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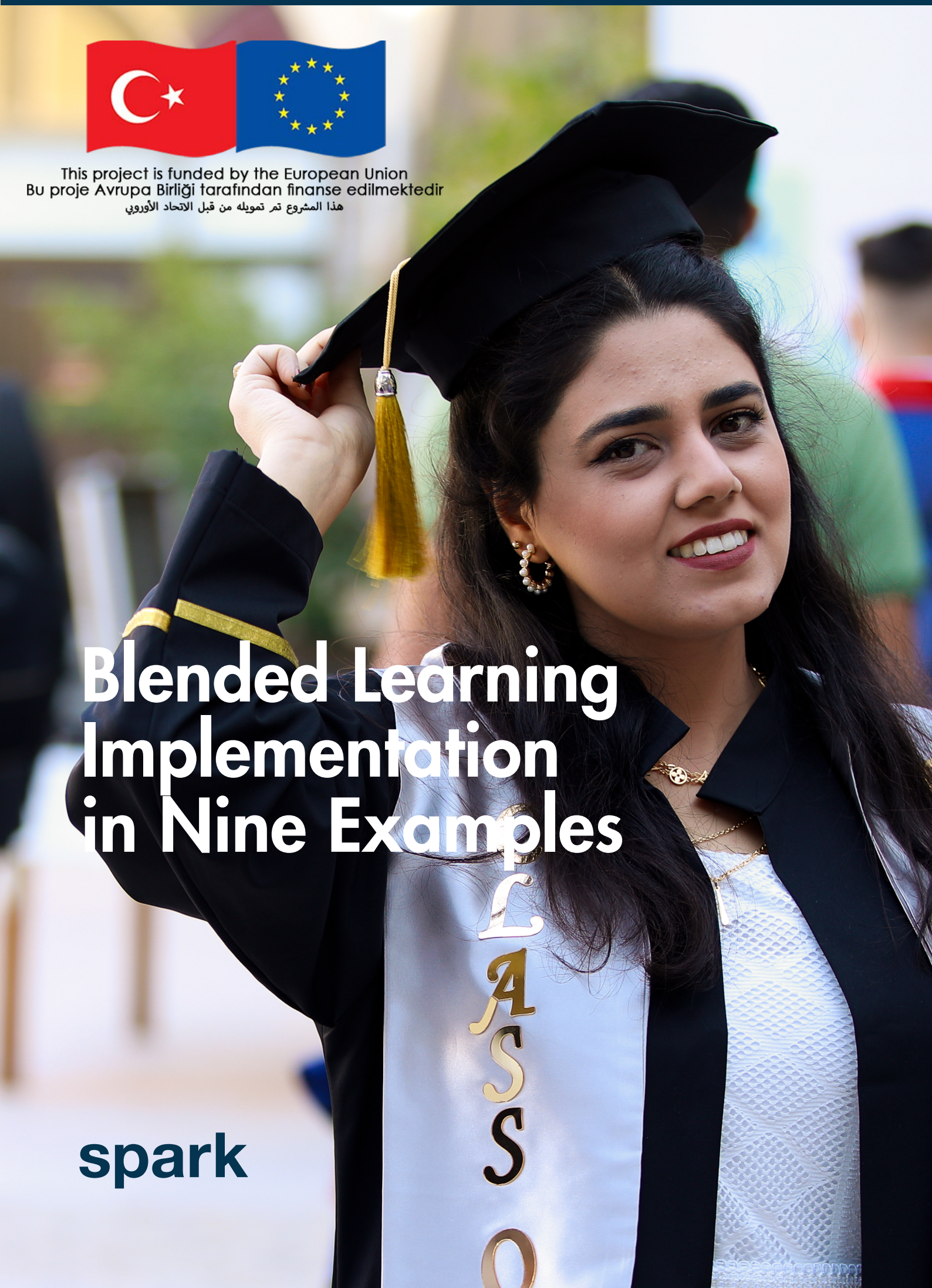

Blended Learning Implementation in Nine Examples

spark

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Blended Learning Implementation in Nine Examples

This report is the product of a project SPARK implemented with the funding of the European Union. SPARK collaborated with Gaziantep University and LearnEra in preparation of this report.

Its contents do not necessarily reflect the views of the SPARK.

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Content index

Introduction

This document has been prepared as the final report of the service provided by LearnERA for SPARK and Gaziantep University as part of a project implemented with the financial support of the European Union. The report includes the preferred learning model, content types, usage analyzes and detailed analyzes of the courses. The general situation of the process is summarized and suggestions for the next stages are given on the basis of courses.

Within the scope of the project, the flipped model was used. According to this approach, all course content is presented to the learner before the course in order to meet the introductory level objectives. During the lesson, it is aimed to increase the interaction with the lecturer and to carry out performance-oriented activities. After the lesson, activities that provide the opportunity for lesson repetition and additional interaction, where the learners can reflect their experiences, are included. In this context, a study was designed so that the course could be taught in three parts with more than one material type. All the editing, course design, content types and usage analyzes are presented in the next section. At the same time, a detailed analysis of all courses is also included within the scope of the report.

The analyzes in the report should be examined according to the forthcoming explanations: Analyzes were made separately for the first and second semesters and combined. Since Gaziantep Distance Education Center makes domain and server changes throughout the project, an exact match should not be expected between the available manual data and log records. Total analyzes were subtracted from the log records. The number of materials was matched according to the modules (such as 12 videos, 2 interactive course materials). The total usage obtained from the courses was proportioned according to the number of students. Success grades and system usages were matched manually.

Course structure and types of materials

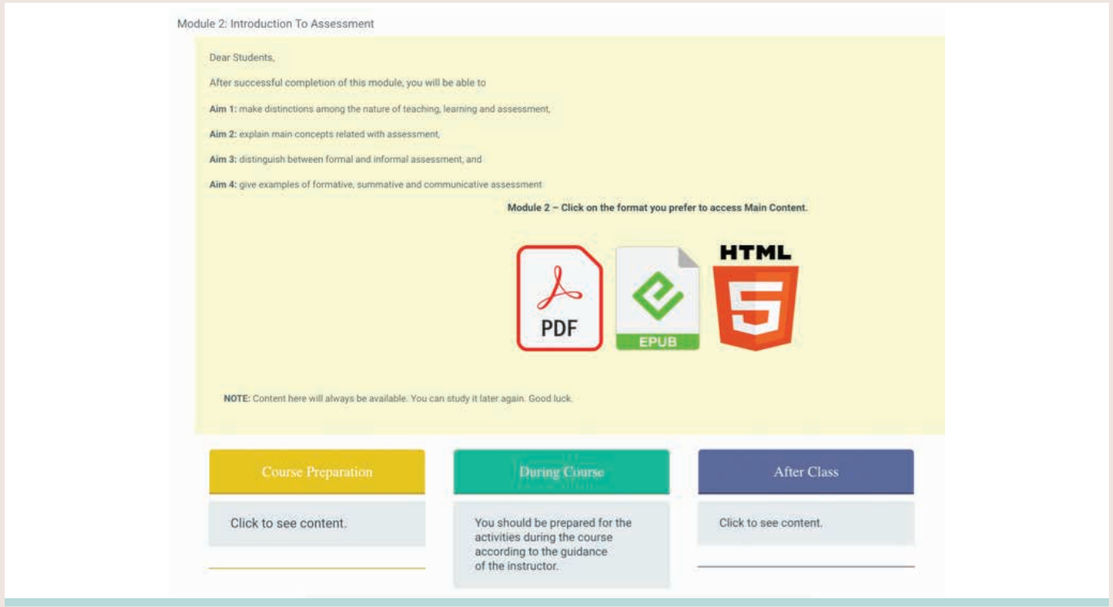

Figure 1. Module page

The learner sees a design as in the figure before each module. In this design, learning objectives are included in the first place. With learning objectives, the learner is informed about what kind of module awaits her/him, what s/he will learn and what s/he will do.

Figure 2. Main course material types

Basic course material is presented in three different formats. With this type of material, the learner can prepare for the lesson before the lesson and use it for repetition after the lesson. With the PDF type, all the content appears before the student in a printable format and arranged with all its elements. With the ePUB version, the student can download content to mobile book readers and follow the content offline depending on the capabilities of the mobile reader. With the HTML5 version, the students can review all the content online, navigate between topics and work by searching for special terms with the search function, creating a new summary content view for themselves.

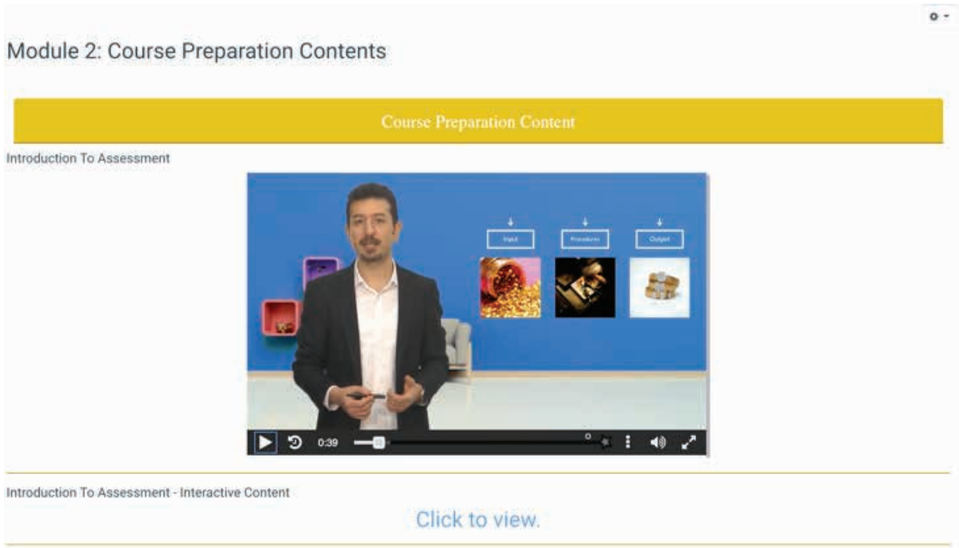

Figure 3. Lecture video

Figure 4. Interactive course material

In addition to the basic course material, lecture videos and interactive course materials were presented in order to prepare the learner for the course content before the course. The learner learns the subject at the introductory level by watching the lecture video before coming to the lesson. At the same time, interactive course materials were presented to the learner before the lesson so that they could follow their learning at their own pace and stay active with some interaction elements. Thus, it has been possible for learners with different learning styles to individualize the learning process according to their personal needs and preferences.

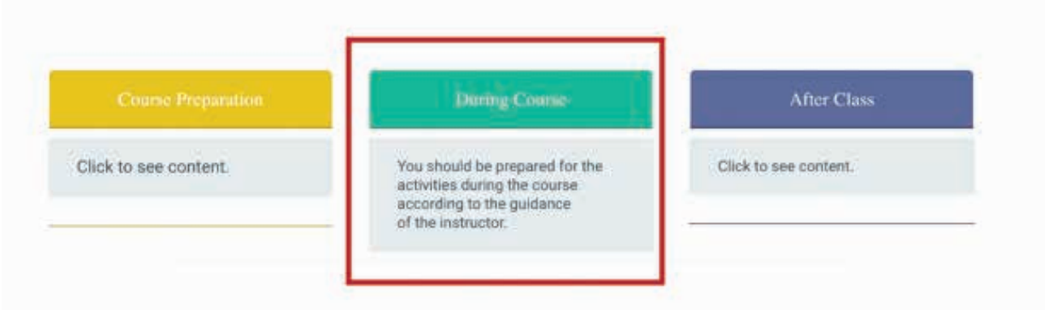

Figure 5. Course preparation, during course and after class view

Presentations have been prepared for the use of the instructor during the lesson. With the presentations, an opportunity has been created for the instructor to explain the lesson in line with a certain design. Since the learner is also prepared before the lesson, the instructor can allocate more time for communication and interaction. During the course, the teacher and the learner were supported by this project in this way.

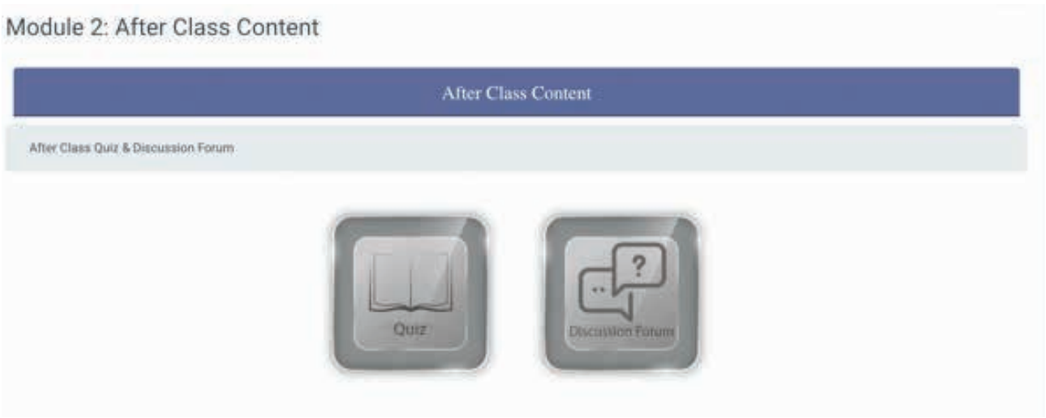

Figure 6: After-class activities

With the after-course content, the learner is given the opportunity to test the experiences he has gained in the learning process. It is ensured that the instructor can observe the learning process through activities such as exams and discussion forums, where the learner can demonstrate her/his performance. Thus, s/he had the opportunity to determine which subject should be repeated with which material in case of need.

Usage analysis
(all courses)

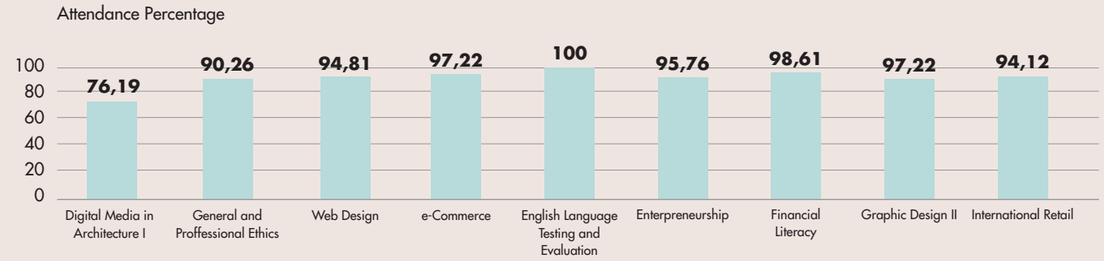

Figure 7. The rate of students using the online learning management system (LMS) by courses

Table 1. Number of students using online learning management system (LMS) by courses

Courses	Number of Students	Number of Students Using the System
Digital Media in Architecture I	63	48
General and Professional Ethics	267	241
Web Design	77	73
e-Commerce	108	105
English Language Testing and Evaluation	48	48
Enterpreneurship	118	113
Financial Literacy	72	71
Graphic Design	9	9
International Retail	17	16

In the interviews, the instructors stated that it was a very successful process in terms of system and they had an effective experience with inclusive content. They underlined that they have much more functional lessons with the blended learning model. The total number of students and the number of students interacting with the system are presented in the figure and table. It is seen that the data supports the instructive views. The fact that the process has just started in the fall semester courses and the effect of the Pandemic is thought to be one of the important reasons for the difference between class size and attendance. In other lessons, almost all students actively participated in the use of the system.

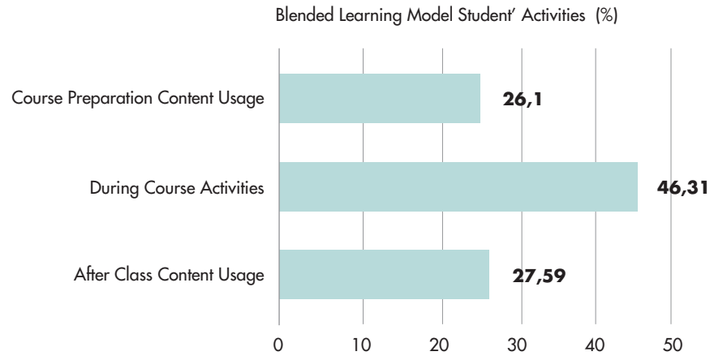

Figure 8. Distribution of learners' participation levels in blended activities

When students' usages are examined according to the number of interactions, it is seen that they show almost equal interest before and after the course. This interest is proof of how ready the learners are during the course. The learners who participated in the course were prevented from breaking away from the process by repeating the subject. In this respect, it would be appropriate to say that the model is functional.

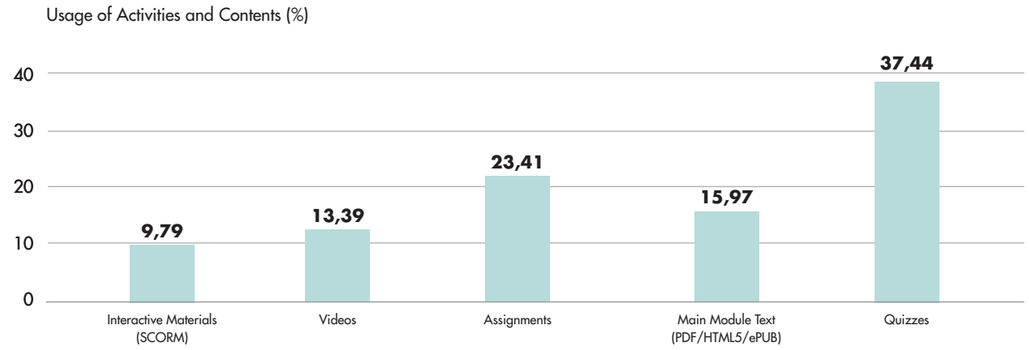

Figure 9. Usage levels of different course materials

While the end-of-course activities, homework and exam activities were the most used materials, it was observed that the usage rates of other content types were close to each other. These data show that the potential to allow the use of different learning styles with different materials is realized in all courses. Each student individualized their learning process by using the most suitable material for their learning style among the available materials.

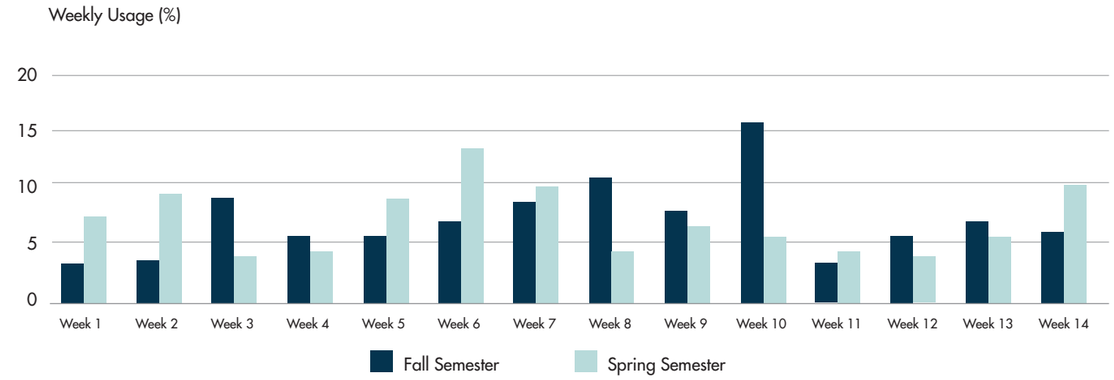

Figure 10. Weekly distribution of usage rates in courses (including orientation and exam weeks) by semesters

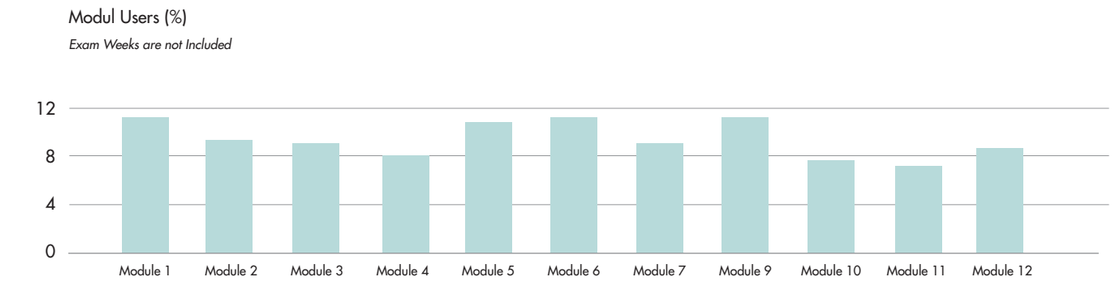

Figure 11. Weekly distribution of usage rates of modules (excluding exam weeks) by semesters

In Figure 11, the weekly distributions of usage rates in all courses (including orientation and exam weeks) are shared. All courses are prepared in such a way that a module will be covered each week. Peak points correspond to exam weeks. Since the blended learning approach was started in the fall semester, it is seen that it takes a few weeks for the students and instructors to adapt to the system, since it is a quick start. Exam weeks have changed more in the fall due to the Pandemic. Therefore, we see that there are periodic differences between the peaks. In other weeks, it is seen that there are close accesses to each other. This situation can be considered as an indication that the students can be kept in the system throughout the process and that the students have begun to be convinced of the continuity rather than the result. In Figure 5, the usage rates of the modules without the exam weeks are shared. Different instructions and study texts have been prepared for the exam weeks. Access to modules varies between 7 and 11 according to the rates calculated over the total courses. As it can be understood from here, the modules attracted almost equal interest from the students. The continuity in Figure 11 is also supported by this data.

Analysis of the courses

1. Digital media in architecture

Introduction

In line with the decision taken by the Higher Education Council, " Digital Media In Architecture" course was given through open and distance learning in the fall semester of the 2020-2021 academic year due to the COVID-19 epidemic. Design and development studies were carried out in order to deliver the course through open and distance learning.

First of all, with the pedagogical design, the course was redesigned with the "flipped classroom" model and the related pedagogical design was reflected in the online course design. In the next stage, e-learning resources were designed in accordance with open and distance learning and flipped classroom model. At this stage, in order to support the techno-pedagogical competence of the lecturer responsible for the course, a number of in-service trainings were provided including blended learning, flipped classrooms, the development of e-learning resources, online classroom management, effective use of learning management systems.

The LearnERA Specialist, who specializes in open and distance learning, has collaborated with the lecturer responsible for the course during the redesign of the course and e-learning contents, as well as the delivery of the online course. First of all, the syllabus and weekly lesson plan were developed, and appropriate e-learning resources were determined by consensus with the lecturer to present the necessary content, and the lecturer was informed about how to develop the said content. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert as instructional designer. Content developers were responsible for transforming the designed content into a learning resource. Detailed information on the development process of the relevant content is given in the "Course Structure" section.

Online orientation resources and orientation activities were developed and published as the orientation module in order to enable students to adapt to the open and distance learning and flipped classrooms model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents.

E-learning resources developed in accordance with the methods and techniques of open and distance learning and flipped classrooms model are offered to students interactively within the scope of the course designed within the learning management system (LMS) of Gaziantep University.

Flipped classrooms

The flipped classroom model is a teaching model in which students are prepared for the course content before the lesson, during the lesson, learning activities are carried out under the guidance of the instructor, and after the lesson, learning is reinforced with learning activities such as discussions, quizzes or assignments.

