outcomes. | Engagement with the SSM proved to be a productive endeavor. |
| The opportunity to revisit theoretical lessons later proved beneficial and significantly useful. | |
| The provision of extra time for revision facilitated a more efficient learning experience. | |
| The synchronous delivery of lessons facilitated effective tracking of the curriculum. | |
| Engaging in remote learning allowed me to study more comfortably at home and allocate time for personal endeavors. | |
| **Positive feedback about exams** | |
| During the pandemic, distance education emerges as the most fitting mode of education. | The examination effectively assessed our understanding of the subject matter. |
| | I am content with the comprehensive disclosure of the laboratory exam scores. |

**Table 5.** Grouped Negative Responses From The Open-Ended Question Within The Committee Evaluation Questionnaire.

| 2020-2021 Academic Year | 2021-2022 Academic Year |
|---|---|
| **Negative feedback regarding the execution of the lectures** | |
| Distance education posed challenges from both social and educational perspectives, and it fell short in meeting my needs. The process left me feeling aimless and sapped my energy for keeping up with the coursework. | There is a need for dedicating more time to individual study. |
| The extended duration of virtual lessons, delivered through computer screens, led to certain health issues. | The syllabus is intensive. |
| Allocating more time for individual study is essential. | The lecture hours of some committees are long and intense. |
| Remote practical lessons lacked effectiveness, failing to provide robust individual learning and leaving information retention inadequate. Incorporating additional practice videos should be made and compensating for the absence of face-to-face models and cadavers should be made up. | Adhering to the stipulated lesson duration is important. |
| Financial constraints and the psychological impact of remote teaching adversely affected the educational experience. | Scheduled breaks should align with the program, avoiding consecutive lectures. |
| Excessive lecture hours on some committees demanded prolonged computer use, which detrimentally impacted health. | Increasing the hours of practices would be beneficial. |
| It's advisable not to exceed the prescribed duration of lessons. | It is inefficient to teach more than 2 hours a day from the same branch. |
| Enhanced instructor communication would be beneficial. | Distributing course hours evenly across the week enhances efficiency. |
| Coordinating lesson topics more effectively is desirable. | The syllabus underwent frequent changes. |
| The absence of PBL training was notable. | Coordination between lecture topics should be enhanced. |
| Epidemic-related restrictions impeded my ability to venture outdoors, given the discordance between curfew hours and the curriculum for those under 20. | The brief break following a committee exam is insufficient; additional days off post-exams are necessary to prepare mentally for the next committee. |
| | Having new lectures during the exam week detrimentally affects my studying. |
| | I struggle to keep up with the lecture pace. |
| | Providing extra points for laboratory notebooks would be beneficial. |
| **Negative feedback regarding the instructional materials** | |
| Uploading the presentation slides onto the online platform before the lesson is beneficial. | Uploading the presentation slides onto the online platform before the lesson is beneficial. |
| Lecture slides could include more textual content, or instructors could provide additional notes regarding the topic. | Enhancing the level of detail in the lecture notes would be advantageous. |
| | The presence of English-language slides had a negative impact. |
| **Negative feedback about exams** | |
| I encountered issues like freezing during the exam, delayed loading of photo questions, and waiting for the next question in the committee exam, causing concerns about time management and inducing stress. | The distribution of questions in the theoretical exam was uneven. |
| After moving on from a question in the exam, I recalled the answer later but was unable to revisit it, leading to a negative impact. | Insufficient pre-exam information for the first face-to-face exam resulted in stress. |
| The lack of suitable resources and an effective study environment hindered my exam and lecture performance. | I desire to know how many points I scored in each branch within the exam. |
| Implementing a camera system during exams is essential. | Theoretical exam questions were challenging. |
| A more balanced distribution of question difficulty in exams would be beneficial. | |
| Given the challenges of distance education, the passing grade or the passing grade without a final should be reduced and the conditions should be alleviated. | |

Medical faculties have persistently endeavored to curtail the extent of traditional lectures, harness technological innovations to enhance the pedagogy of laboratory sessions, foster an environment conducive to active and autonomous learning, and promote personalized and interdisciplinary educational approaches (9). Within our own academic setting, students enrolled in Phase 2 courses consistently conveyed a feedback of elevated theoretical course load, reflecting in the feedback submitted over successive academic years. Guided by the amalgamation of student insights and scholarly discourse, we posit that an augmentation of dedicated self-study periods could potentially yield advantageous outcomes.