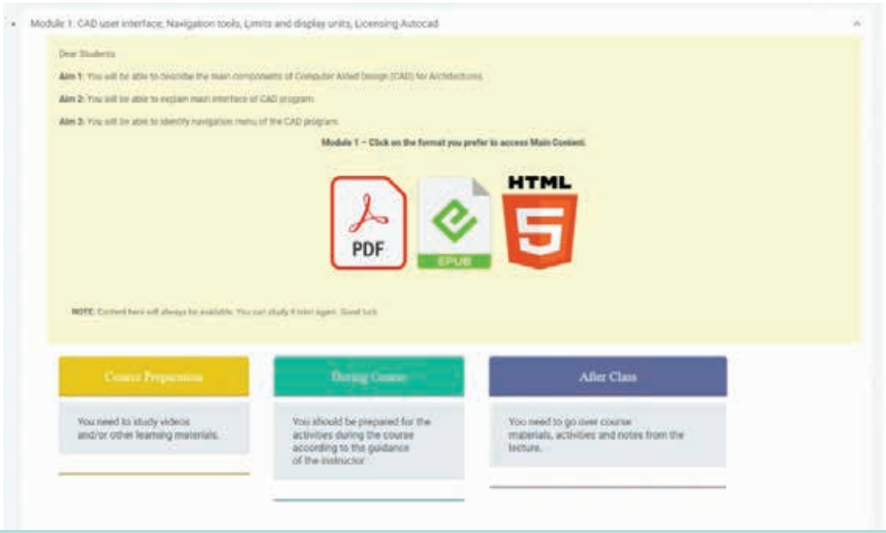

Figure 12. The flipped classroom learning activities

The flipped classroom model adopted within the course consists of "Course Preparation", "During Course" and "After Class" activities. During the course preparation stage, students are expected to study the e-learning resources presented to them and complete the related learning activities before coming to the "live lecture" given via videoconference. During the lesson, learning activities were carried out under the guidance of the lecturer. In the after-class activities, reinforcement activities such as discussion activities and quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

Course structure

An orientation video was developed for the orientation of students to the course, which was designed based on open and distance learning and flipped learning models, as well as pdf-based content that deals with learning models, processes, and resources. In addition, a course introduction video was developed in which the lecturer responsible for the course conveyed the course, the purpose of the course, learning activities and expectations from the students.

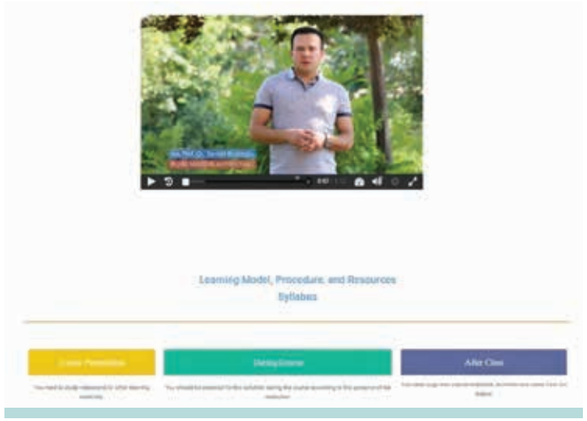

Figure 13. Course introduction video and orientation resources

The learning resources under the relevant modules within the course were agreed between the lecturer of the course and the LearnERA expert. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert instructional designer. Content developers were responsible for transforming the designed content into a learning resource.

In order to deliver the course content to the students, the following learning resources have been developed in accordance with the nature of the course, learning objectives and flipped classroom model.

1. **Main course material:**
   It is text-based content enriched with images. This content was developed as Pdf, epub and html-based in order to facilitate access from different tools and platforms.
   In the development of the main course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them were included in this template. The lecturer prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for open and distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

Figure 14. Main course materials

2. **Interactive course material:**
   It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course.
   Modules for developing interactive course material were determined; related text, visual and audio elements were designed; and draft e-learning material was developed by the developers and presented to the LearnERA expert and lecturer. After the control processes, the final e-learning content was published in the online course.

Figure 15. Interactive Course Material

Table 2. e-Learning resources

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●				
Module 1	●	●	●	●			●	●
Module 2	●	●	●	●			●	●
Module 3	●	●	●	●		●	●	●
Module 4	●	●	●	●			●	●
Module 5	●	●	●	●			●	●
Module 6	●	●	●	●		●		●
Module 7	●	●	●	●				●
Module 8	M I D - T E R M E X A M							
Module 9	●	●	●	●				●
Module 10	●	●	●	●				●
Module 11	●	●	●	●				●
Module 12	●	●	●	●				●
Module 13	●	●	●	●				●

In addition to the learning resources, the instructional strategies used in the execution of the online course are given below.

1. **Messaging:**
   Announcement events, in which students are reminded of the activities expected to be carried out regarding the course and important developments regarding the course are conveyed, were carried out by the instructor using the LMS messaging tool. The LearnERA expert guided the lecturer about the content, language and ways of announcement of the announcement activities and shared the examples with him.

2. **Sample applications:**
   Due to the practice-oriented nature of the course, sample designs were shared and they were expected to realize these designs in order for the students to apply the design skills they learned.

Figure 16. Messaging

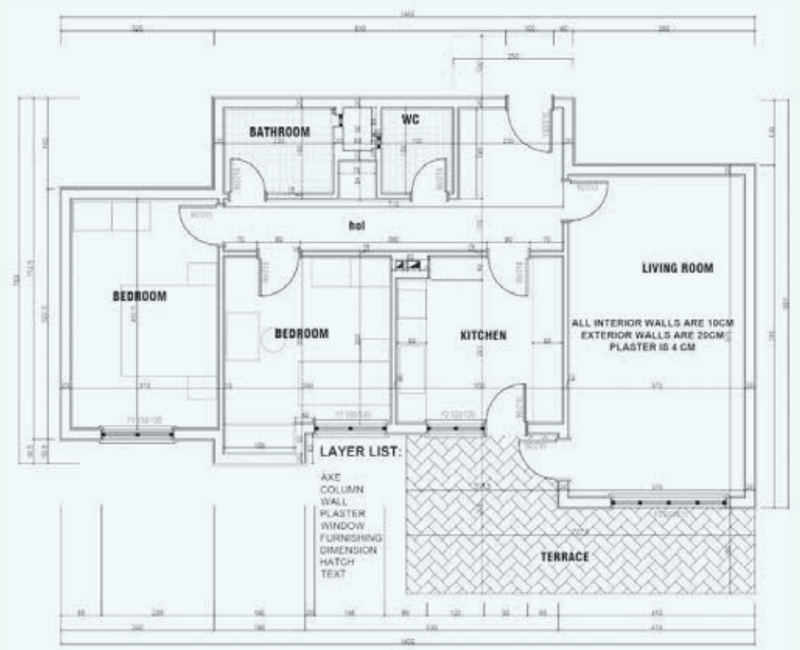

Figure 17. Examples

3. **Project assignment:**
   A project homework has been developed in order to put the design skills learned in the course into practice and to measure the related skills. Students uploaded the projects they developed to the system using the LMS homework tool.


Digital Media 2 - Midterm Project

23.11.2020

Assist. Prof. Dr. Sevket Bediroglu

ARCH 253 DIGITAL MEDIA IN ARCHITECTURE I

MIDTERM SUBMISSION ANNOUNCEMENT

"Online Homework Submission" will be made as ARCH 253 course Midterm exam within the scope of the calendar announced on our faculty website.

Online-Homework Submission

Starting: 26.11.2020 (Time: 08.00)Early Submission Starts 24.11.2020

Ending: 27.11.2020 (Time:23.59)

1. It is expected that the components of floor plan will be created in the housing plans given to you.
2. You should also create architectural elements such as doors and windows.
3. We expect you look up your plan specified in the Excel file.
4. At first glance at the .pdf file, you can see a blackout, but the image will become clearer as you zoom in.
5. You should be careful about opening different layers and using them.
6. You do not have to furnish all the rooms, it is enough to make one room.

Figure 18. Project assignment

4. **Quizzes:**
   It is a summative assessment-evaluation activity in which the learning levels of students regarding the course content are measured. It includes different types of questions such as multiple-choice questions and matching. The scores they got from this activity were used to evaluate student success.

Şekil 19. Quizzes

Course delivery

In the process of developing the learning resources for the course, the LearnERA expert had the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary.

The course delivery process was carried out in the context of course preperation, during course and after lesson activities based on open and distance learning and flipped learning models. Students were informed about what to do before the lesson, during the orientation week and during the lesson, through announcements and reminders in the live lesson. During the lesson, the lecturer carried out learning activities in order for the students to learn the subject in depth. LearnERA experts and faculty members exchanged views on the activities that can be done in this direction. In after lesson activities, strategies and examples were shared with the lecturer and consultations were held throughout the process, especially in order to use the discussion forum activities effectively. In addition to these, summative measurement-evaluation tools have been developed for the modules deemed necessary. The LearnERA expert shared his views on how the LMS gradebook can be used in assessment-evaluation processes with the faculty member. In all online course processes, the LearnERA expert course provided active support to the lecturer by providing examples when necessary on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment-evaluation strategies. The experts and lecturers discussed the issues that emerged during the course processes together and developed solutions specific to the course and the situation.

Course evaluation

In the 2020-2021 fall academic year, learning analytics consisting of course and e-learning resources access were used in the evaluation of the course designed with open and distance learning and flipped classroom model, enriched with various e-learning resources. Accordingly, a two-layer analysis was carried out: 1. Access to the course and 2. Access to e-learning resources.

1. **Course access**
   Learning analytics on course access consists of analytics data on the number of individual learners accessing the course, total access, and weekly access.

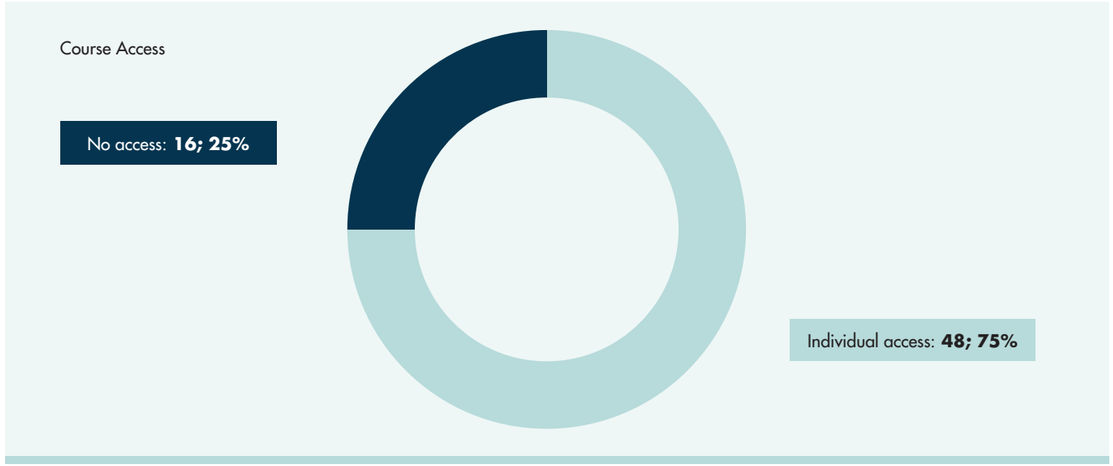

Figure 20. Unique access to the course

It is seen that 75% (n=48) of the 64 students enrolled in the 2020-2021 fall academic term had access to the course, while 25% (n=16) did not (Figure 9). When the students' course success is examined, it is seen that 2 students did not take part in any assessment activities, including the midterm and final exams. Therefore, it is understood that a significant proportion of the students (n=62) who are enrolled in the course and participated in the course assessment-evaluation activities had access to the course, while 22% of them did not.

When the total access rates to the course are examined (Table 3), it is seen that 62 students accessed the course 267 times in total. From this point of view, it is understood that a student who accessed the course visits the course approximately 6 times on average. Based on these analytical data, it is evaluated that the students studies for the course working on the software within the scope of the course, rather than the course environment, since the course is an individual practice-oriented course.

Table 3. Course access rates

No. of Students	Individual Access	No Access	Total Access	Access Rate
64	48	14	297	6,18

Considering the analytical data on weekly access to the course (Figure 10), it was found that students visited the course 21 times per week on average; the lowest access rate being in the week before the end-of-term exam. It is observed that the highest access was achieved during the midterm exam week. It is expected that students' access to the course was high before important assessment-evaluation weeks. However, it is considered that the reason for the low access before the end-of-term exam is that the individual project assignment was done on CAD software other than LMS.

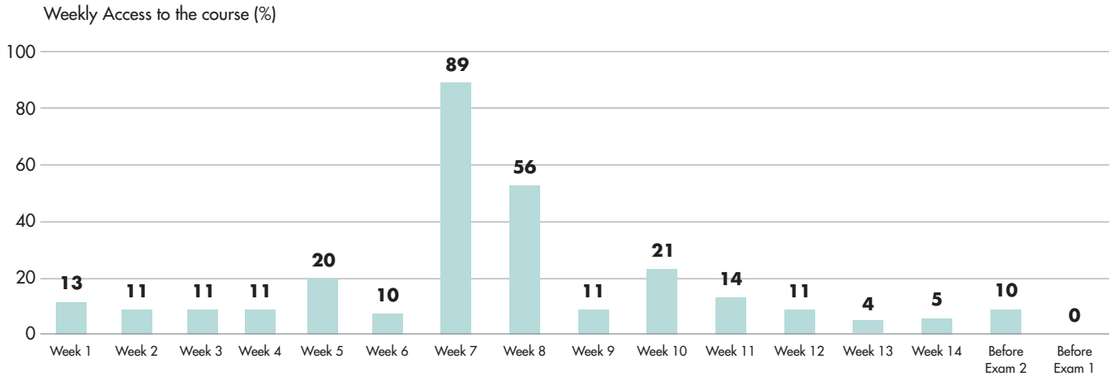

Figure 21. Weekly access to the course

2. Access to the e-learning resources

When the learning analytics regarding access to e-learning resources developed within the scope of the course are examined (Table 4), it is seen that the most access is to the main course resource (pdf/html5/ePub) (f=23), followed by the exam activity (f=78). It is understood that the least access is realized in the interactive course material (f=18).

Table 4. Access to the e-learning resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Interactive Course Material	2	18	9
PDF/HTML5/ePUB	23	201	9
Exams	3	78	26

On the other hand, when the access/material number ratios are considered, the source with the highest rate is the exam activity; it is seen that the main course material and the interactive course material have the same proportions. Number of materials/material access ratios are presented visually in Figure 11. Accordingly, it is considered that students' access rates to the exam activity are an expected result in the context of compulsory assessment-evaluation activity. On the other hand, the data obtained show that students mostly have access to the main course material. Since it forms the basis of students' preparation as a pre-lesson activity, the high accessibility to this resource shows the effectiveness of the adopted learning approach.

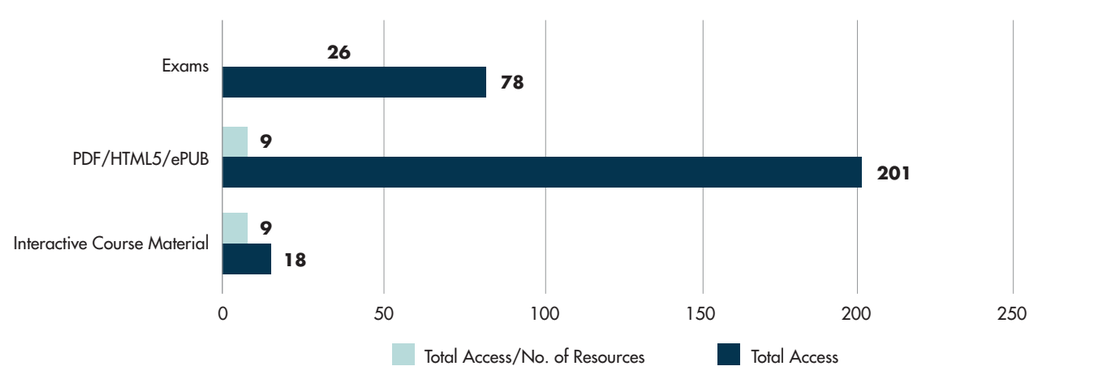

Figure 22. Total access and total access/no. of resources

When the learning analytics data, which consists of weekly access data for e-learning contents, is analyzed (Figure 22), it is observed that weekly accesses change in parallel with course access data, and an increase in material access during the midterm week. The increase in material access observed during this exam week indicates that students are using these materials to prepare for the exams. On the other hand, the fact that the number of accesses to the main course material is parallel, except for important weeks, shows that students access this e-learning resource on a weekly basis. On the other hand, it is observed that students mostly access exam activities during midterm exam weeks and access to interactive course materials is limited.

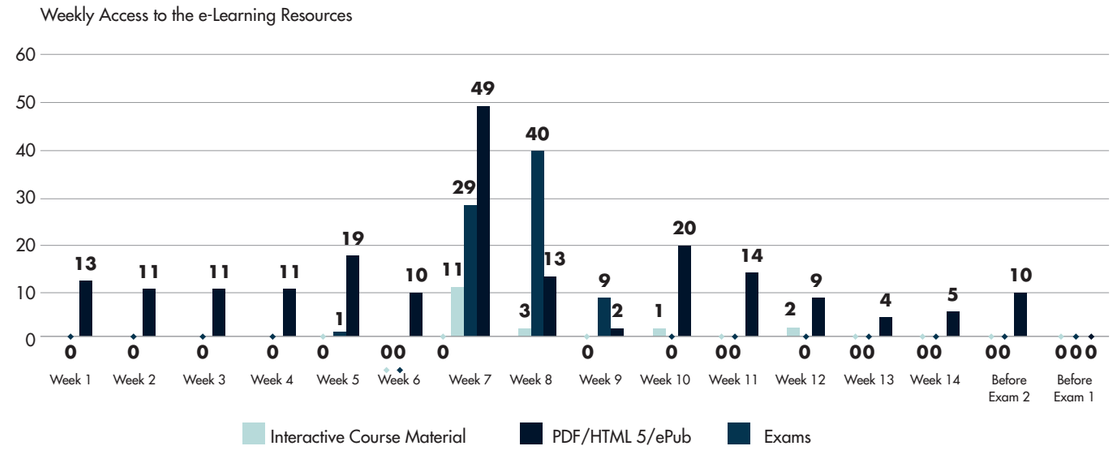

Figure 23. Weekly access to the e-learning resources

Course success

Examining the student achievement status of the course taught through open and distance learning and the flipped classroom model in the 2020-2021 fall academic term (Figure 24), it is seen that 61 students (95%) were successful and 3 students (5%) failed the course. It is seen that two of the unsuccessful students did not take part in any measurement-evaluation activity. In other words, it is observed that these students registered for the course but did not take part in any learning process.

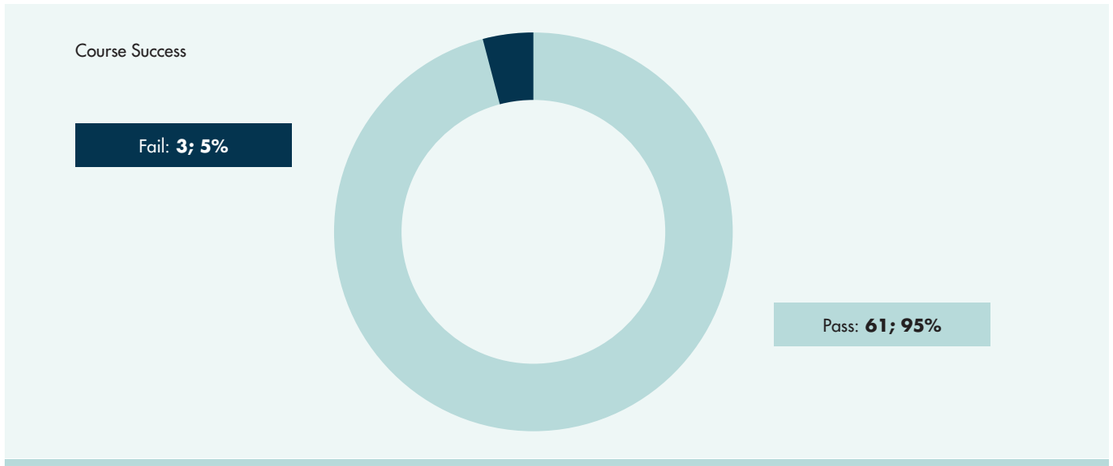

Figure 24. Course success

When the letter grades taken by the students are examined; It is seen that 3 students received FF and 14 students received AA. It is seen that a significant proportion of the students (45%) get the letter grade BA+, followed by the letter grades of AA and BA. It is observed that the students are mostly successful in the course.

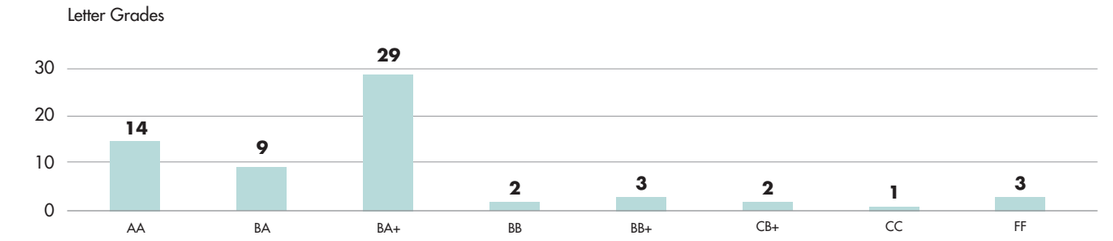

Figure 25. Letter grades

When the relationship between student success and access to the course is examined (Table 5); It is observed that the first 3 students with the highest grades and the 3 students with the lowest grades have low access to courses (Figure 26). Therefore, it is evaluated that there is no relationship between access to the course and success. It is considered that the reason for this may be due to the fact that the course requires individual work on the software.

Table 5. Course success - access relationship

Access Rate	Name&Surname	Grade	Letter Grade	Access
Low	H*** M***	95,2	AA	8
Low	I*** T***	95,4	AA	4
Low	N*** M***	95,8	AA	4
Low	G*** D***	36,8	FF	4
Low	M*** K***	0	FF	0
Low	B*** A***	0	FF	0

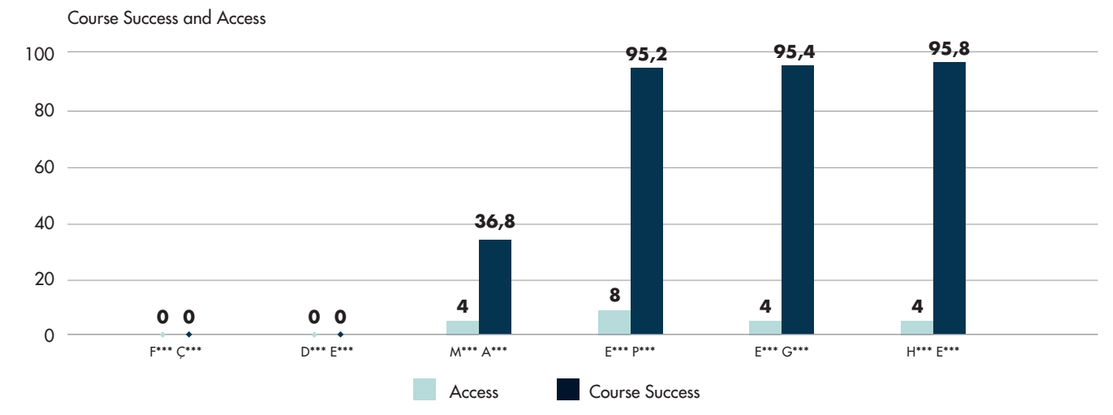

Figure 26. Course success and access

Conclusion and recommendations

In line with the recommendations of the Council of Higher Education, due to the COVID-19 epidemic, the "Digital Media In Architecture" course was delivered in the fall semester of the 2020-2021 academic year through open and distance learning and adopting the flipped classroom model. In order to deliver the course through open and distance learning, design and development studies were carried out, active guidance was provided to the instructor during the execution of the online course, and steps were taken to realize effective online course management.

In order to ensure effective online course management, in-service training was given primarily to support the techno-pedagogical competencies of the lecturer responsible for the course. In addition, various e-learning resources have been developed in order to carry out the course effectively through open and distance learning and flipped classroom model. In this process, faculty members, LearnERA experts and developers worked collaboratively in harmony. In this process, the LearnERA expert provided proactive guidance to the lecturer through good examples.

When students' access to courses and e-learning resources is evaluated, it is seen that a significant proportion of students have access to the course and course content. It is understood that students especially frequently access the course main material and benefit from these materials specially to prepare for the exam. Examining learning analytics, it was observed that there was no relationship between student achievement and course access. It is considered that the reason for this may be due to the fact that the course requires individual work on the software.

Finally, the faculty member states that he is satisfied with the process of redesigning and conducting the course with open and distance learning and flipped classrooms model, and the support provided by the LearnERA expert. It is considered that it would be appropriate to encourage the instructor financially, such as royalties, for the development of different e-learning resources that will include the students in the learning processes of the course more effectively in the future. As a result, it is recommended to enrich the course with different e-learning contents and to adopt similar designs in other courses.

2. e-Commerce

Introduction

E-commerce course, which is carried out at Gaziantep University Faculty of Economics and Administrative Sciences in the spring term of the 2020-2021 academic year, was offered to students through distance education and with a blended learning model. In this context, the course's design and content development studies were followed with expert support and a weekly writing process. A meeting was held with the lecturer of the relevant course in June 2020, and it was agreed that the content writing process would start in August 2020. However, due to the failure to achieve the desired efficiency until October 2020 and the delays in the writing process, the instructor was changed. Therefore, the new instructor was contacted in November 2020, and after the necessary information about the content production process was shared, the writing process was started. The writing process was followed on a weekly basis and the content was reviewed in line with expert opinions, and the process was completed in January 2021.

During the process, the related course was primarily designed with a 'blended learning' (flipped classroom) model with pedagogical design. Then, the design of learning materials was carried out in accordance with the distance education and blended learning model. At this point, in-service training was provided to support the techno-pedagogical competence of the lecturer in charge of distance education and learning, blended learning model and e-learning materials. Blended learning model, classroom management in online learning environment, effective use of learning management systems (LMS) and development of e-learning materials were included in the training. The LearnERA expert, who is an expert in the field of distance education, worked in collaboration with the lecturer responsible for the course throughout the process of writing and designing the course and e-learning contents and conducting the online course. In this context, primarily the syllabus and weekly lesson plan were developed. The most appropriate e-learning resources were determined for the presentation of the necessary content during the course of the course, and the lecturer was informed about how to develop the content in question and was in constant communication. During the development of the e-learning contents, the lecturer served as the raw text content developer and the LearnERA expert as the instructional designer. The content developer, on the other hand, provided the conversion of the written and designed content into a learning resource.

The blended learning model adopted in the design of the course is the teaching model in which students prepare for the course by reviewing the course contents before the course, while learning activities are carried out under the guidance of the instructor during the course, and learning is reinforced with learning activities such as discussion, quizzes, or homework after the course. In this context, the blended learning model adopted in the course consists of three stages. These are "Course Preparation", "During Course" and "After Class" activities (Figure 1). During the course preparation,

students are expected to study the e-learning materials provided to them and complete the relevant learning activities before coming to the online courses. During the course, learning activities were carried out under the guidance of the instructor. In the after-class activities, reinforcement activities were carried out with quizzes or homework. In this way, it is aimed that students achieve permanent and deep learning.

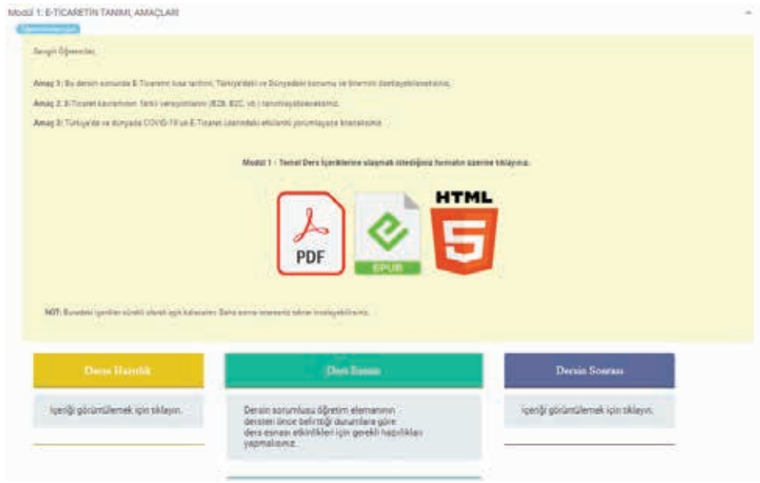

Figure 27. Learning process and activities in the blended learning model

Course structure

An orientation video (Figure 28) was prepared for the orientation of the students for the course, which was designed through distance education and based on the blended learning model. In addition, pdf content that covers learning models, processes and course materials has also been developed.

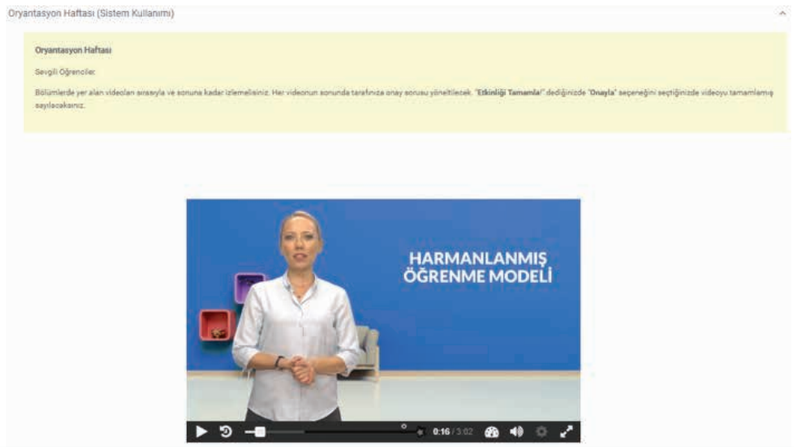

Figure 28. Course orientation

In addition, the course introduction video was developed by the instructor to introduce and share the purpose and process of the course, learning activities and expectations from the students (Figure 29).

Figure 29. Course introduction video

In order to transfer the course contents to the students, different e-learning materials given below (Table 6) were used on a weekly and module basis in accordance with the course structure, learning objectives and blended learning model. Online orientation resources and orientation activities have been developed and published as an orientation module in order to enable students to adapt to the distance learning and blended learning model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents. In addition, e-learning resources developed in this context were made available to students through Gaziantep University's learning management system.

In order to deliver the course content to the students, the following five e-learning resources have been developed in accordance with the nature of the course, learning objectives and blended classroom model.

1. Main course material:

It is text-based content supported by images. This content has been developed as PDF, ePUB and HTML-based in order to facilitate access from different tools and platforms. In the development of the basic course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them are included in this template. The instructor prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

Figure 30. Main course material

Table 6. e-Learning materials used in the course

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●	●			
Module 1	●	●	●	●	●		●	●
Module 2	●	●	●	●	●		●	●
Module 3	●	●	●	●	●		●	●
Module 4	●	●	●	●	●		●	●
Module 5	●	●	●	●	●	●	●	●
Module 6	●	●	●	●	●		●	●
Module 7	●	●	●	●	●		●	●
Module 8	M I D - T E R M E X A M							
Module 9	●	●	●	●	●		●	●
Module 10	●	●	●	●	●	●	●	●
Module 11	●	●	●	●	●		●	●
Module 12	●	●	●	●	●		●	●
Module 13	●	●	●	●	●		●	●

Figure 31. An example of a lecture video

2. **Lecture videos:**
   It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. In the development of the lecture video, a scenario template was created by considering the instructional design principles. The template contains information on how the audio text should be created, how the visual and text elements that are required to be displayed on the screen can be developed, and how the screens should be designed. The scenario created by the instructor was checked by the LearnERA expert, necessary corrections were made and sent to the developers. Within the scope of this course, at the end of the meeting with the lecturer, it was decided that the LearnERA expert will be present in the videos and the expert took place as the presenter in the related videos.

3. **Interactive course material:**
   It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course. The modules to be developed for the interactive course material were determined, the relevant text, visual and audio elements were designed, and the draft e-learning material was developed by the developers and submitted to the control of the LearnERA expert and lecturer and published in the relevant modules.

Figure 32. Interactive course material

4. Assessment tools and activities:
In order to measure the learning levels of the students regarding the course content, a quiz or homework activity was held every week. Quizzes include multiple choice questions. The scores the students got from this activity were used to evaluate their success. Homework activities were used to research and put into practice the theoretical knowledge learned in the course.

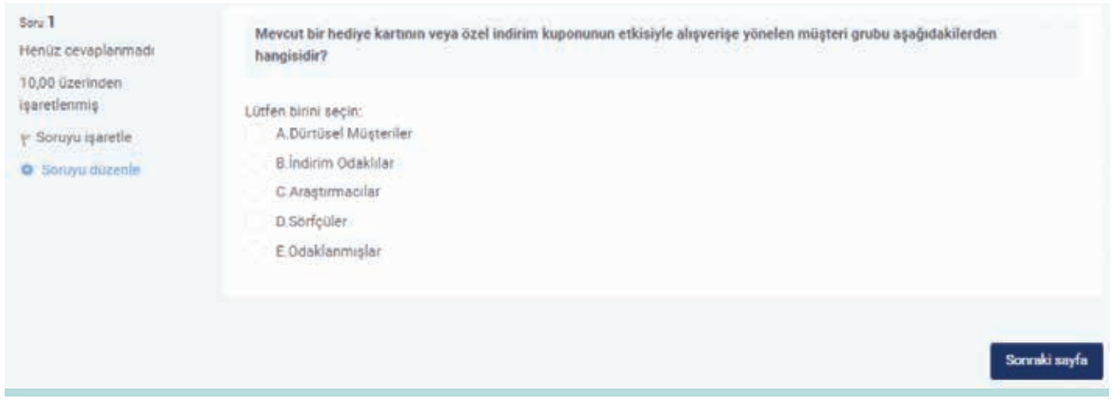

Figure 33. An example of a quiz activity

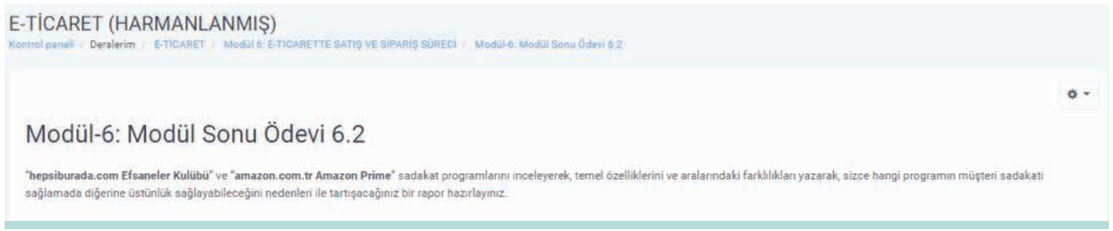

Figure 34. An example of homework activity

4. Lecture presentations:
These are the presentations that the lecturer makes use of in his lectures. These presentations were used by the instructor in his weekly lectures.

Course delivery

The delivery of the course was carried out in the context of pre-lesson, during-lesson and post-lesson activities in accordance with the distance education and blended learning model. Students were informed about what they should do before the lesson, during the orientation week, during the lesson, through announcements and reminders in the live lesson. During the lesson, learning activities were carried out by the instructor in order to learn the subject more permanently and in depth. In this direction, for an effective and efficient teaching process, LearnERA experts and instructors exchanged views throughout the course and consultations were held throughout the process. In addition to these, summative measurement-evaluation tools have been developed for modules deemed necessary.
The LearnERA expert shared his suggestions with the instructor about the effective use of LMS in the course and assessment-evaluation processes.

In the process of writing and developing the course contents, LearnERA expert assumed the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary. During the course processes, the LearnERA expert made phone calls or held online meetings with the course supervisor on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment and evaluation strategies. LearnERA experts and instructors developed solutions suitable for the lesson and the situation by considering the problems that emerged during the lesson process together.

Course evaluation

Related data for the course access is given below (Table 7).

Table 7. Data related to course access

Course Name	Number of the Students	Individual Access	Total Access
e-Commerce	106	105	40.874

According to Table 2, almost all of the students have accessed the course. In addition, students have accessed the course more than 40 thousand times. The number of course access per week for the course is given below (Figure 24).

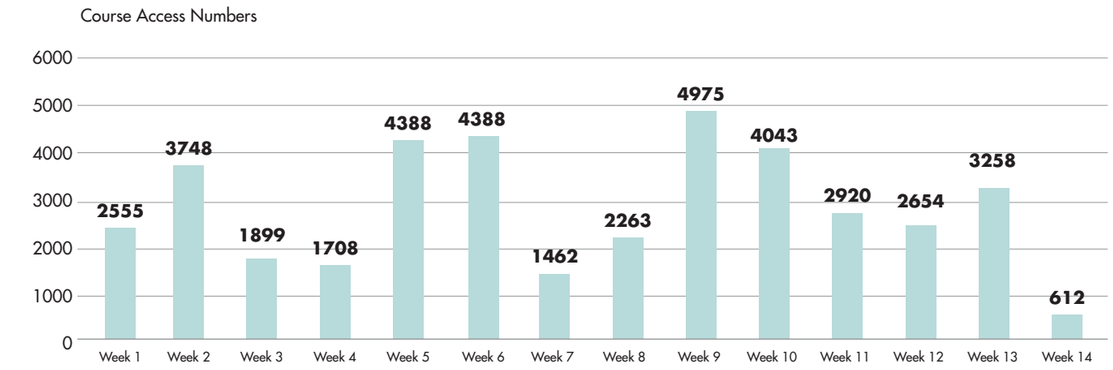

Figure 35. Weekly course access numbers

When Figure 35 is examined, it is seen that students have a high level of access to the content during the midterm exam.

Data on e-learning materials, materials and access numbers used in the course are given in Table 8.

Table 8. Access numbers to the e-learning resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Lecture Video	11	2.756	250
Interactive Course Material	2	300	150
Homework Activity	5	4.168	833
PDF/HTML5/ePUB	31	1.154	37
Exam	9	10.073	1.119

When the data on the accessibility of the e-learning materials used in the course are examined, it is seen that the most access is exam and homework activities, followed by the lecture videos. It is understood that the least access is realized in the interactive course material. It can be said that the main reason for this is the low number of interactive course materials. The weekly numbers for all course materials are given in Figure 25.

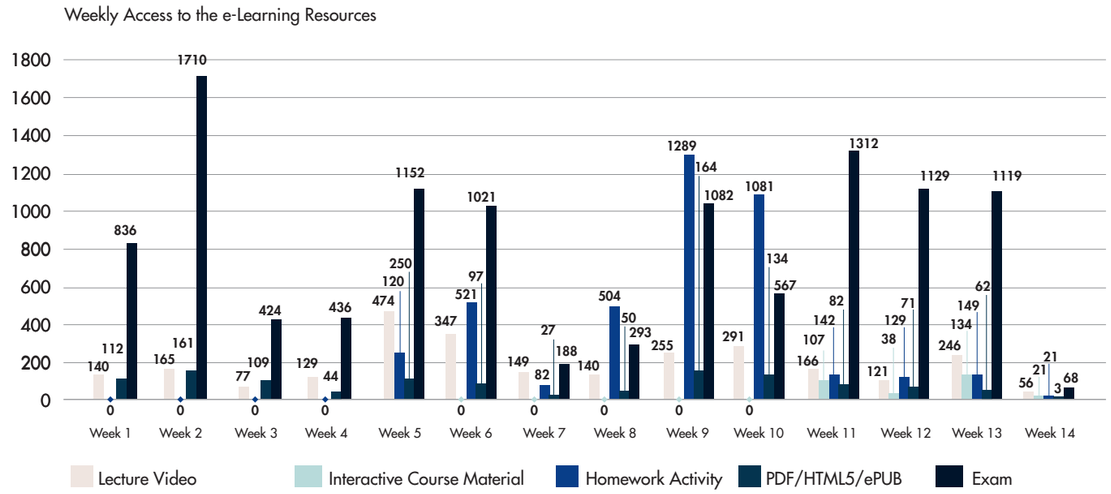

Figure 36. Data related to the weekly access to the e-learning resources

Course success

When the students' achievements in the related course is examined (Figure 37), it is seen that 92 students (86.8%) were successful, and 14 students (13.2%) failed the course. It is seen that unsuccessful students do not take part in measurement-evaluation activities. In other words, it can be said that these students registered for the course but did not take part in any learning process.

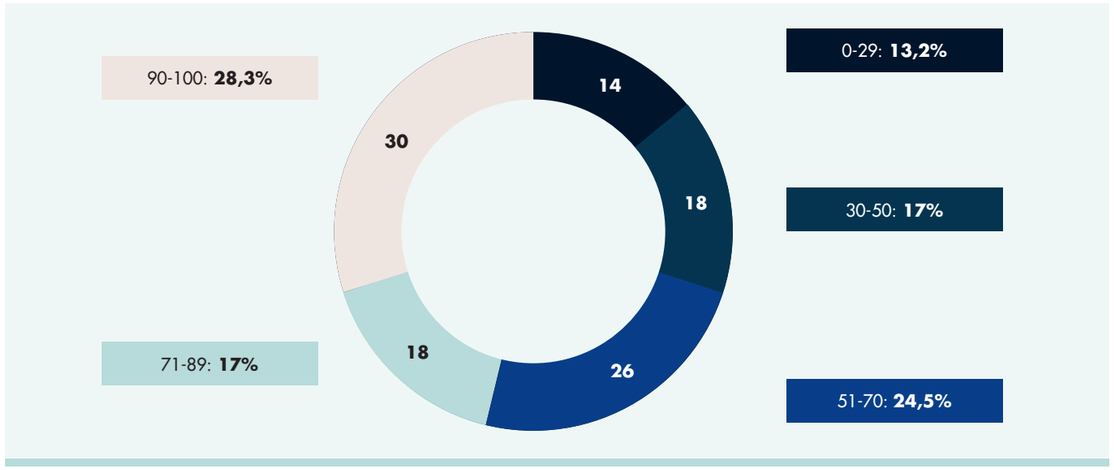

Figure 37. Students' course grades

When the relationship between student achievement and access to the course is examined (Table 9), it is seen that the first 4 students with the highest success grades have access to the course at a high rate, while the 4 students with the lowest grades have low access to the course.

Table 9. Course achievement and access rate relationship

Course Access	Student Name	Grade	Letter Grade	Course Access Number
High	**FUNDA T*** Z****	**100**	**AA**	**857**
High	**ELİF A*** P****	**100**	**AA**	**717**
High	**ENES G******	**100**	**AA**	**754**
High	**BÜŞRA A******	**100**	**AA**	**1129**
Low	EMİN A***	1	FF	40
Low	YILMAZ Ş***	6	FF	42
Low	HACI B*** Ö***	6	FF	26
Low	AYLİN D***	13	FF	101

Conclusion and recommendations

E-commerce course, which is carried out at Gaziantep University Faculty of Economics and Administrative Sciences in the spring term of the 2020-2021 academic year, was offered to students through distance education and with a blended teaching model. During the course, the LearnERA expert and the course instructor followed the process in harmony. Although the lecturer gave the lesson with this method for the first time, he was extremely interested and curious. This situation contributed to the follow-up of the course and the solution of possible problems in the process. When the access of the students who take the course to the course and e-learning materials is evaluated, it is seen that although most of the students have access to the course and course content, they do not participate enough because they are taking the course for the first time in this way. However, it has been observed that students frequently access lecture videos and benefit from these materials.

When learning analytics are examined, it is seen that there is a positive correlation between student achievement and access to course materials. In this context, it can be said that effective online course management with various e-learning materials contributes to course success. Also, the instructor stated that he was satisfied with the process of redesigning and conducting the course with distance learning and blended learning models and the support provided by the LearnERA expert. As a result, it is recommended to use various design strategies and techniques in order to adopt the course design and process in other courses and to increase the motivation of the students in the course.

3. English language testing and evaluation

Introduction

In line with the decision taken by the Higher Education Council, “General and Professional Ethics” course was given through open and distance learning in the fall semester of the 2020-2021 academic year due to the COVID-19 epidemic. Design and development studies were carried out in order to deliver the course through open and distance learning.

First of all, with the pedagogical design, the course was redesigned with the “flipped classroom” model and the related pedagogical design was reflected in the online course design. In the next stage, e-learning resources were designed in accordance with open and distance learning and flipped classroom model. At this stage, in order to support the techno-pedagogical competence of the lecturer responsible for the course, a number of in-service trainings were provided including blended learning, flipped classrooms, the development of e-learning resources, online classroom management, effective use of learning management systems.

The LearnERA Specialist, who specializes in open and distance learning, has collaborated with the lecturer responsible for the course during the redesign of the course and e-learning contents, as well as the delivery of the online course. First of all, the syllabus and weekly lesson plan were developed, and appropriate e-learning resources were determined by consensus with the lecturer to present the necessary content, and the lecturer was informed about how to develop the said content. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert as instructional designer. Content developers were responsible for transforming the designed content into a learning resource. Detailed information on the development process of the relevant content is given in the “Course Structure” section.

Online orientation resources and orientation activities were developed and published as the orientation module in order to enable students to adapt to the open and distance learning and flipped classrooms model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents.

e-Learning resources developed in accordance with the methods and techniques of open and distance learning and flipped classrooms model are offered to students interactively within the scope of the course designed within the learning management system (LMS) of Gaziantep University.

Flipped classrooms

The flipped classroom model is a teaching model in which students are prepared for the course content before the lesson, during the lesson, learning activities are carried out under the guidance of the instructor, and after the lesson, learning is reinforced with learning activities such as discussions, quizzes or assignments.

Figure 38. The flipped classroom learning activities

The flipped classroom model adopted within the course consists of "Course Preparation", "During Course" and "After Class" activities. During the course preparation stage, students are expected to study the e-learning resources presented to them and complete the related learning activities before coming to the "live lecture" given via videoconference. During the lesson, learning activities were carried out under the guidance of the lecturer. In the after-class activities, reinforcement activities such as discussion activities and quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

Course structure

An orientation video was developed for the orientation of students to the course, which was designed based on open and distance learning and flipped learning models, as well as pdf-based content that deals with learning models, processes, and resources. In addition, a course introduction video was developed in which the lecturer responsible for the course conveyed the course, the purpose of the course, learning activities and expectations from the students.

The learning resources under the relevant modules within the course were agreed between the lecturer of the course and the LearnERA expert. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert instructional designer. Content developers were responsible for transforming the designed content into a learning resource.

In order to deliver the course content to the students, the following learning resources have been developed in accordance with the nature of the course, learning objectives and flipped classroom model.

1. Main course material:

It is text-based content enriched with images. This content was developed as Pdf, epub and html-based in order to facilitate access from different tools and platforms.

In the development of the main course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them were included in this template. The lecturer prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for open and distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

2. Lecture video:

It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. Within the scope of this course, under the guidance of a LearnERA expert, the lecturer improvised the subject with the presentations he prepared, and the shootings were carried out by Gaziantep University team with professional devices. Video edits related to the relevant learning resource were made by the developers under the guidance of the expert, and the videos were published under the relevant modules.

Figure 39. Course introduction video and orientation resources

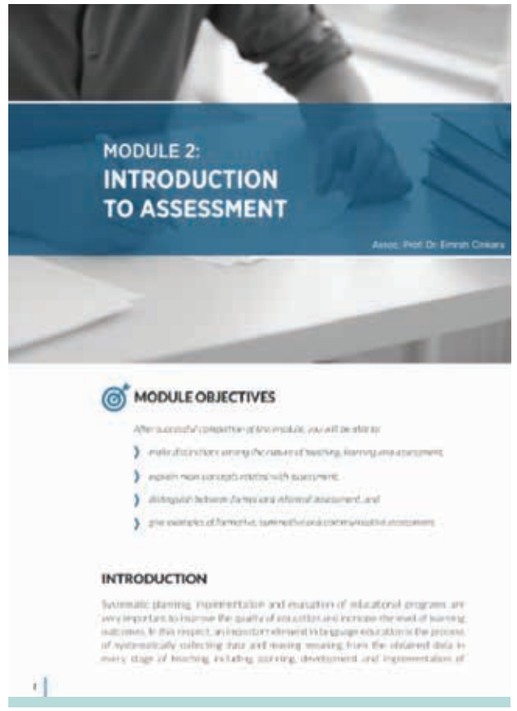

Figure 40. Main course materials

Figure 41. Lecture video

3. Interactive course material:

It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course.