The emergence of the COVID-19 pandemic precipitated a transformative shift towards virtual education, introducing formidable hurdles within the domain of medical pedagogy. Health educators, in response, have been compelled to strategize and tailor their instructional methodologies to align with the exigencies of the prevailing circumstances (10). Notably, the efficacy of online learning hinges upon a constellation of variables, spanning content relevance, user interface sophistication, cultivation of a collaborative learning community, and the optimization of learning outcomes, all of which play a pivotal role in fostering contentment among students and faculty members alike (11). Within the precincts of our faculty, the seamless integration of course materials within the distance learning system has facilitated effortless accessibility for students. Additionally, to ensure a smooth transition, a comprehensive distance learning system user manual, enriched by instructional videos, has been furnished to both students and educators. Furthermore, a dedicated initiative encompassing specialized training courses has been orchestrated for educators, fostering their adeptness in navigating digital educational platforms. This comprehensive approach collectively underscores our commitment to embracing the digital paradigm and engendering a robust online learning ecosystem.

Within the scope of our present inquiry, students enrolled in the 2020-2021 academic year expressed contentment concerning the communicative efficacy and adaptability exhibited during the period of online learning. However, the protracted duration of exclusively online instruction yielded certain challenges, manifesting as health-related issues, psychological implications, ineffectual practical lessons, and the conviction that virtual education inadequately substitutes traditional in-person interactions. Collaborative activities during online learning were perceived as cumbersome, rendering distance education less efficient. Additionally, students voiced grievances pertaining to inadequate resources and examination-related predicaments. Conversely, during the subsequent academic year of 2021-2022, students testified to their satisfaction with face-to-face education, perceiving greater autonomy and a reluctance to revert to online learning. This revelation, congruent with existing scholarly discourse (12,13), accentuates a pronounced preference for in-person pedagogy. Nonetheless, even within the context of conventional classroom-based instruction, students notably registered concerns about the intensity of the curriculum and the dearth of time allocated for independent study. Crucially, a common feedback thread emerged from our investigation, where students in both educational modalities articulated the imperative for instructors to adhere to prescribed course durations, allocate augmented time for individual study, and optimize the sequential arrangement of courses within the curriculum. Supplementary recommendations included the timely uploading of course materials onto the distance learning system prior to lessons, the provision of more comprehensive lecture notes, and a preference for lecture slides to be presented in the native language. Moreover, student perspectives extended to the examination realm, with a discernible plea for balanced question difficulty levels in assessment instruments. The comprehensive analysis encapsulated a nuanced tapestry of student viewpoints, enriching our understanding of the educational landscape and pinpointing areas primed for targeted improvements.

During the academic term of 2021-2022, a significant addition materialized in the form of the SSM, an inaugural inclusion within the Term 2 curriculum, endowing students with 10 European Credit Transfer and Accumulation System (ECTS) credits. This novel module, spanning a two-hour weekly commitment within the 3rd, 4th, and 5th committees, elicited favorable satisfaction among students. Notably, the phase 2 committee exams introduced practical assessments for Anatomy, Histology and Embryology, as well as Medical Microbiology courses, supplementing the conventional theoretical evaluations. Remarkably, a noteworthy shift transpired in the administration of exam results. Initially, the results of the practical and theoretical exams were announced as a single score. However, in response to student feedback following the first committee assessment, the Phase 2 coordinatorship adopted a new approach, meticulously delineating practical examination results for each individual course. This granular reporting of practical exam scores garnered student approval, underscoring their contentment with this refined assessment reporting mechanism. During the pandemic, the implementation of practical exams rendered unfeasible within the context of distance education.

In a comprehensive examination involving over 230,000 undergraduate students, as conducted by Bettinger et al., a discernible pattern emerged indicating that engagement in online coursework corresponded to a decrease in student academic performance by approximately one-third of a standard deviation (14). Curiously, in stark contrast to existing scholarly literature, our own investigation unveiled a contrary outcome, characterized by an augmentation of grade point averages. This anomaly could potentially be attributed to the inherent advantages of distance education, such as unrestricted access to educational resources and course materials, alongside the flexibility to revisit and reinforce subject matter at one's convenience. Parallelly, while the CHE introduced a regulatory framework pertaining to online instruction, entrusting the execution to individual universities, distinct operational choices have ensued. In the