Modules for developing interactive course material were determined; related text, visual and audio elements were designed; and draft e-learning material was developed by the developers and presented to the LearnERA expert and lecturer. After the control processes, the final e-learning content was published in the online course.

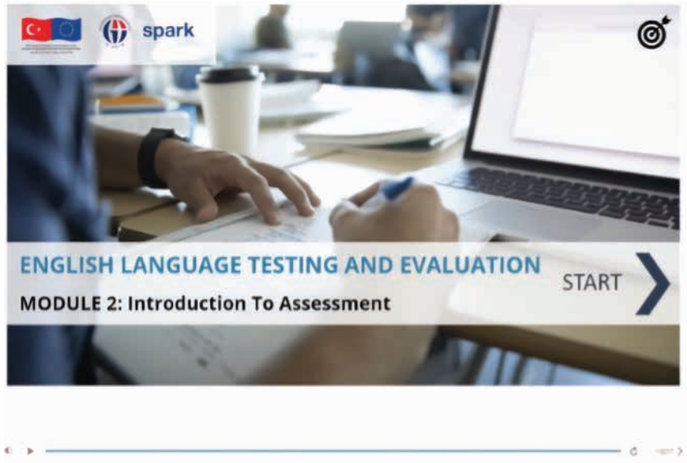

Figure 42. Interactive course material

In addition to the learning resources, the instructional strategies used in the execution of the online course are given below.

1. Discussion forum activity:

It is collaborative learning activity in which opinions are shared on the discussion questions presented to the students regarding the content of the course. The aim of this activity is to enable students to construct knowledge together by thinking critically and to have an idea about the case studies presented on theoretical knowledge. These activities were also used as a formative assessment-evaluation tool, and the scores the students got from this activity were used in the evaluation of student success. The LearnERA expert guided the lecturer regarding the content, language and student feedback strategies of the discussion activities and shared the examples with him.

Table 10. e-Learning resources

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●				
Module 1	●	●	●	●	●		●	●
Module 2	●	●	●	●	●	●	●	●
Module 3	●	●	●	●	●	●	●	●
Module 4	●	●	●	●	●		●	●
Module 5	●	●	●	●	●		●	●
Module 6	●	●	●	●				●
Module 7	●	●	●	●				●
Module 8	M I D - T E R M E X A M							
Module 9	●	●	●	●				●
Module 10	●	●	●	●				●
Module 11	●	●	●	●				●
Module 12	●	●	●	●				●
Module 13	●	●	●	●				●

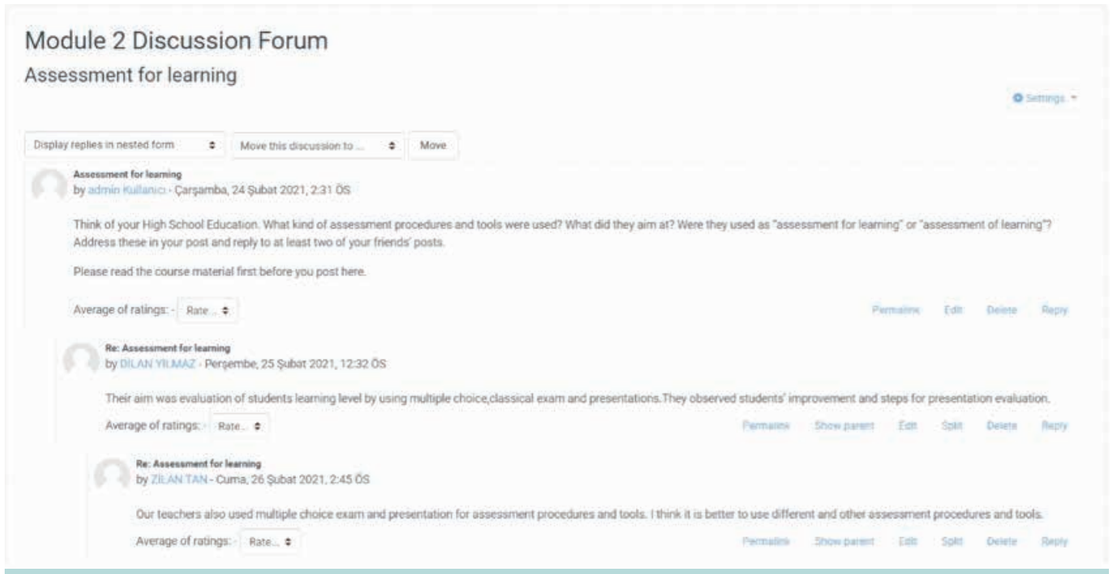

Figure 43. Discussion forum activity

2. Assignments:

In order to put into practice the theoretical knowledge learned in the first 5 modules of the course, students were asked to develop different assessment-evaluation tools to measure each language skill, and the students uploaded the tools they developed in groups to the system using the LMS homework tool. These assignments were evaluated as a measurement-evaluation tool that affects the course success of the students.

Figure 44. Assignments

3. Quizzes:

It is a summative assessment-evaluation activity in which the learning levels of students regarding the course content are measured. It includes different types of questions such as multiple-choice questions and matching. The scores they got from this activity were used to evaluate student success.

Figure 45. Quizzes and discussion forum activity

4. Pretest-posttest:

The instructor of the course developed a pretest-posttest application under the guidance of a LearnERA expert in order to determine the readiness of the students before the lesson and to determine the level of development after the lesson.

Figure 46. Pretest-post test

Course delivery

In the process of developing the learning resources for the course, the LearnERA expert had the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary.

The course delivery process was carried out in the context of course preperation, during course and after lesson activities based on open and distance learning and flipped learning models. Students were informed about what to do before the lesson, during the orientation week and during the lesson, through announcements and reminders in the live lesson. During the lesson, the lecturer carried out learning activities in order for the students to learn the subject in depth. LearnERA experts and faculty members exchanged views on the activities that can be done in this direction. In after lesson activities, strategies and examples were shared with the lecturer and consultations were held throughout the process, especially in order to use the discussion forum activities effectively. In addition to these, summative measurement-evaluation tools have been developed for the modules deemed necessary. The LearnERA expert shared his views on how the LMS gradebook can be used in assessment-evaluation processes with the faculty member. In all online course processes, the LearnERA expert course provided active support to the lecturer by providing examples when necessary on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment-evaluation strategies. The experts and lecturers discussed the issues that emerged during the course processes together and developed solutions specific to the course and the situation.

Course evaluation

In the 2020-2021 fall academic year, learning analytics consisting of course and e-learning resources access were used in the evaluation of the course designed with open and distance learning and flipped classroom model, enriched with various e-learning resources. Accordingly, a two-layer analysis was carried out: 1. Access to the course and 2. Access to e-learning resources.

1. Course Access

Learning analytics on course access consists of analytics data on the number of individual learners accessing the course, total access, and weekly access.

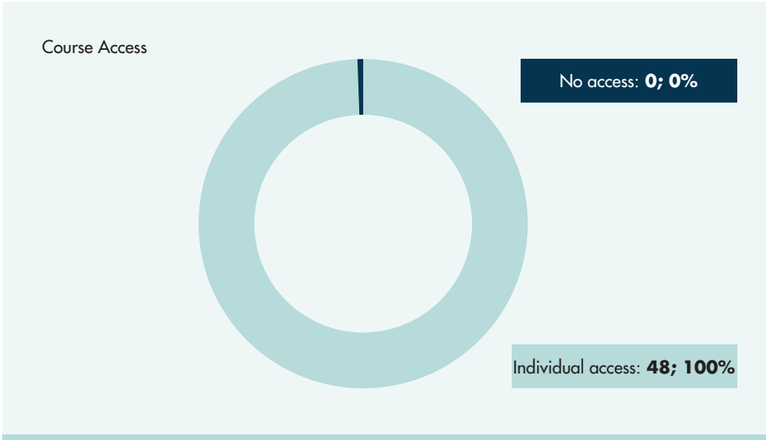

Figure 47. Access to the course

It is seen that all 48 students enrolled in the course in the 2020-2021 fall academic term had access to the course (Figure 47). This can be considered as an indication that the online course was conducted effectively.

When the total access rates to the course are analyzed (Table 11), it is seen that 48 students accessed the course 14,606 times in total. From this point of view, it is understood that an average student accessed the course visited the course approximately 304 times on average. These analytical data obtained show that students actively visited the online course. This situation can be considered as another indicator of the effective execution of the online course.

Table 11. Course access rates

No. of Students	Individual Access	No Access	Total Access	Access Rate
48	48	0	14606	304,29

Considering the analytical data on weekly access to the course (Figure 48), students visited the course an average of 1043 times per week; lowest access rate being in Week 13. It is observed that the highest access is achieved in Week 6, the week before the midterm exam. It is expected that students' access to the course is high before important assessment-evaluation weeks. Based on weekly access data, students' high visit rates in the first week indicate that they started the course with high interest. On the other hand, it shows that students visited the course mostly to upload homework with group assignments starting from Week 8. Finally, the increase observed in the last week shows that students visited the course in order to prepare for the final exam and to complete the posttest application.

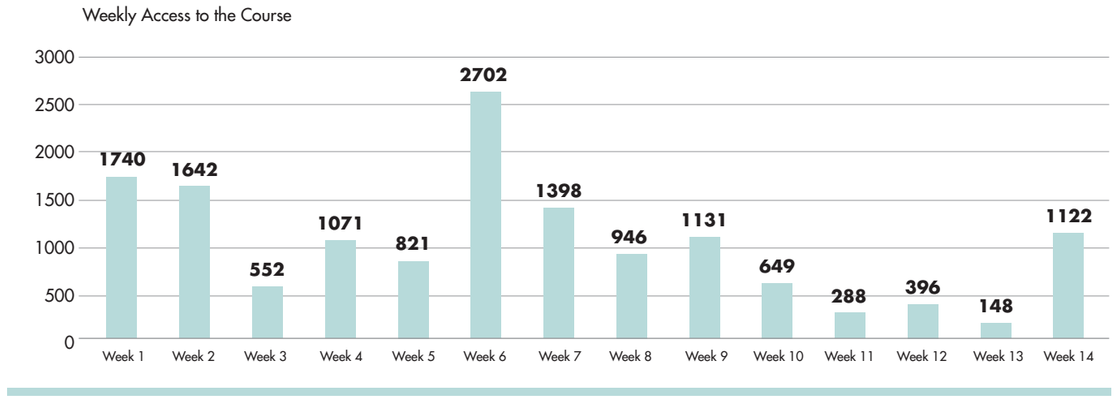

Figure 48. Weekly access to the course

2. Access to the e-learning resources

When the learning analytics related to accessing e-learning resources developed within the scope of the course are examined (Table 12); It is seen that the most access was made to the lecture video (f=7397), followed by the exam activities (f=3415), and the main course resources (pdf/html5/ePub) were visited 630 times. It is understood that the least access is realized in the interactive course material (f=31).

Table 12. Access to the e-Learning Resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Interactive course material	2	31	16
PDF/HTML5/ePUB	26	630	24
Lecture Video	6	7397	1233
Assignments	5	937	187
Exams	7	3415	488

On the other hand, when the access/number of materials ratios are examined, it is seen that the source with the highest rate is the lecture video, followed by the exam activities, and the main course resources (pdf/html5/ePub) were visited 24 times on average. The number of materials/material access ratios are presented visually in Figure 49. Accordingly, it is evaluated that the lecture videos, which have the highest value in access, were used effectively in the context of this course. Again, among the reasons why exam activities are frequently visited e-learning content, is that these activities are used as measurement-evaluation tools and students benefited from them to prepare for exams. It is considered that the reason why the interactive course material is rarely visited is that the lecture video and the course main material are seen as sufficient resources. As a result, the data obtained show that students mainly accessed lecture videos. Since it forms the basis of students' preparation as a pre-lesson activity, the high accessibility to this resource shows the effectiveness of the adopted learning approach.

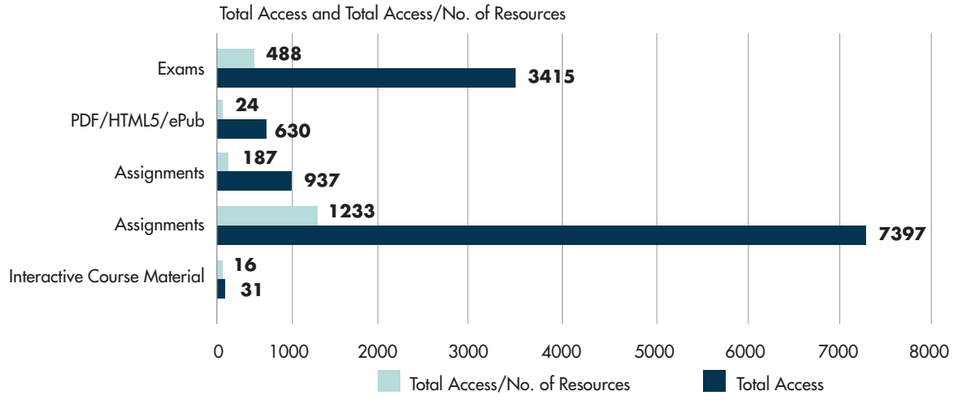

Figure 49. Total access and total access/no. of resources

When the learning analytics data, which consists of weekly access data for e-learning contents, is analyzed (Figure 50), it is observed that weekly accesses vary in parallel with course access data, and an increase in material access during the midterm week. The increase in material access observed during this exam week indicates that students are using these materials to prepare for the exams. On the other hand, the fact that the lecture videos are visited at certain data intervals during the first nine weeks, except for the important weeks, shows that this content is regularly used by the students. On the other hand, it is considered that the reason for the decrease in access to this resource and the increase in visits to homework activities after the ninth week is that homework replaces video materials by focusing on practice in these modules. In addition, the fact that the number of access to the main course material is parallel shows that the students regularly access this e-learning resource on a weekly basis. On the other hand, it is observed that students have access to exam activities mostly during the midterm exam weeks, pretest and posttest weeks, and access to interactive course materials is limited.

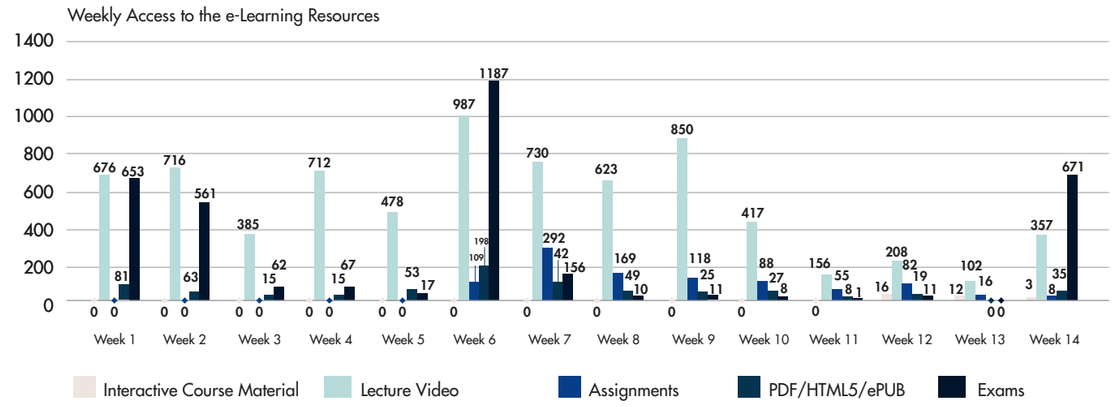

Figure 50. Weekly access to the e-learning resources

Course success

When the student achievement status of the course taught through open and distance learning and flipped classroom model in the 2020-2021 fall academic term is examined (Figure 51), it is seen that 45 students (94%) were successful and 3 students (6%) failed the course. It is seen that two of the unsuccessful students did not take part in any measurement-evaluation activity. In other words, it is observed that these students registered for the course but did not take part in any learning process.

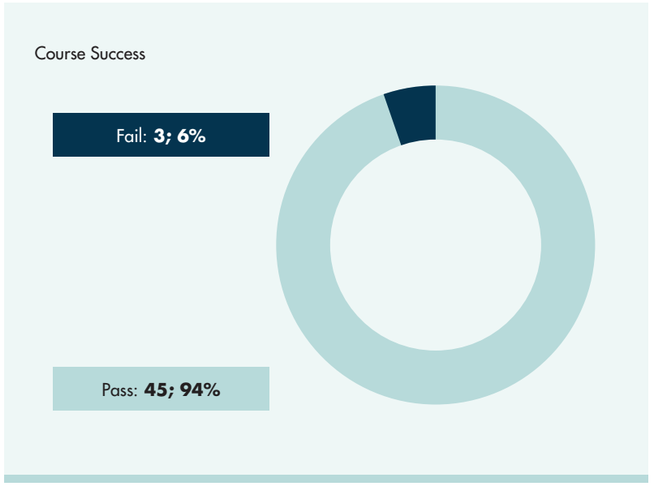

Figure 51. Course success

When the letter grades are examined; it is seen that 3 students got FF and 1 student got BB+, which is the highest letter grade for this course. It is seen that a significant proportion of the students (33%) got the letter grade of CB, followed by the letter grades of CB+ and CC+. It is observed that the students are mostly successful in the course.

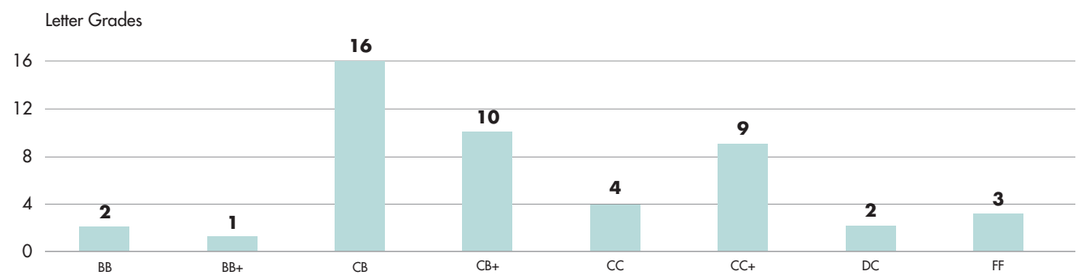

Figure 52. Letter grades

When the relationship between student success and access to the course is examined (Table 13); the top 3 students with the highest grades had access to the course; On the other hand, it is observed that the three students with the lowest achievement grades have low access to the course. (Fig. 52).

Table 13. Course success - access relationship

Access Rate	Name&Surname	Grade	Letter Grade	Access
High	**A*** Ç*** **	**80**	**BB+**	**546**
High	**E*** A*** **	**76**	**BB**	**656**
High	**E*** İ*** **	**73**	**CB+**	**869**
Low	M*** B***	8	FF	108
Low	İ*** Y***	3	FF	105
Low	N*** S***	0	FF	4

As visualized in Figure 42, students who achieved a high level of success in the course had higher rates of access to the course. On the other hand, students with the lowest course achievement levels had a relatively low level of access to the course.

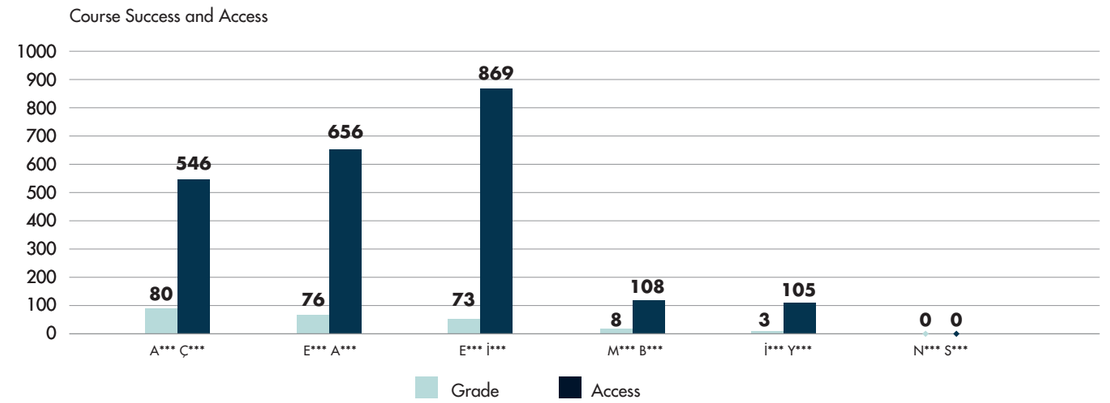

Figure 53. Course success and access

In the context of this course, in addition to learning analytics and course success, the difference between pretest and posttest was used to examine whether learning took place at the end of the course. Paired samples t-test was used for the analysis in question. Analysis results are given in Table 14. Accordingly, a difference of approximately 19 points was observed between the pretest and the posttest in favor of the posttest, and this difference was statistically significant ($p<0.001$). This indicates that meaningful learning takes place at the end of the lesson.

Table 14. t-Test results

Observation	Mean	N	SD	MD	p
Posttest	**69,12**	**45**	**9,68**	**19,23**	**0,00**
Pretest	**49,89**	**45**	**15,64**		

Conclusion and recommendations

In line with the recommendations of the Council of Higher Education, "English Language Testing and Evaluation" was delivered in the fall semester of the 2020-2021 academic year, due to the COVID-19 epidemic, through open and distance learning and adopting the flipped classroom model. In order to deliver the course through open and distance learning, design and development studies were carried out, active guidance was provided to the instructor during the execution of the online course, and steps were taken to realize effective online course management.

In order to ensure effective online course management, in-service training was given primarily to support the techno-pedagogical competencies of the lecturer responsible for the course. In addition, various e-learning resources have been developed in order to carry out the course effectively through open and distance learning and flipped classroom model. In this process, faculty members, LearnERA experts and developers worked collaboratively in harmony. In this process, the LearnERA expert provided proactive guidance to the lecturer through good examples.

When students' access to courses and e-learning resources is evaluated, it is seen that a significant proportion of students had access to the course and course content. It is understood that students frequently accessed lecture videos and benefited from these materials in order to prepare for the exam. It points out that there is a relationship between student achievement and course access by examining learning analytics. In addition, a statistically significant difference in favor of the posttest between the pretest and the posttest is considered as an indicator of meaningful learning. In the context of this course, it is thought that the integration of theoretical knowledge with practice and effective online course management with rich e-learning resources contribute to this success.

Finally, the faculty member states that he is satisfied with the process of redesigning and conducting the course with open and distance learning and flipped classrooms model, and he is also content with the support provided by the LearnERA expert. As a result, it is recommended to enrich the course with different e-learning contents and to adopt similar designs in other courses.

4. Entrepreneurship

Introduction

In line with the decision taken by the Higher Education Council, “Entrepreneurship” course was given through open and distance learning in the spring semester of the 2020-2021 academic year due to the COVID-19 epidemic. Design and development studies were carried out in order to deliver the course through open and distance learning.

First of all, with the pedagogical design, the course was redesigned with the “flipped classroom” model and the related pedagogical design was reflected in the online course design. In the next stage, e-learning resources were designed in accordance with open and distance learning and flipped classroom model. At this stage, in order to support the techno-pedagogical competence of the lecturer responsible for the course, a number of in-service trainings were provided including blended learning, flipped classrooms, the development of e-learning resources, online classroom management, effective use of learning management systems.

The LearnERA Specialist, who specializes in open and distance learning, has collaborated with the lecturer responsible for the course during the redesign of the course and e-learning contents, as well as the delivery of the online course. First of all, the syllabus and weekly lesson plan were developed, and appropriate e-learning resources were determined by consensus with the lecturer to present the necessary content, and the lecturer was informed about how to develop the said content. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert as instructional designer. Content developers were responsible for transforming the designed content into a learning resource. Detailed information on the development process of the relevant content is given in the “Course Structure” section.

Online orientation resources and orientation activities were developed and published as the orientation module in order to enable students to adapt to the open and distance learning and flipped classrooms model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents.

E-learning resources developed in accordance with the methods and techniques of open and distance learning and flipped classrooms model are offered to students interactively within the scope of the course designed within the learning management system (LMS) of Gaziantep University.

Flipped classrooms

The flipped classroom model is a teaching model in which students are prepared for the course content before the lesson, during the lesson, learning activities are carried out under the guidance of the instructor, and after the lesson, learning is reinforced with learning activities such as discussions, quizzes or assignments.

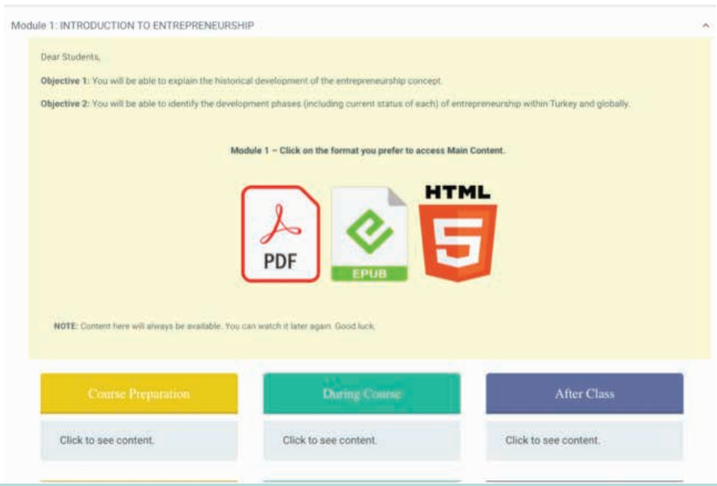

Figure 54. The flipped classroom learning activities

The flipped classroom model adopted within the course consists of "Course Preparation", "During Course" and "After Class" activities. During the course preparation stage, students are expected to study the e-learning resources presented to them and complete the related learning activities before coming to the "live lecture" given via videoconference. During the lesson, learning activities were carried out under the guidance of the lecturer. In the after-class activities, reinforcement activities such as discussion activities and quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

Course structure

An orientation video was developed for the orientation of students to the course, which was designed based on open and distance learning and flipped learning models, as well as pdf-based content that deals with learning models, processes, and resources. In addition, a course introduction video was developed in which the lecturer responsible for the course conveyed the course, the purpose of the course, learning activities and expectations from the students.

Figure 55. Course introduction video

The learning resources under the relevant modules within the course were agreed between the lecturer of the course and the LearnERA expert. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert instructional designer. Content developers were responsible for transforming the designed content into a learning resource.

In order to deliver the course content to the students, the following learning resources have been developed in accordance with the nature of the course, learning objectives and flipped classroom model.

1. **Main course material:**
   It is text-based content enriched with images. This content was developed as Pdf, epub and html-based in order to facilitate access from different tools and platforms.
   In the development of the main course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them were included in this template. The lecturer prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for open and distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

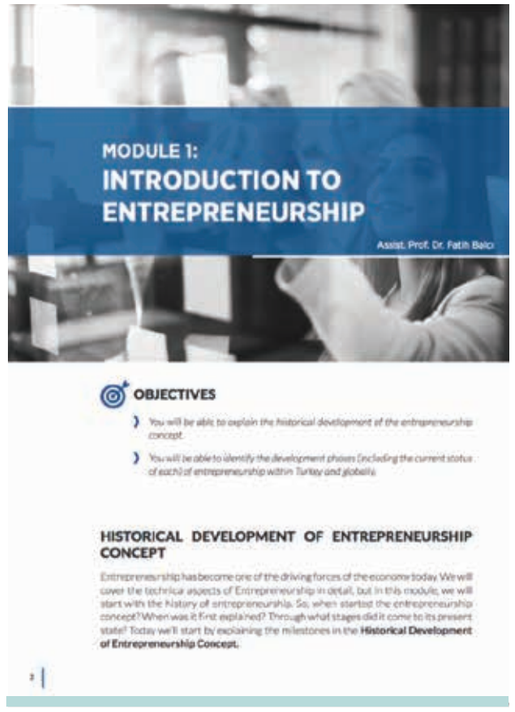

Figure 56. Main course materials

2. **Lecture video:**
   It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. Within the scope of this course, under the guidance of a LearnERA expert, the lecturer improvised the subject with the presentations he prepared, and the shootings were carried out by Gaziantep University team. Since the quality of the presentations other than the first 2 units was not suitable from an educational point of view, the presentations were redesigned by the LearnEra expert, and editing was done by the video developers. Video edits related to the relevant learning resource were made by the developers under the guidance of the expert, and the videos were published under the relevant modules.

Figure 57. Lecture video

3. **Interactive course material:**
   It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course.
   Modules for developing interactive course material were determined; related text, visual and audio elements were designed; and draft e-learning material was developed by the developers and presented to the LearnERA expert and lecturer. After the control processes, the final e-learning content was published in the online course.

Figure 58. Interactive course material

Table 15 shows the e-learning resources included in the Entrepreneurship.
In addition to learning resources, announcements, assignments and quizzes were used during the execution of the online course.

Course delivery

In the process of developing the learning resources for the course, the LearnERA expert had the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary.

Table 15. e-Learning resources

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●	●			
Module 1	●	●	●	●	●			●
Module 2	●	●	●	●	●	●	●	●
Module 3	●	●	●	●	●			●
Module 4	●	●	●	●	●			●
Module 5	●	●	●	●	●		●	●
Module 6	●	●	●	●	●		●	●
Module 7	●	●	●	●	●			●
Module 8	M I D - T E R M E X A M							
Module 9	●	●	●	●	●	●		●
Module 10	●	●	●	●	●			●
Module 11	●	●	●	●	●		●	●
Module 12	●	●	●	●	●			●
Module 13	●	●	●	●	●			●
Module 14	●	●	●	●	●		●	●
Module 15	F I N A L E X A M							

The course delivery process was carried out in the context of course preperation, during course and after lesson activities based on open and distance learning and flipped learning models. Students were informed about what to do before the lesson, during the orientation week and during the lesson, through announcements and reminders in the live lesson. During the lesson, the lecturer carried out learning activities in order for the students to learn the subject in depth. LearnERA experts and faculty members exchanged views on the activities that can be done in this direction. In after lesson activities, strategies and examples were shared with the lecturer and consultations were held throughout the process. In all online course processes, the LearnERA expert course provided active support to the lecturer by providing examples when necessary on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment-evaluation strategies. The experts and lecturers discussed the issues that emerged during the course processes together and developed solutions specific to the course and the situation.

Course evaluation

In the 2020-2021 spring academic year, learning analytics consisting of course and e-learning resources access were used in the evaluation of the course designed with open and distance learning and flipped classroom model, enriched with various e-learning resources. Accordingly, a two-layer analysis was carried out: 1. Access to the course and 2. Access to e-learning resources.

1. Course access

Learning analytics on course access consists of analytics data on the number of individual learners accessing the course, total access, and weekly access.

It is seen that 96% (n=113) of the 118 students enrolled in the 2020-2021 spring academic term had access to the course, while 4% (n=5) did not (Figure 59). It is understood that students' access to courses is quite high.

When the total access rates to the course are examined (Table 16), it is seen that 113 students accessed the course 22,356 times in total. From this point of view, it is understood that a student who accessed the course visited the course 198 times on average. In the light of the analytical data in question, it is thought that the number and rate of students visiting the course are at high levels.

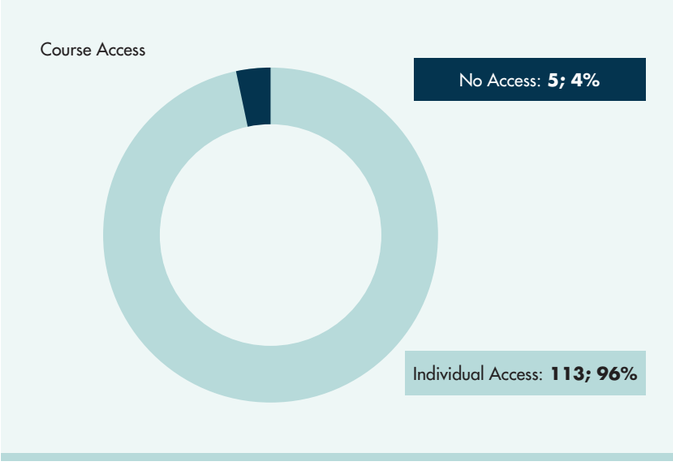

Figure 59. Access to the course

Table 16. Course access rates

No. of Students	Individual Access	No Access	Total Access	Access Rate
118	113	5	22.356	198

When the analytical data on weekly course access is evaluated (Figure 60), it is seen that the students' highest course access is before the midterm exam (Week 7) and the final exam (Week 14). It is expected that students' access to the course is high before important assessment-evaluation weeks. The least access was achieved after the midterm exam (Week 9). When Figure 49 is examined, it is seen that students interact with the course and course resources throughout the process.

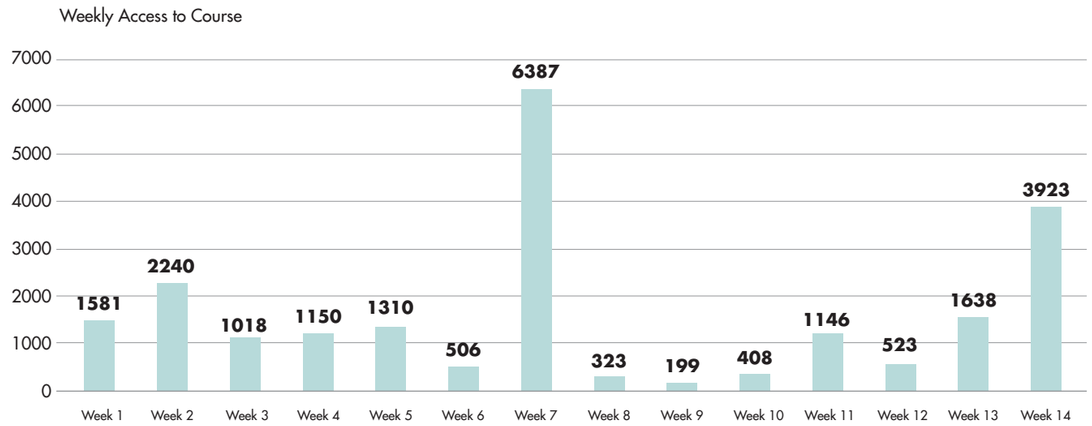

Figure 60. Weekly access to the course

2. Access to the e-learning resources

When the learning analytics related to access to e-learning resources developed within the scope of the course are examined (Table 17), it is seen that the most access is to the exam activity (f=10039), followed by the lecture video (f=9452), assignment activity (f=1480), and the main course resource (pdf/html5/ePub) (f=1112). It is understood that the least access is realized in the interactive course material (f=108).

Table 17. Access to the e-learning resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Exams	6	10,039	1,673
Lecture Video	15	9,452	630
Assignments	2	1,480	740
PDF/HTML5/ePUB	40	1,112	28
Interactive Course Material	2	108	54

On the other hand, when the access/number of materials ratios are examined, it is seen that the assignment activity and the lecture video, where the highest ratio is the exam activity, have close ratios and the lowest ratio is observed in the interactive course materials. Number of materials/material access ratios are presented visually in Figure 61. Accordingly, it is considered that students' access rates to the exam activity are an expected result in the context of the compulsory assessment-evaluation activity.

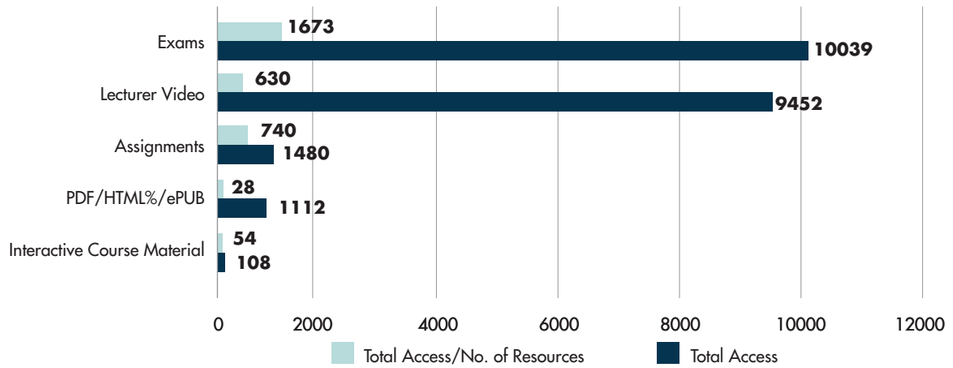

Figure 61. Total access and total access/no. of resources

When the learning analytics data, which consists of weekly access data for e-learning contents, is analyzed (Figure 62), it is observed that weekly accesses vary in parallel with course access data, and an increase in material access is observed during the weeks before the exam. The increase in material access observed in the weeks before the exam shows that students used these materials to prepare for the exams. On the other hand, the fact that the number of material access is parallel except for important weeks shows that students accessed e-learning resources on a weekly basis.

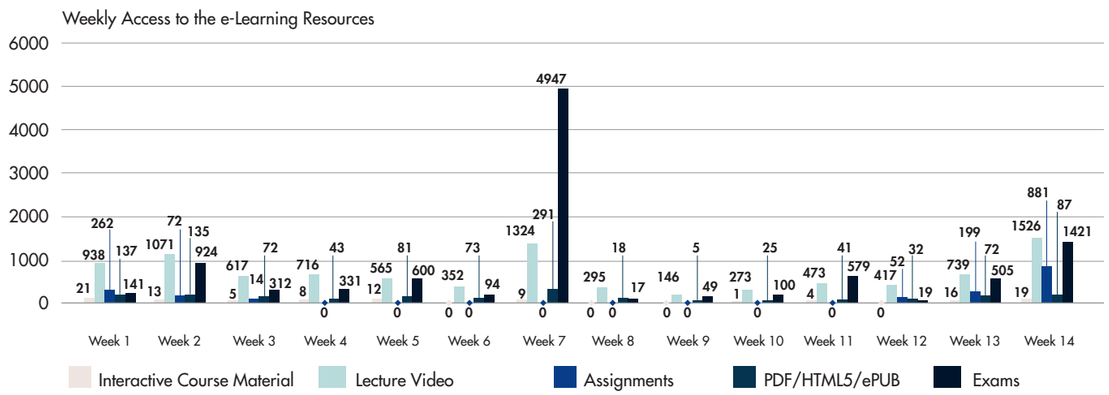

Figure 62. Weekly access to the e-learning resources

Course success

When the student achievement status of the course taught through open and distance learning and flipped classroom model in the 2020-2021 spring academic term is examined (Figure 63), it is seen that 56 students (47%) were successful, and 62 students (53%) failed the course.

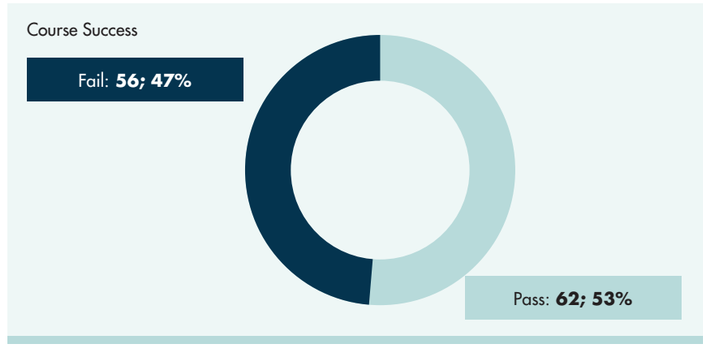

Figure 63. Course success

When the letter grades are examined (Figure 64); It is seen that 54 students (46%) received FF and 5 students (4%) received AA.

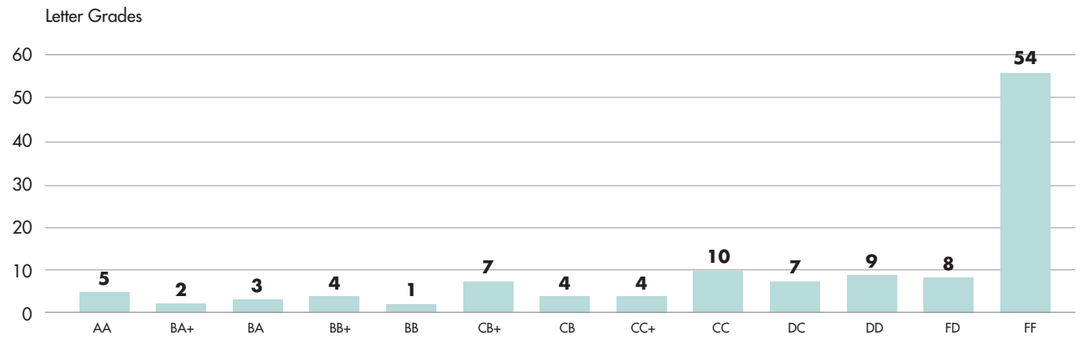

Figure 64. Letter grades

When the relationship between student success and access to the course is examined (Table 18); It is observed that the first 4 students with the highest achievement grades have high access to the course, while the four students with the lowest course success grades have access to the course at a very low rate.

Table 18. Course success - access relationship

Access Rate	Name&Surname	Grade	Letter Grade	Access
High	**C*** K*** **	**89**	**AA**	**86**
High	**C*** G*** **	**82**	**AA**	**151**
High	**E*** B*** **	**80**	**AA**	**280**
High	**E*** S*** **	**79**	**AA**	**463**
Low	Q*** H***	0	FF	6
Low	R*** E***	0	FF	9
Low	S*** A***	0	FF	30
Low	B*** Y***	0	FF	6

Figure 65 shows course success and access. It is seen that as the grade increase, the level of access also increases, but there is no linear relationship.

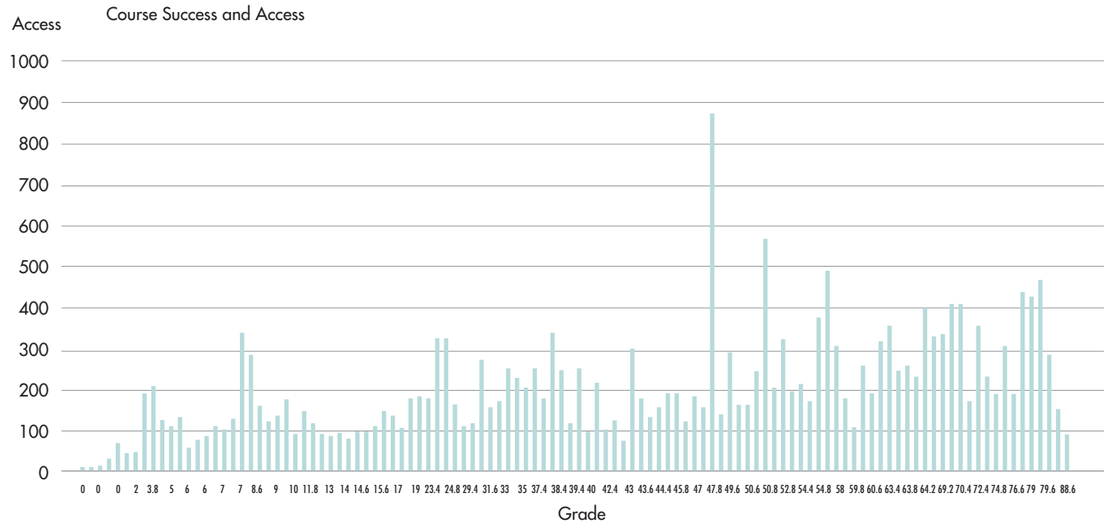

Figure 65. Course success and access

Conclusion and recommendations

In line with the recommendations of the Council of Higher Education, due to the COVID-19 epidemic, the "Entrepreneurship" course was delivered in the spring semester of the 2020-2021 academic year through open and distance learning and adopting the flipped classroom model. In order to deliver the course through open and distance learning, design and development studies were carried out, active guidance was provided to the instructor during the execution of the online course, and steps were taken to realize effective online course management.

In order to ensure effective online course management, in-service training was given primarily to support the techno-pedagogical competencies of the lecturer responsible for the course. In addition, various e-learning resources have been developed in order to carry out the course effectively through open and distance learning and flipped classroom model. In this process, faculty members, LearnERA experts and developers worked collaboratively in harmony. Although there were no problems in the process that would adversely affect the course processes, there were communication breakdowns due to the workload of the lecturer, but the necessary e-learning contents were produced on time with the devoted work of the developers. During course delivery, effective online course processes were carried out thanks to the motivated attitude of the faculty member, who is a field expert, open to learning and cooperation. In this process, the LearnERA expert provided proactive guidance to the lecturer through good examples. In all processes, the lecturer and the expert were able to work in harmony.

When students' access to courses and e-learning resources is evaluated, it is seen that a large proportion of students had access to the course and course content. It is understood that students especially frequently accessed the course main material and benefitted from these materials specially to prepare for the exam. The relationship between student success and course access suggest that students' studying the content contributed to the success of the students.

Finally, the lecturer states that he is satisfied with the process of redesigning and conducting the course with open and distance learning and flipped classrooms model. He is also satisfied with the support provided by the LearnERA expert. It is recommended that the course be enriched with different e-learning contents in the following terms and that similar designs be adopted in other courses.

5. Financial literacy

Introduction

In line with the decision taken by the Higher Education Council, “Financial Literacy” course was given through open and distance learning in the spring semester of the 2020-2021 academic year due to the COVID-19 epidemic. Design and development studies were carried out in order to deliver the course through open and distance learning.

First of all, with the pedagogical design, the course was redesigned with the “flipped classroom” model and the related pedagogical design was reflected in the online course design. In the next stage, e-learning resources were designed in accordance with open and distance learning and flipped classroom model. At this stage, in order to support the techno-pedagogical competence of the lecturer responsible for the course, a number of in-service trainings were provided including blended learning, flipped classrooms, the development of e-learning resources, online classroom management, effective use of learning management systems.

The LearnERA Specialist, who specializes in open and distance learning, has collaborated with the lecturer responsible for the course during the redesign of the course and e-learning contents, as well as the delivery of the online course. First of all, the syllabus and weekly lesson plan were developed, and appropriate e-learning resources were determined by consensus with the lecturer to present the necessary content, and the lecturer was informed about how to develop the said content. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert as instructional designer. Content developers were responsible for transforming the designed content into a learning resource. Detailed information on the development process of the relevant content is given in the “Course Structure” section.

Online orientation resources and orientation activities were developed and published as the orientation module in order to enable students to adapt to the open and distance learning and flipped classrooms model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents.

e-Learning resources developed in accordance with the methods and techniques of open and distance learning and flipped classrooms model are offered to students interactively within the scope of the course designed within the learning management system (LMS) of Gaziantep University.

Flipped classrooms

The flipped classroom model is a teaching model in which students are prepared for the course content before the lesson, during the lesson, learning activities are carried out under the guidance of the instructor, and after the lesson, learning is reinforced with learning activities such as discussions, quizzes or assignments.

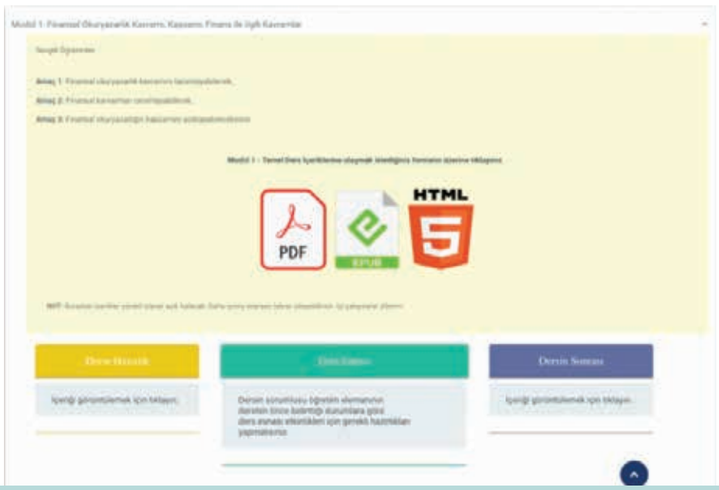

Figure 66. The flipped classroom learning activities

The flipped classroom model adopted within the course consists of "Course Preparation", "During Course" and "After Class" activities. During the course preparation stage, students are expected to study the e-learning resources presented to them and complete the related learning activities before coming to the "live lecture" given via videoconference. During the lesson, learning activities were carried out under the guidance of the lecturer. In the after-class activities, reinforcement activities such as discussion activities and quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

Course structure

An orientation video was developed for the orientation of students to the course, which was designed based on open and distance learning and flipped learning models, as well as pdf-based content that deals with learning models, processes, and resources. In addition, a course introduction video was developed in which the lecturer responsible for the course conveyed the course, the purpose of the course, learning activities and expectations from the students.