context of MSKU Faculty of Medicine, the matter of exam invigilation has been an area of intensive inquiry. Notably, the decision was made to abstain from mandating the use of cameras during exams, primarily due to factors encompassing the absence of camera-equipped devices among certain students. Moreover, the imposition of mandatory camera activation could potentially raise concerns surrounding the infringement of personal privacy, invoking potential legal ramifications. The implementation of a nationwide directive mandating the utilization of cameras during exams is envisaged as a potential avenue to substantially mitigate the prevalent issue of exam security across universities. Concurrently, the orchestration of additional factors influencing academic achievement are important. Notably, within the framework of in-person instruction, the congruence of instructors with stipulated course commencement and conclusion times appears less pronounced in contrast to the online educational period. This variance might significantly impact student motivation and overall success. Furthermore, the transition to conventional face-to-face teaching has been notably hindered by circumstantial challenges brought about by the enduring repercussions of the COVID-19 pandemic. In particular, instructors grappled with disruptions stemming from COVID-19 infections or potential illnesses, which impeded their ability to maintain strict adherence to the prescribed curriculum. Conclusively, an additional consideration surfaces from the absence of the "dam system" during the 2020-2021 academic year, coinciding with the prevalence of distance education. This variance in evaluation methodology may have contributed to the elevation of students' board examination grades.

Amid the exigencies posed by the pandemic, participants at Manisa Celal Bayar University Faculty of Medicine expressed contentment with the online e-PBL sessions. However, alongside this contentment, it was underscored that while online learning was satisfactory, it remained clear that it could not wholly supplant the irreplaceable value of in-person instruction (15). Within our academic setting, an immersive one-week PBL module, encompassing 10 ECTS credits, is administered as part of the 2nd Term Committee. Notably, the continuity of PBL instruction was momentarily disrupted during the period of distance education, but it was subsequently reinstated and effectively reinstated during the 2021-2022 academic year. Importantly, the academic year 2022-2023 marked the inauguration of e-PBL sessions, a novel and pioneering approach in our faculty.

When the studies are examined, it is seen that the difficulties experienced in medical education during the pandemic were emerged, and solutions and innovations for the continuation of medical education were determined (16). It is observed that the use of technology in lessons can enable students to learn more interactively and help the learning process (17). There are also studies showing that three-dimensional visualization is a significantly more effective learning method compared to traditional methods (18).

The integration of online learning within the realm of medical education encompasses an array of advantageous attributes, notably cost-efficiency, heightened temporal and spatial flexibility, and the inherent ability to seamlessly integrate updated content (19). Furthermore, the assimilation of e-learning platforms furnishes medical students with a valuable opportunity to acclimate themselves to the evolving landscape of web-based medicine, replete with burgeoning digital health services (16). Notably, the survey respondents, comprising students, conveyed reservations concerning their access to adequate devices, in addition to grappling with internet connectivity issues and speed-related constraints. Moreover, the predicament of sharing a single device among multiple users posed an obstacle to attending synchronous lessons. This predicament substantiates the premise that prioritizing investments in the realm of online education, coupled with the establishment of standardized practices, is a prudent course of action, poised to address these issues and optimize the learning environment.

## Conclusion

The insights garnered from students' perspectives on both online and in-person learning hold the potential to furnish valuable insights for educators, institutions, and curriculum designers. This trove of feedback equips them with the necessary insights to curate enriching and effective online learning encounters while also harnessing technology adeptly in conventional classroom settings. A paradigm shift towards innovation in medical education beckons, inviting a reevaluation of both established and contemporary instructional paradigms. Through the lens of this study's findings, a dual-pronged objective emerges: to contribute to the advancement of both traditional and distance education, ultimately bolstering the caliber of educational provision. Presently, the utilization of online distance learning remains unbounded, deployed sporadically and for indeterminate durations. In light of this, we advocate for the widespread proliferation of internet connectivity and accessible online learning tools across the educational spectrum, thereby preemptively curbing the emergence of opportunity disparities and embracing a more forward-looking, contemporary approach to education.

## Conflict of interest statement

The authors hold no affiliations or relationships that could give rise to any potential conflicts of interest.

**Ethics Committee Approval:** In the course of this investigation, strict adherence was observed to the entirety of the guidelines delineated in the "Higher Education Institutions Scientific Research and Publication Ethics Directive." No actions that contravene the principles outlined in the directive's section titled "Actions Contrary to Scientific Research and Publication Ethics" were undertaken. Furthermore, formal authorization was procured for the execution of this study from the MSKU Faculty of Medicine (dated 2022/451397) and the MSKU Ethics Committee (dated 2022/220076).

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