Figure 67. Course introduction video

The learning resources under the relevant modules within the course were agreed between the lecturer of the course and the LearnERA expert. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert instructional designer. Content developers were responsible for transforming the designed content into a learning resource.

In order to deliver the course content to the students, the following learning resources have been developed in accordance with the nature of the course, learning objectives and flipped classroom model.

1. **Main course material:**
   It is text-based content enriched with images. This content was developed as Pdf, epub and html-based in order to facilitate access from different tools and platforms.
   In the development of the main course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them were included in this template. The lecturer prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for open and distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

Figure 68. Main course materials

2. **Lecture video:**
   It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. In the development of the lecture video, a storyboard template was created by considering the instructional design principles. The template contains information on how the audio text should be created, how the visual and text elements that are required to be displayed on the screen can be developed, and how the screens should be designed. The storyboards of the first 2 units were prepared by the lecturer. The storyboards of the other units were prepared by the LearnERA expert with the approval of the instructor. Within the scope of this course, at the end of the meeting with the lecturer, it was decided to include the presenter in the videos.

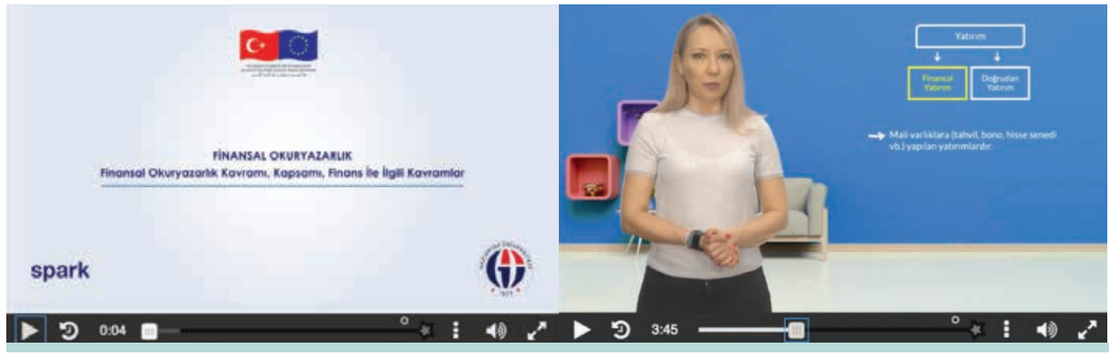

Figure 69. Lecture video

3. Interactive course material:

It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course.

Modules for developing interactive course material were determined; related text, visual and audio elements were designed; and draft e-learning material was developed by the developers and presented to the LearnERA expert and lecturer. After the control processes, the final e-learning content was published in the online course.

Figure 70. Interactive course material

Table 19 shows the e-learning resources included in the Financial Literacy.

In addition to learning resources, announcements, assignments and quizzes were used during the execution of the online course.

Course delivery

In the process of developing the learning resources for the course, the LearnERA expert had the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary.

Table 19. e-Learning resources

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●	●		●	
Module 1	●	●	●	●	●		●	●
Module 2	●	●	●	●	●		●	●
Module 3	●	●	●	●	●	●	●	●
Module 4	●	●	●	●	●		●	●
Module 5	●	●	●	●	●		●	●
Module 6	●	●	●	●	●		●	●
Module 7	●	●	●	●	●		●	●
M I D - T E R M E X A M								
Module 8	●	●	●	●	●	●	●	
Module 9	●	●	●	●	●		●	●
Module 10	●	●	●	●	●		●	●
Module 11	●	●	●	●	●		●	●
Module 12	●	●	●	●	●		●	●
F I N A L E X A M								

The course delivery process was carried out in the context of course preperation, during course and after lesson activities based on open and distance learning and flipped learning models. Students were informed about what to do before the lesson, during the orientation week and during the lesson, through announcements and reminders in the live lesson. During the lesson, the lecturer carried out learning activities in order for the students to learn the subject in depth. LearnERA experts and faculty members exchanged views on the activities that can be done in this direction. In after lesson activities, strategies and examples were shared with the lecturer and consultations were held throughout the process. In all online course processes, the LearnERA expert course provided active support to the lecturer by providing examples when necessary on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment-evaluation strategies. The experts and lecturers discussed the issues that emerged during the course processes together and developed solutions specific to the course and the situation.

Course evaluation

In the 2020-2021 spring academic year, learning analytics consisting of course and e-learning resources access were used in the evaluation of the course designed with open and distance learning and flipped classroom model, enriched with various e-learning resources. Accordingly, a two-layer analysis was carried out: 1. Access to the course and 2. Access to e-learning resources.

1. Course access

Learning analytics on course access consists of analytics data on the number of individual learners accessing the course, total access, and weekly access.

It is seen that 99% (n=71) of the 72 students enrolled in the 2020-2021 spring academic term had access to the course, while 1% (n=1) did not (Figure 71). It is seen that almost all of the students have access to the course.

When the total access rates to the course are examined (Table 20), it is seen that 71 students accessed the course 10,334 times in total. From this point of view, it is understood that a student who accessed the course visited the course 146 times on average. In the light of the analytical data in question, it is thought that the number and rate of students visiting the course are at high levels.

Figure 71. Access to the course

Table 20. Course access rates

No. of Students	Individual Access	No Access	Total Access	Access Rate
72	71	1	10.334	146

When the analytical data on weekly course access is evaluated it is seen that the students' highest course access is before the midterm exam (Week 6) and the final exam (Week 14). It is expected that students' access to the course is high before important assessment-evaluation weeks. The least access was achieved after the midterm exam (Week 8). When Figure 72 is examined, it is seen that students interact with the course and course resources throughout the process.

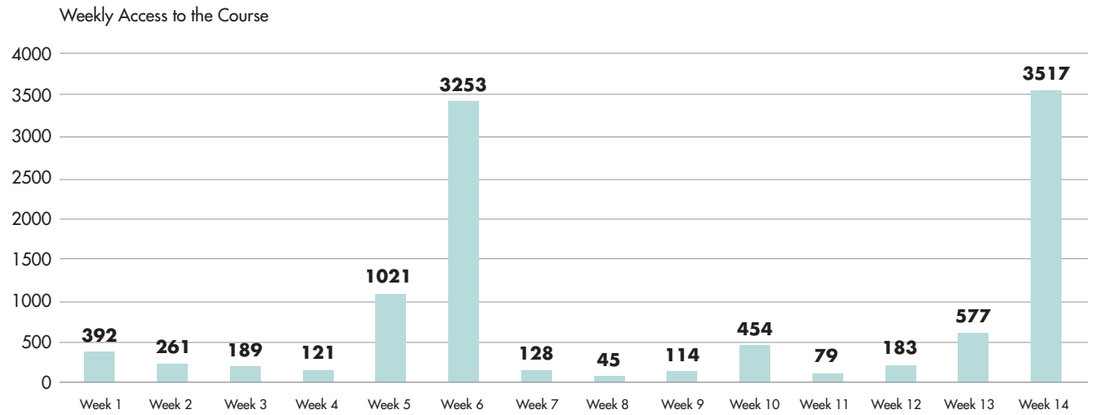

Figure 72. Weekly access to the course

2. Access to the e-learning resources

When the learning analytics related to access to e-learning resources developed within the scope of the course are examined (Table 21), it is seen that the most access is to the exam activity (f=6449), followed by the lecture video (f=3365), and the main course resource (pdf/html5/ePub) (f=284). It is understood that the least access is realized in the interactive course material (f=31).

Table 21. Access to the e-learning resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Exams	15	6.449	430
Lecture Video	9	3.365	374
PDF/HTML5/ePUB	30	284	9,5
Interactive Course Material	2	31	15,5

On the other hand, when the access/number of materials ratios are examined, it is seen that the source with the highest ratio is the exam activities and the lowest ratio is observed in the main course resources. Number of materials/material access ratios are presented visually in Figure 73. Accordingly, it is considered that students' access rates to the exam activity are an expected result in the context of the compulsory assessment-evaluation activity.

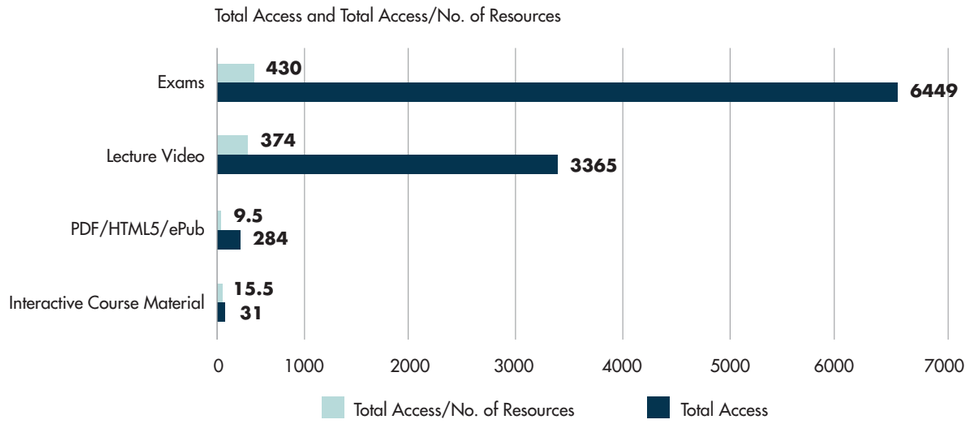

Figure 73. Total access and total access/no. of resources

When the learning analytics data, which consists of weekly access data for e-learning contents, is analyzed (Figure 74), it is observed that weekly accesses vary in parallel with course access data, and an increase in material access is observed during the weeks before the exam. The increase in material access observed in the weeks before the exam shows that students used these materials to prepare for the exams. On the other hand, the fact that the number of material access is parallel except for important weeks shows that students accessed e-learning resources on a weekly basis.

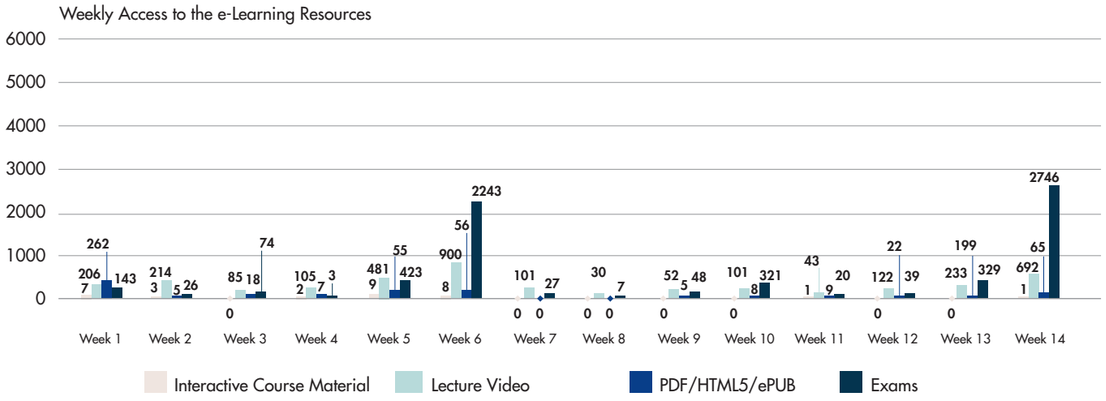

Figure 74. Weekly access to the e-learning resources

Course success

When the student achievement status of the course taught through open and distance learning and flipped classroom model in the 2020-2021 spring academic term is examined (Figure 75), it is seen that 61 students (85%) were successful, and 11 students (15%) failed the course.

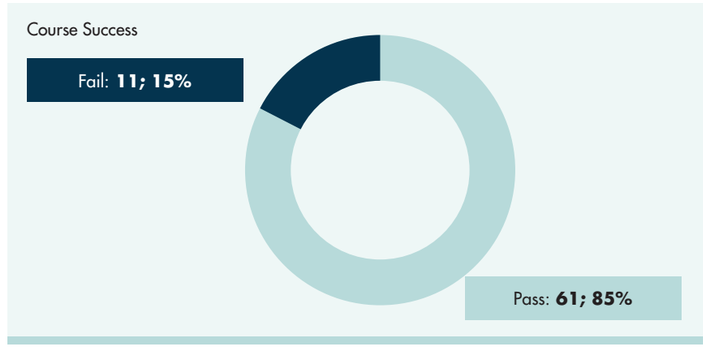

Figure 75. Course success

When the letter grades are examined (Figure 76); It is seen that 11 students (15%) received FF and 3 students (4%) received AA.

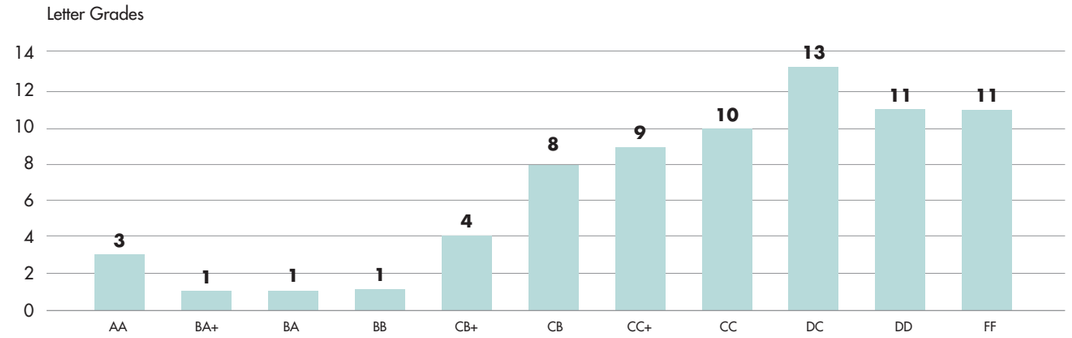

Figure 76. Letter grades

When the relationship between student success and access to the course is examined (Table 22); It is observed that the first 4 students with the highest achievement grades have high access to the course, while the four students with the lowest course success grades have access to the course at a very low rate.

Table 22. Course success - access relationship

Access Rate	Name&Surname	Grade	Letter Grade	Access
High	S*** O***	92	AA	551
High	M*** C***	92	AA	756
High	Y*** C***	82	BA+	458
High	G*** K***	78	AA	308
Low	E*** S***	0	FF	46
Low	N*** L***	0	FF	6
Low	K*** Y***	0	FF	0
Low	B*** B***	0	FF	4

Figure 77 shows course success and access. It is seen that as the grade increase, the level of access also increases, but there is no linear relationship.

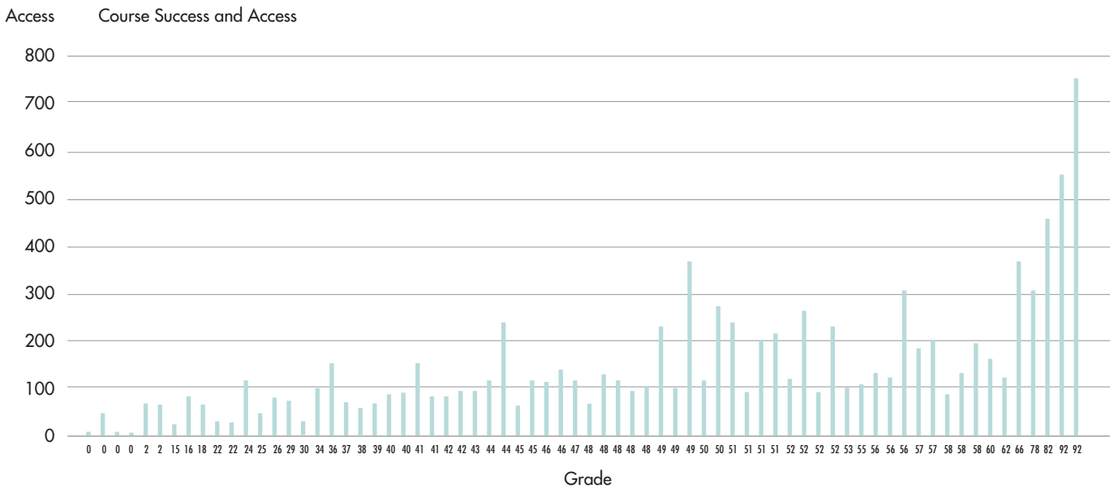

Figure 77. Course success and access

Conclusion and recommendations

In line with the recommendations of the Council of Higher Education, due to the COVID-19 epidemic, the "Financial Literacy" course was delivered in the spring semester of the 2020-2021 academic year through open and distance learning and adopting the flipped classroom model. In order to deliver the course through open and distance learning, design and development studies were carried out, active guidance was provided to the instructor during the execution of the online course, and steps were taken to realize effective online course management.

In order to ensure effective online course management, in-service training was given primarily to support the techno-pedagogical competencies of the lecturer responsible for the course. In addition, various e-learning resources have been developed in order to carry out the course effectively through open and distance learning and flipped classroom model. In this process, faculty members, LearnERA experts and developers worked collaboratively in harmony. Although there were no problems in the process that would adversely affect the course processes, there were communication breakdowns due to the workload of the lecturer, but the necessary e-learning contents were produced on time with the devoted work of the developers. During course delivery, effective online course processes were carried out thanks to the motivated attitude of the faculty member, who is a field expert, open to learning and cooperation. In this process, the LearnERA expert provided proactive guidance to the lecturer through good examples. In all processes, the lecturer and the expert were able to work in harmony.

When students' access to courses and e-learning resources is evaluated, it is seen that a large proportion of students had access to the course and course content. It is understood that students especially frequently accessed the course main material and benefitted from these materials specially to prepare for the exam. The relationship between student success and course access suggest that students' studying the content contributed to the success of the students.

Finally, the lecturer states that he is satisfied with the process of redesigning and conducting the course with open and distance learning and flipped classrooms model. He is also satisfied with the support provided by the LearnERA expert. It is recommended that the course be enriched with different e-learning contents in the following terms and that similar designs be adopted in other courses.

6. General and professional ethics

Introduction

In line with the decision taken by the Higher Education Council, “General and Professional Ethics” course was given through open and distance learning in the fall semester of the 2020-2021 academic year due to the COVID-19 epidemic. Design and development studies were carried out in order to deliver the course through open and distance learning.

First of all, with the pedagogical design, the course was redesigned with the “flipped classroom” model and the related pedagogical design was reflected in the online course design. In the next stage, e-learning resources were designed in accordance with open and distance learning and flipped classroom model. At this stage, in order to support the techno-pedagogical competence of the lecturer responsible for the course, a number of in-service trainings were provided including blended learning, flipped classrooms, the development of e-learning resources, online classroom management, effective use of learning management systems.

The LearnERA Specialist, who specializes in open and distance learning, has collaborated with the lecturer responsible for the course during the redesign of the course and e-learning contents, as well as the delivery of the online course. First of all, the syllabus and weekly lesson plan were developed, and appropriate e-learning resources were determined by consensus with the lecturer to present the necessary content, and the lecturer was informed about how to develop the said content. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert as instructional designer. Content developers were responsible for transforming the designed content into a learning resource. Detailed information on the development process of the relevant content is given in the “Course Structure” section.

Online orientation resources and orientation activities were developed and published as the orientation module in order to enable students to adapt to the open and distance learning and flipped classrooms model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents.

e-Learning resources developed in accordance with the methods and techniques of open and distance learning and flipped classrooms model are offered to students interactively within the scope of the course designed within the learning management system (LMS) of Gaziantep University.

Flipped classrooms

The flipped classroom model is a teaching model in which students are prepared for the course content before the lesson, during the lesson, learning activities are carried out under the guidance of the instructor, and after the lesson, learning is reinforced with learning activities such as discussions, quizzes or assignments.

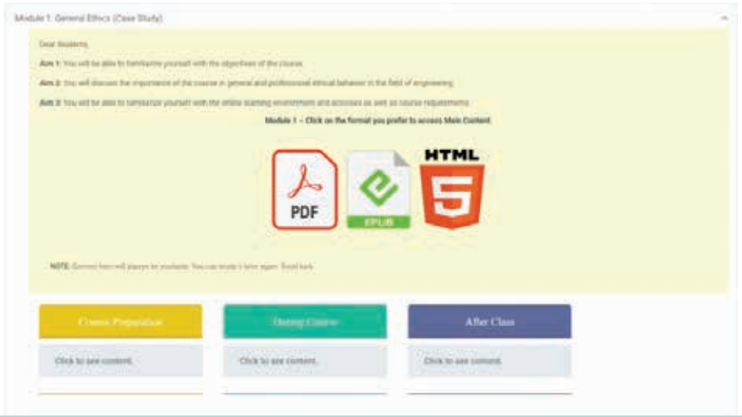

Figure 78. The flipped classroom learning activities

The flipped classroom model adopted within the course consists of "Course Preparation", "During Course" and "After Class" activities. During the course preparation stage, students are expected to study the e-learning resources presented to them and complete the related learning activities before coming to the "live lecture" given via videoconference. During the lesson, learning activities were carried out under the guidance of the lecturer. In the after-class activities, reinforcement activities such as discussion activities and quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

Course structure

An orientation video was developed for the orientation of students to the course, which was designed based on open and distance learning and flipped learning models, as well as pdf-based content that deals with learning models, processes, and resources. In addition, a course introduction video was developed in which the lecturer responsible for the course conveyed the course, the purpose of the course, learning activities and expectations from the students.

Figure 79. Course introduction video

The learning resources under the relevant modules within the course were agreed between the lecturer of the course and the LearnERA expert. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert instructional designer. Content developers were responsible for transforming the designed content into a learning resource.

In order to deliver the course content to the students, the following learning resources have been developed in accordance with the nature of the course, learning objectives and flipped classroom model.

1. **Main course material:**
   It is text-based content enriched with images. This content was developed as Pdf, epub and html-based in order to facilitate access from different tools and platforms.
   In the development of the main course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them were included in this template. The lecturer prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for open and distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

Figure 80. Main course materials

2. **Lecture video:**
   It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. Within the scope of this course, under the guidance of a LearnERA expert, the lecturer improvised the subject with the presentations he prepared, and the shootings were carried out by Gaziantep University team with professional devices. Video edits related to the relevant learning resource were made by the developers under the guidance of the expert, and the videos were published under the relevant modules.

Figure 81. Lecture video

Table 23. e-Learning resources

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●	●			
Module 1	●	●	●	●	●		●	●
Module 2	●	●	●	●	●			●
Module 3	●	●	●	●	●			●
Module 4	●	●	●	●	●		●	●
Module 5	●	●	●	●	●	●	●	●
Module 6	●	●	●	●	●			●
Module 7	●	●	●	●	●	●		●
Module 8	M I D - T E R M E X A M							
Module 9	●	●	●	●	●			●
Module 10	●	●	●	●	●			●
Module 11	●	●	●	●	●			●
Module 12	●	●	●	●	●			●
Module 13	●	●	●	●	●			●

3. **Interactive course material:**
   It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course.
   Modules for developing interactive course material were determined; related text, visual and audio elements were designed; and draft e-learning material was developed by the developers and presented to the LearnERA expert and lecturer. After the control processes, the final e-learning content was published in the online course.

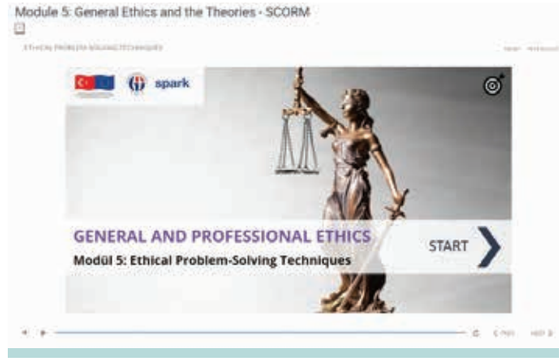

Figure 82. Interactive course material

In addition to the learning resources, the instructional strategies used in the execution of the online course are given below.

1. **Announcements:**
   These are the announcement activities where the students are reminded of the activities they are expected to perform regarding the course. Also, important developments regarding the course are conveyed. The LearnERA expert guided the lecturer regarding the content, language, and ways of announcement as well as sharing the examples with him.

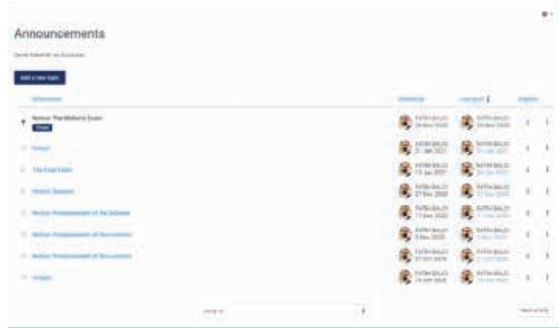

Figure 83. Announcements

2. **Discussion forum activity:**
   It is collaborative learning activity in which opinions are shared on the discussion questions presented to the students regarding the content of the course. The aim of this activity is to enable students to construct knowledge together by thinking critically and to have an idea about the case studies presented on theoretical knowledge. These activities were also used as a formative assessment-evaluation tool, and the scores the students got from this activity were used in the evaluation of student success. The LearnERA expert guided the lecturer regarding the content,

Figure 84. Discussion forum activity

language and student feedback strategies of the discussion activities and shared the examples with him.

3. **Debate activity:**
   It is an activity where the sample cases presented in the course are discussed by the students in groups online and synchronously. Within the scope of this activity, students made both self-assessment and peer assessment with the rubric form given to them, and the relevant scores were used in the evaluation of student success.

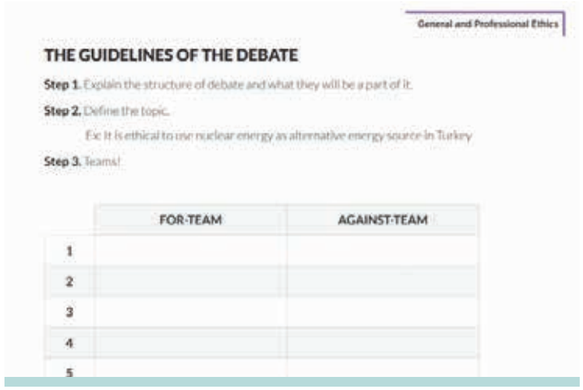

Figure 85. Debate activity

4. **Quizzes:**
   It is a summative assessment-evaluation activity in which the learning levels of students regarding the course content are measured. It includes different types of questions such as multiple-choice questions and matching. The scores they got from this activity were used to evaluate student success.

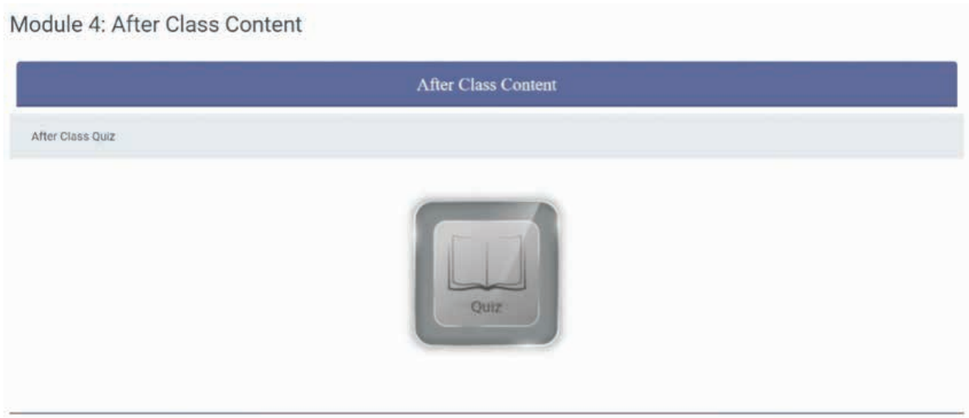

Figure 86. Quizzes

Course delivery

In the process of developing the learning resources for the course, the LearnERA expert had the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary.

The course delivery process was carried out in the context of course preperation, during course and after lesson activities based on open and distance learning and flipped learning models. Students were informed about what to do before the lesson, during the orientation week and during the lesson, through announcements and reminders in the live lesson. During the lesson, the lecturer carried out learning activities in order for the students to learn the subject in depth. LearnERA experts and faculty members exchanged views on the activities that can be done in this direction. In after lesson activities, strategies and examples were shared with the lecturer and consultations were held throughout the process, especially in order to use the discussion forum activities effectively. In addition to these, summative measurement-evaluation tools have been developed for the modules deemed necessary. The LearnERA expert shared his views on how the LMS gradebook can be used in assessment-evaluation processes with the faculty member. In all online course processes, the LearnERA expert course provided active support to the lecturer by providing examples when necessary on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment-evaluation strategies. The experts and lecturers discussed the issues that emerged during the course processes together and developed solutions specific to the course and the situation.

Course evaluation

In the 2020-2021 fall academic year, learning analytics consisting of course and e-learning resources access were used in the evaluation of the course designed with open and distance learning and flipped classroom model, enriched with various e-learning resources. Accordingly, a two-layer analysis was carried out: 1. Access to the course and 2. Access to e-learning resources.

1. **Course access**
   Learning analytics on course access consists of analytics data on the number of individual learners accessing the course, total access, and weekly access.
   It is seen that 90% (n=241) of the 267 students enrolled in the 2020-2021 fall academic term had access to the course, while 10% (n=26) did not. When the students' course success is examined, it is seen that 21 students (8%) did not take part in any assessment activities, including the midterm and final exams. Therefore, it is understood that a large proportion of the students enrolled in the course and participating in the course assessment-evaluation activities accessed the course, while a small rate of 2% did not access the course.

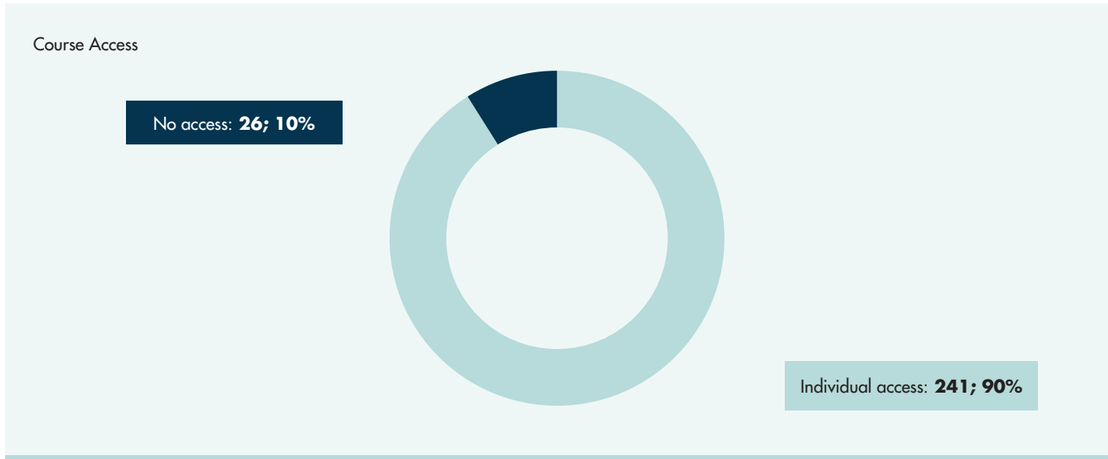

Figure 87. Access to the course

It is seen that 90% (n=241) of the 267 students enrolled in the 2020-2021 fall academic term had access to the course, while 10% (n=26) did not. When the students' course success is examined, it is seen that 21 students (8%) did not take part in any assessment activities, including the midterm and final exams. Therefore, it is understood that a large proportion of the students enrolled in the course and participating in the course assessment-evaluation activities accessed the course, while a small rate of 2% did not access the course.
When the total access rates to the course are examined (Table 24), it is seen that 241 students accessed the course 4,114 times in total. From this point of view, it is understood that a student who accessed the course visited the course 17 times on average. In the light of the analytical data in question, it is thought that the number and rate of students visiting the course are at the desired levels.

Table 24. Course access rates

No. of Students	Individual Access	No access	Total Access	Access Rate
267	241	26	4114	17

Evaluating the analytical data on weekly access to the course (Figure 88), students visited the course an average of 204 times per week; at the eleventh week after the debate event being the lowest reach rate. It is observed that the highest access is achieved in the week before the exam. This is followed by the tenth week of the debate event and two weeks before the exam. It is expected that students' access to the course is high before important assessment-evaluation weeks. However, the average number of visits per week of 204 and access to 100 or more in the other weeks except for three weeks indicate that students interacted with the course and course resources throughout the process.

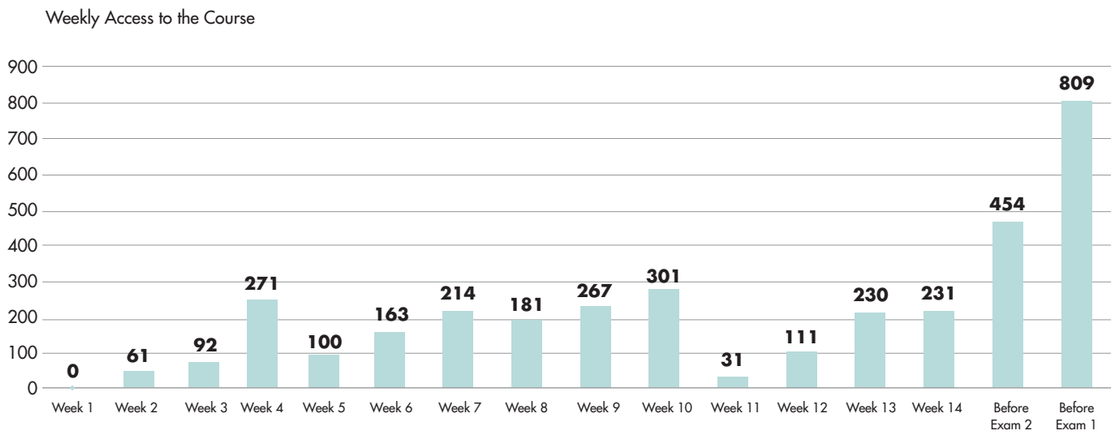

Figure 88. Weekly access to the course

2. Access to the e-learning resources

When the learning analytics related to access to e-learning resources developed within the scope of the course are examined (Table 25), it is seen that the most access is to the main course resource (pdf/html5/ePub) (f=2772), followed by the lecture video (f=879) and the exam activity. (f=381). It is understood that the least access is realized in the interactive course material (f=82).

Table 25. Access to the e-learning resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Interactive Course Material	3	82	27
Lecture Video	16	879	55
PDF/HTML5/ePUB	53	2772	52
Exams	3	381	127

On the other hand, when the access/number of materials ratios are examined, it is seen that the lecture video and main course material have close ratios, and the lowest ratio is observed in the interactive course material. Number of materials/material access ratios are presented visually in Figure 89. Accordingly, it is considered that students' access rates to the exam activity are an expected result in the context of the compulsory assessment-evaluation activity. On the other hand, the data obtained show that students mostly have access to the main course material. Since it forms the basis of students' preparation as a pre-lesson activity, the high accessibility to this resource shows the effectiveness of the adopted learning approach.

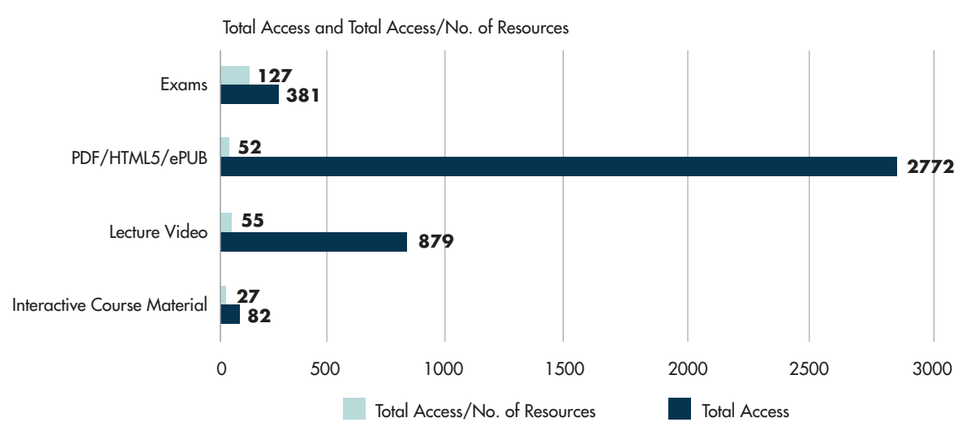

Figure 89. Total access and total Access/no. of resources

When the learning analytics data, which consists of weekly access data for e-learning contents, is analyzed (Figure 90), it is observed that weekly accesses vary in parallel with course access data, and an increase in material access is observed during the debate week and the weeks before the exam. The increase in material access observed in the weeks before the exam shows that students used these materials to prepare for the exams. On the other hand, the fact that the number of material access is parallel except for important weeks shows that students accessed e-learning resources on a weekly basis.

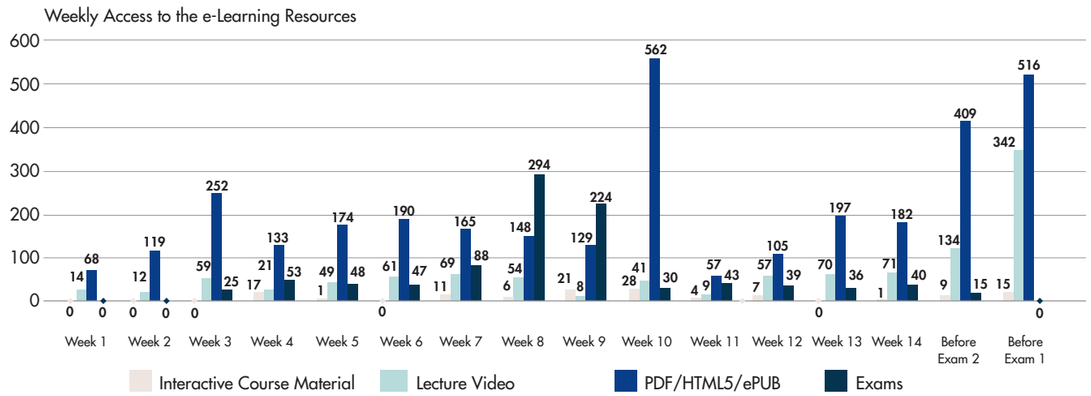

Figure 90. Weekly access to the e-learning resources

Course success

When the student achievement status of the course taught through open and distance learning and flipped classroom model in the 2020-2021 fall academic term is examined (Figure 91), it is seen that 197 students (75%) were successful, and 66 students (25%) failed the course. It is seen that 32% (n=21) of the unsuccessful students did not take part in any assessment-evaluation activities. In other words, it is observed that these students registered for the course but did not take part in any learning process.

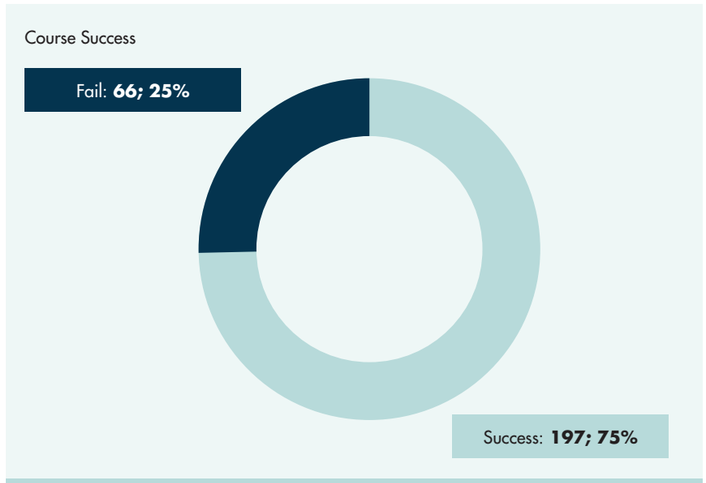

Figure 91. Course success

When the letter grades are examined (Figure 92); It is seen that 45 students received FF and 34 students received AA. The distribution outside these letter grades between these two extremes shows a normal distribution.

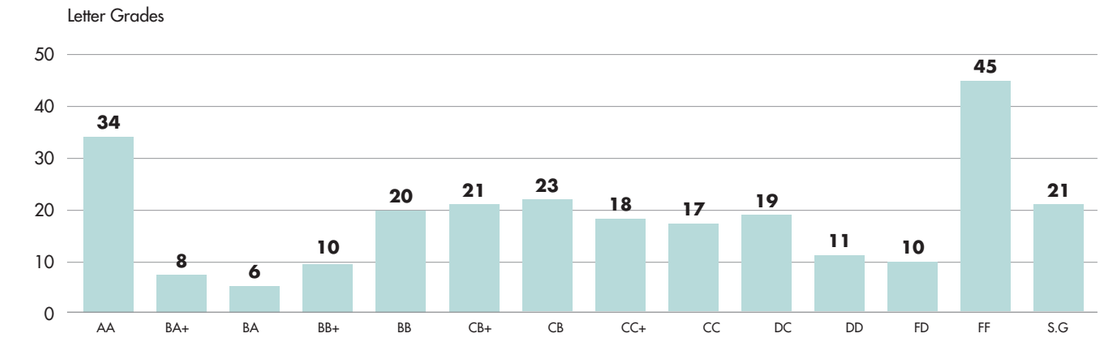

Figure 92. Letter grades

When the relationship between student success and access to the course is examined (Table 26); It is observed that the first 4 students with the highest achievement grades have high access to the course, while the four students with the lowest course success grades have access to the course at a very low rate.

Table 26. Course success - access relationship

Access Rate	Name&Surname	Grade	Letter Grade	Access
High	**H*** M*** **	**94**	**AA**	**37**
High	**I*** T*** **	**94**	**AA**	**27**
High	**N*** M*** **	**93**	**AA**	**26**
High	**G*** D*** **	**92**	**AA**	**33**
Low	M*** K***	7	FF	13
Low	B*** A***	6	FF	8
Low	M*** B***	4	FF	6
Low	H*** Ç***	2	FF	4

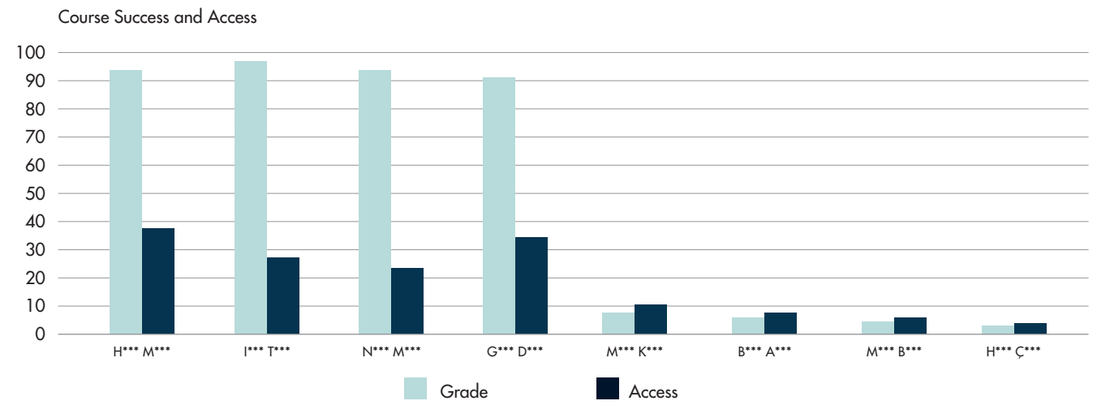

Figure 93. Course success and access

As can be seen in Figure 93, students who were successful in the course at high level had access to the course at higher rates. On the other hand, students with the lowest course achievement levels have very low access to the course.

Conclusion and recommendations

In line with the recommendations of the Council of Higher Education, due to the COVID-19 epidemic, the "General and Professional Ethics" course was delivered in the fall semester of the 2020-2021 academic year through open and distance learning and adopting the flipped classroom model. In order to deliver the course through open and distance learning, design and development studies were carried out, active guidance was provided to the instructor during the execution of the online course, and steps were taken to realize effective online course management.

In order to ensure effective online course management, in-service training was given primarily to support the techno-pedagogical competencies of the lecturer responsible for the course. In addition, various e-learning resources have been developed in order to carry out the course effectively through open and distance learning and flipped classroom model. In this process, faculty members, LearnERA experts and developers worked collaboratively in harmony. Although there were no problems in the process that would adversely affect the course processes, there were communication breakdowns due to the workload of the lecturer, but the necessary e-learning contents were produced on time with the devoted work of the developers. During course delivery, effective online course processes were carried out thanks to the motivated attitude of the faculty member, who is a field expert, open to learning and cooperation. In this process, the LearnERA expert provided proactive guidance to the lecturer through good examples. In all processes, the lecturer and the expert were able to work in harmony.

When students' access to courses and e-learning resources is evaluated, it is seen that a large proportion of students had access to the course and course content. It is understood that students especially frequently accessed the course main material and benefitted from these materials specially to prepare for the exam. The relationship between student success and course access suggest that students' studying the content contributed to the success of the students.

Finally, the lecturer states that he is satisfied with the process of redesigning and conducting the course with open and distance learning and flipped classrooms model. He is also satisfied with the support provided by the LearnERA expert. It is recommended that the course be enriched with different e-learning contents in the following terms and that similar designs be adopted in other courses.

7. Graphic design

Introduction

Graphic Design-II (RSM222) course, which is carried out at Gaziantep University Faculty of Fine Arts, Department of Painting in the spring term of 2020-2021 academic year, was presented to students through distance education and with a blended learning model. In this context, the course design and content development studies were followed with expert support and a weekly writing process. The lecturer of the relevant course was met in June 2020 and the content writing process started in August 2020. The writing process of the course contents was followed on a weekly basis and the content was reviewed in line with expert opinions and the writing process was completed in December 2020.

During the process, the related course was primarily designed with a 'blended learning' (flipped classroom) model with pedagogical design. Then, the design of learning materials was carried out in accordance with the distance education and blended learning model. At this point, in-service training was provided to support the techno-pedagogical competence of the lecturer in charge of distance education and learning, blended learning model and e-learning materials. Blended learning model, classroom management in online learning environment, effective use of learning management systems (LMS) and development of e-learning materials were included in the training. The LearnERA expert, who is an expert in the field of distance education, worked in collaboration with the lecturer responsible for the course throughout the process of writing and designing the course and e-learning contents and conducting the online course. In this context, primarily the syllabus and weekly lesson plan were developed. The most appropriate e-learning resources were determined for the presentation of the necessary content during the course of the course, and the lecturer was informed about how to develop the content in question and was in constant communication. During the development of the e-learning contents, the lecturer served as the raw text content developer and the LearnERA expert as the instructional designer. The content developer, on the other hand, provided the conversion of the written and designed content into a learning resource.

The blended learning model adopted in the design of the course is the teaching model in which students prepare for the course by reviewing the course contents before the course, while learning activities are carried out under the guidance of the instructor during the course, and learning is reinforced with learning activities such as discussion, quizzes, or homework after the course. In this context, the blended learning model adopted in the course consists of three stages. These are "Course Preparation", "During Course" and "After Class" activities (Figure 1). During the course preparation, students are expected to study the e-learning materials provided to them and complete the relevant learning activities before coming to the online courses. During the course, learning activities were carried out under the guidance of the instructor. In the after-class activities, reinforcement activities were carried out with quizzes or homework. In this way, it is aimed that students achieve permanent and deep learning.

Course structure

An orientation video was prepared for the orientation of the students for the course, which was designed through distance education and based on the blended learning model. In addition, pdf content that covers learning models, processes and course materials has also been developed.

In addition, the course introduction video was developed by the instructor to introduce and share the purpose and process of the course, learning activities and expectations from the students.

In order to transfer the course contents to the students, different e-learning materials given below (Table 27) were used on a weekly and module basis in accordance with the course structure, learning objectives and blended learning model. Online orientation resources and orientation activities have been developed and published as an orientation module in order to enable students to adapt to the distance learning and blended learning model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents. In addition, e-learning resources developed in this context were made available to students through Gaziantep University's learning management system.

In the context of this course, the blended classroom model was used only in five weeks, and in the other 8 weeks, the instructor came together with the students in a face-to-face environment or on different virtual platforms and conducted the practical lessons. In order to deliver the course

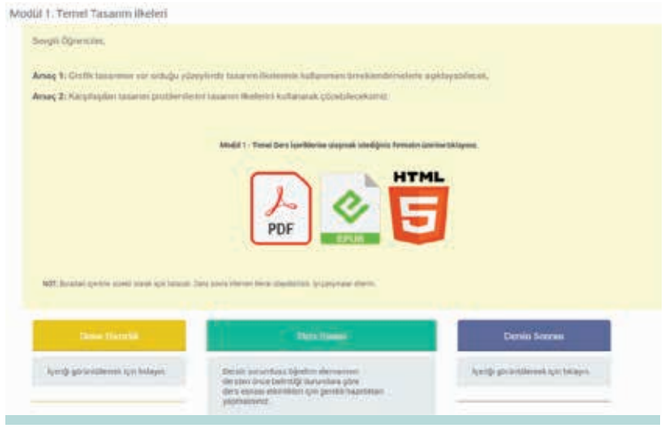

Figure 94. Learning process and activities in the blended learning model

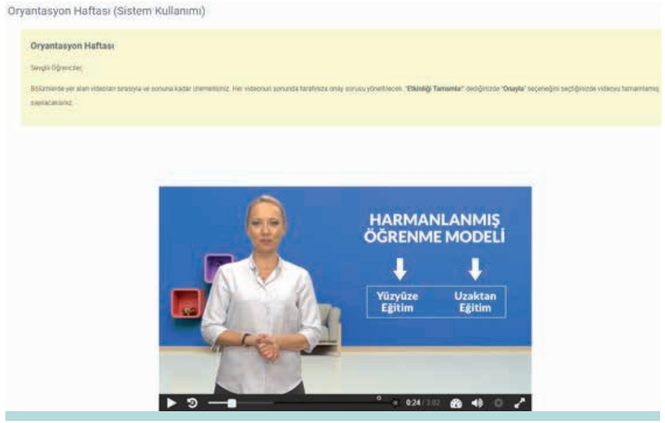

Figure 95. Course orientation

Figure 96. Course introduction video

Table 27. e-Learning materials used in the course

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●	●			
Module 1	●	●	●	●	●	●	●	●
Module 2	●	●	●	●				
Module 3	●	●	●	●				
Module 4	●	●	●	●	●		●	●
Module 5	●	●	●	●	●		●	●
Module 6	●	●	●	●				
Module 7	M I D - T E R M E X A M							
Module 8	●	●	●	●	●	●	●	●
Module 9	●	●	●	●				
Module 10	●	●	●	●				
Module 11	●	●	●	●	●		●	●
Module 12	●	●	●	●				
Module 13	●	●	●	●				

content to the students, the following five e-learning resources have been developed in accordance with the nature of the course, learning objectives and blended classroom model.

1. **Main course material:**
   It is text-based content supported by images. This content has been developed as PDF, ePUB and HTML-based in order to facilitate access from different tools and platforms. In the development of the basic course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them are included in this template. The instructor prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

Figure 97. Main course material

2. **Lecture videos:**
   It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. In the development of the lecture video, a scenario template was created by considering the instructional design principles. The template contains information on how the audio text should be created, how the visual and text elements that are required to be displayed on the screen can be developed, and how the screens should be designed. The scenario created by the instructor was checked by the LearnERA expert, necessary corrections were made and sent to the developers. Within the scope of this course, at the end of the meeting with the lecturer, it was decided that the LearnERA expert will be present in the videos and the expert took place as the presenter in the related videos.

Figure 98. An example of a lecture Video

3. **Interactive course material:**
   It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course. The modules to be developed for the interactive course material were determined, the relevant text, visual and audio elements were designed, and the draft e-learning material was developed by the developers and submitted to the control of the LearnERA expert and lecturer and published in the relevant modules.

Figure 99. Interactive course material

4. **Assessment tools and activities:**
   In order to measure the learning levels of the students regarding the course content homework activitivities were held every week. The scores the students got from these activitivities were used to evaluate their success. Homework activities were used to research and put into practice the theoretical knowledge learned in the course.

Figure 100. An example of homework activity

5. **Lecture presentations:**
   These are the presentations that the lecturer makes use of in his lectures. These presentations were used by the instructor in his weekly lectures.

Course delivery

The delivery of the course was carried out in the context of pre-lesson, during-lesson and post-lesson activities in accordance with the distance education and blended learning model. Students were informed about what they should do before the lesson, during the orientation week, during the lesson, through announcements and reminders in the live lesson. During the lesson, learning activities were carried out by the instructor in order to learn the subject more permanently and in depth. In this direction, for an effective and efficient teaching process, LearnERA experts and instructors exchanged views throughout the course and consultations were held throughout the process. In addition to these, summative measurement-evaluation tools have been developed for modules deemed necessary. The LearnERA expert shared his suggestions with the instructor about the effective use of LMS in the course and assessment-evaluation processes.

In the process of writing and developing the course contents, LearnERA expert assumed the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary. During the course processes, the LearnERA expert made phone calls or held online meetings with the course supervisor on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment and evaluation strategies. LearnERA experts and instructors developed solutions suitable for the lesson and the situation by considering the problems that emerged during the lesson process together.

Course evaluation

Related data for the course access is given below (Table 28).

Table 28. Data related to course access

Course	Name	Number of the Students	Individual Access	Total Access
Graphic Design	9	9	-	938

According to Table 28, all of the students had access to the course. In addition, students accessed the course approximately 1000 times. The number of course access per week for the course is given below (Figure 101).

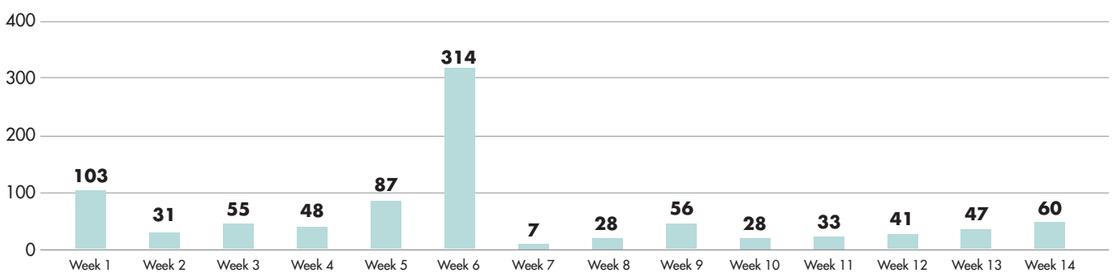

Figure 101. Weekly course access numbers

When Figure 101 is examined, it is seen that students have a high level of access to the content during the midterm exam.

Data on e-learning materials, materials and access numbers used in the course are given in Table 29.

Table 29. Access numbers to the e-learning resources

e-Learning Resource	Number of Resources	Total Access	Total Access/Number of Resources
Lecture Video	5	35	6
Interactive Course Material	2	5	2,5
Homework Activity	2	33	15,5
PDF/HTML5/ePUB	16	94	5,8
Exam	6	246	41

When the data on the accessibility of the e-learning materials used in the course are examined, it is seen that the most access is to the exam and the basic course material, followed by the lecture videos. The least amount of access was in the interactive course material. It can be said that the main reason for this is the low number of interactive course materials. The weekly numbers for all course materials are given in Figure 102.

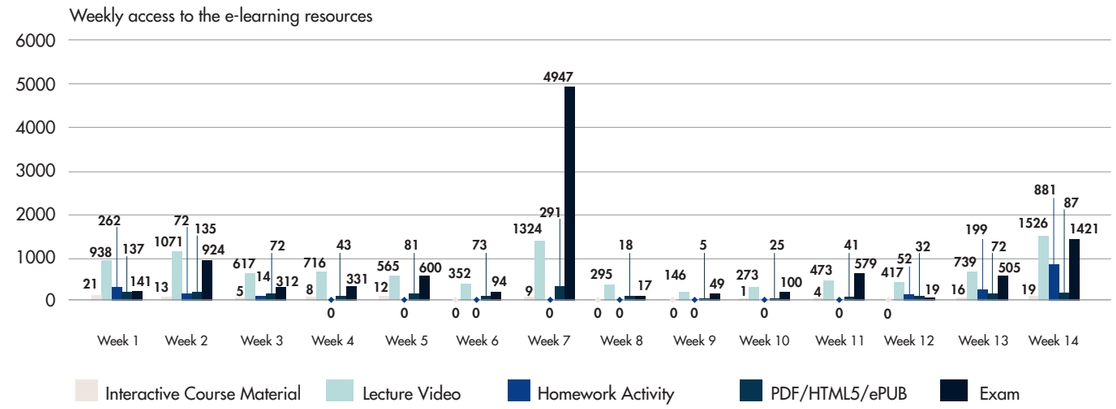

Figure 102. Numbers of the weekly access to the e-learning resources

Course success

When the students' success in the related course is examined (Table 30), it is seen that 6 of the 9 students are successful and 3 students are unsuccessful. It is seen that unsuccessful students did not take the final exam or did not submit homework. It can be said that these students do not fulfill the course requirements.

Table 30. Course achievement results

No	Student No.	Name Surname	Mid-Term	Final	Re-take Exam	Average	Letter Grade	Result
1	**18*****04**	**M*****T**	**45**	**0**	**50**	**48**	**DD**	**Pass**
2	**19*****06**	**R*****A**	**45**	**60**	**-**	**54**	**CC**	**Pass**
3	19*****18	V*****T	-	-	-	0	FF	Failed
4	**19*****19**	**Ş*****N**	**90**	**10**	**45**	**63**	**CC+**	**Pass**
5	**19*****23**	**D*****Ş**	**70**	**30**	**-**	**46**	**DD**	**Pass**
6	19*****24	E*****R	60	0	-	24	FF	Failed
7	**19*****25**	**R*****U**	**55**	**40**	**-**	**46**	**DD**	**Pass**
8	**19*****32**	**N*****N**	**50**	**80**	**-**	**68**	**CB**	**Pass**
9	19*****33	A*****A	55	0	-	22	FF	Failed

When the relationship between student achievement and access to the course is examined (Table 31), it is seen that the first 3 students with the highest success grades have access to the course at a high rate, while the 3 students with the lowest grades have low access to the course. The student named E****R, whose access status can be considered high (122), has a low grade as he did not take the final and retake exams.

Table 31. Course achievement and access rate relationship

Course Access	Student Name	Grade	Letter Grade	Course Access Number
High	**N*****N**	**68**	**CB**	**151**
High	**R*****A**	**54**	**CC**	**72**
High	**Ş*****N**	**63**	**CC+**	**87**
Low	A*****A	22	FF	48
Low	E*****R	24	FF	122
Low	V*****T	0	FF	30

Conclusion and recommendations

Graphic Design-II (RSM222) course, which is carried out at Gaziantep University Faculty of Fine Arts, Department of Painting in the spring term of the 2020-2021 academic year, was offered to students through distance education and with a blended learning model. During the course, the LearnERA expert and the course instructor followed the process in harmony. Although the lecturer gave the lesson with this method for the first time, he was extremely interested and curious. This situation contributed to the follow-up of the course and the solution of possible problems in the process. When the access of the students who take the course to the course and e-learning materials is evaluated, it is seen that although the students have access to the course and course content, they do not participate enough because they are taking the course for the first time in this way. In addition, the fact that the course was given with blended learning method in the online environment for only 5 weeks and continued face-to-face in the other 8 weeks created a restriction on the active participation of the students in the system. In addition, the fact that the course could not be fully structured due to its nature created a limitation. However, it can be said that students have access to and benefit from course materials.

When learning analytics are examined, it is seen that there is a positive correlation between student achievement and access to course materials. In this context, it can be said that effective online course management with various e-learning materials contributes to course success. The instructor stated that he was satisfied with the process of redesigning and conducting the course with distance education and blended learning model and the support provided by the LearnERA expert. It is thought that adopting the course design and process in other courses and designing the course in a fully structured format for 14 weeks will yield more effective and efficient results. Finally, it is suggested to use various design strategies and techniques to increase students' motivation towards the course.

8. International retail

Introduction

In line with the decision taken by the Higher Education Council, “International Retail” course was given through open and distance learning in the fall semester of the 2020-2021 academic year due to the COVID-19 epidemic. Design and development studies were carried out in order to deliver the course through open and distance learning.

First of all, with the pedagogical design, the course was redesigned with the “flipped classroom” model and the related pedagogical design was reflected in the online course design. In the next stage, e-learning resources were designed in accordance with open and distance learning and flipped classroom model. At this stage, in order to support the techno-pedagogical competence of the lecturer responsible for the course, a number of in-service trainings were provided including blended learning, flipped classrooms, the development of e-learning resources, online classroom management, effective use of learning management systems.

The LearnERA Specialist, who specializes in open and distance learning, has collaborated with the lecturer responsible for the course during the redesign of the course and e-learning contents, as well as the delivery of the online course. First of all, the syllabus and weekly lesson plan were developed, and appropriate e-learning resources were determined by consensus with the lecturer to present the necessary content, and the lecturer was informed about how to develop the said content. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert as instructional designer. Content developers were responsible for transforming the designed content into a learning resource. Detailed information on the development process of the relevant content is given in the “Course Structure” section.

Online orientation resources and orientation activities were developed and published as the orientation module in order to enable students to adapt to the open and distance learning and flipped classrooms model, to ensure their orientation to the course, and to introduce the course platform and e-learning contents.

E-learning resources developed in accordance with the methods and techniques of open and distance learning and flipped classrooms model are offered to students interactively within the scope of the course designed within the learning management system (LMS) of Gaziantep University.

Flipped classrooms

The flipped classroom model is a teaching model in which students are prepared for the course content before the lesson, during the lesson, learning activities are carried out under the guidance of the instructor, and after the lesson, learning is reinforced with learning activities such as discussions, quizzes or assignments.

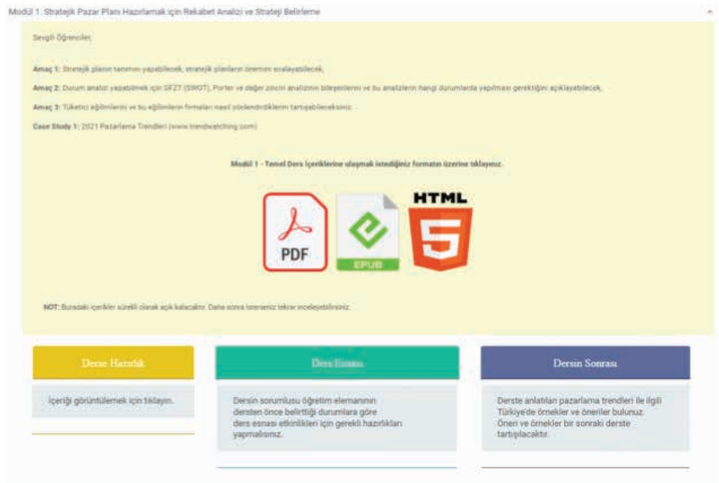

Figure 103. The flipped classroom learning activities

The flipped classroom model adopted within the course consists of "Course Preparation", "During Course" and "After Class" activities. During the course preparation stage, students are expected to study the e-learning resources presented to them and complete the related learning activities before coming to the "live lecture" given via videoconference. During the lesson, learning activities were carried out under the guidance of the lecturer. In the after-class activities, reinforcement activities such as discussion activities and quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

Course structure

An orientation video was developed for the orientation of students to the course, which was designed based on open and distance learning and flipped learning models, as well as pdf-based content that deals with learning models, processes, and resources. In addition, a course introduction video was developed in which the lecturer responsible for the course conveyed the course, the purpose of the course, learning activities and expectations from the students.

Figure 104. Course introduction video and orientation resources

The learning resources under the relevant modules within the course were agreed between the lecturer of the course and the LearnERA expert. In the development of the aforementioned e-learning contents, the faculty member acted as raw text content developer and LearnERA expert instructional designer. Content developers were responsible for transforming the designed content into a learning resource.

In order to deliver the course content to the students, the following learning resources have been developed in accordance with the nature of the course, learning objectives and flipped classroom model.

1. **Main course material:**
   It is text-based content enriched with images. This content was developed as Pdf, epub and html-based in order to facilitate access from different tools and platforms.
   In the development of the main course material, the main course material template was created by considering the instructional design principles. Guidelines such as how to write learning objectives, how to organize the content, images to be used and copyright information about them were included in this template. The lecturer prepared the raw text contents according to this template and sent it to the LearnERA expert. The LearnERA expert reviewed the relevant content in terms of instructional design and suitability for open and distance learning and forwarded the predicted corrections to the faculty member. After the necessary arrangements were made, the content was finalized and sent to the developers, and the developed content was published as a pre-lesson activity in the online course.

Figure 105. Main course materials

2. **Lecture video: :**
   It is an educational video of approximately 10 minutes in which the content planned to be covered in the module is conveyed in a summary form. Within the scope of this course, under the guidance of a LearnERA expert, the lecturer improvised the subject with the presentations he prepared, and the shootings were carried out by Gaziantep University team with professional devices.

Figure 106. Lecture video

Video edits related to the relevant learning resource were made by the developers under the guidance of the expert, and the videos were published under the relevant modules.

3. **Interactive course material:**
It is a learning resource that aims to enrich the content with text, audio and visual elements and to transfer it effectively with various interaction elements. It has been developed in modules deemed appropriate within the scope of this course.
Modules for developing interactive course material were determined; related text, visual and audio elements were designed; and draft e-learning material was developed by the developers and presented to the LearnERA expert and lecturer. After the control processes, the final e-learning content was published in the online course.

Figure 107. Interactive course material

Course delivery

In the process of developing the learning resources for the course, the LearnERA expert had the roles of instructional designer and facilitator. In this process, the expert carried out weekly checks to support the content development of the instructor, followed the process and provided guidance when necessary.

The course delivery process was carried out in the context of course preperation, during course and after lesson activities based on open and distance learning and flipped learning models. Students were informed about what to do before the lesson, during the orientation week and during the lesson, through announcements and reminders in the live lesson. During the lesson, the lecturer carried out learning activities in order for the students to learn the subject in depth. LearnERA experts and faculty members exchanged views on the activities that can be done in this direction. In after lesson activities, strategies and examples were shared with the lecturer and consultations were held throughout the process, especially in order to use the discussion forum activities effectively. In addition to these, summative measurement-evaluation tools have been developed for the modules deemed necessary. The LearnERA expert shared his views on how the LMS gradebook can be used in assessment-evaluation processes with the faculty member. In all online course processes, the LearnERA expert course provided active support to the lecturer by providing examples when necessary on techno-pedagogical issues such as online course management, development and execution of online learning activities, and implementation of online assessment-evaluation strategies. The experts and lecturers discussed the issues that emerged during the course processes together and developed solutions specific to the course and the situation.

Table 32. e-Learning resources

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 0	●	●	●	●				
Module 1	●	●	●	●	●			●
Module 2	●	●	●	●	●			●
Module 3	●	●	●	●	●			●
Module 4	●	●	●	●	●	●		●
Module 5	●	●	●	●	●			●
Module 6	●	●	●	●	●			●
Module 7	●	●	●	●	●			●
Module 8	M I D - T E R M E X A M							
Module 9	●	●	●	●	●			●
Module 10	●	●	●	●	●			●
Module 11	●	●	●	●	●			●
Module 12	●	●	●	●	●			●
Module 13	●	●	●	●	●			●

Course evaluation

In the 2020-2021 fall academic year, learning analytics consisting of course and e-learning resources access were used in the evaluation of the course designed with open and distance learning and flipped classroom model, enriched with various e-learning resources. Accordingly, a two-layer analysis was carried out: 1) Access to the course and 2) Access to e-learning resources.

1. Course access

Learning analytics on course access consists of analytics data on the number of individual learners accessing the course, total access, and weekly access.

It is seen that all 16 students enrolled in the course in the 2020-2021 fall academic term had access to the course (Figure 108). This situation can be considered as an indication that the online course is being conducted effectively.

When the total access rates to the course are examined (Table 33), it is seen that 16 students accessed the course 3 thousand and 30 times in total. From this point of view, it is understood that an average student accessed the course approximately 189 times on average. These analytical data obtained show that students actively visited the online course. This can be considered as another indicator of the effective execution of the online course.

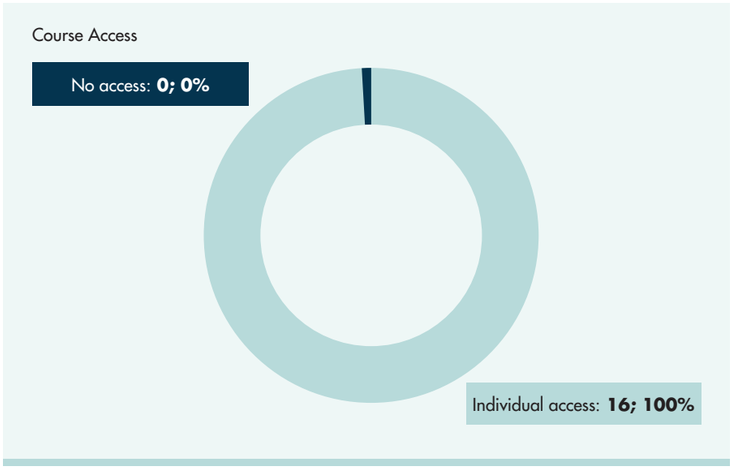

Figure 108. Access to the course

Table 33. Course access rates

No. of Students	Individual Access	No Access	Total Access	Access Rate
16	16	0	3030	189,38

Considering the analytical data on weekly access to the course (Figure 109), students visited the course on average 189 times per week; lowest access rate being in Week 10 – after exam week. It is observed that the highest access is achieved in Week 6, the week before the midterm exam. It is expected that students' access to the course is high before important assessment-evaluation weeks.

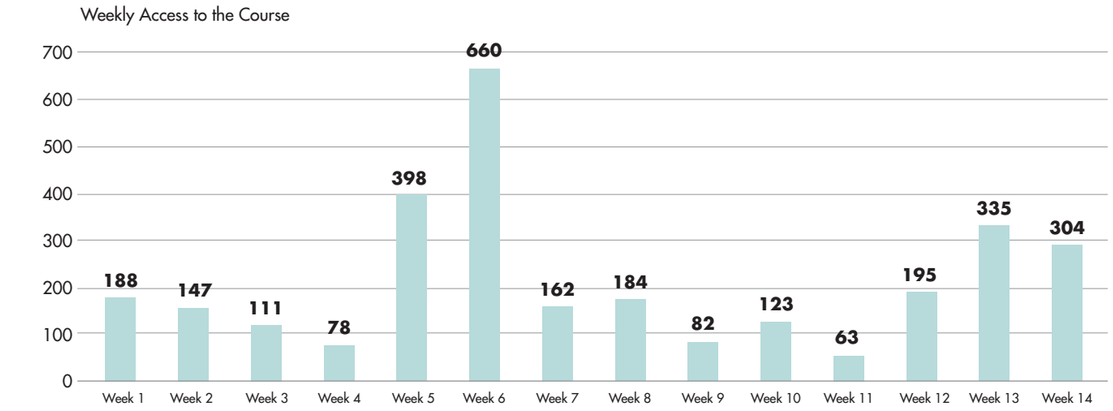

Figure 109. Weekly access to the course

2. Access to e-learning resources

When the learning analytics related to e-learning resources developed within the scope of the course are examined (Table 34); it is seen that the most access was made to the lecture video (f=2271), followed by the main course resources (pdf/html5/ePub) (f=294), and assignment and exam activities were visited in similar numbers. It is understood that the least access is realized in the interactive course material (f=12).

Table 34. Access to the e-learning resources

e-Learning Resource	No. of Resources	Total Access	Total Access/No. of Resources
Interactive Course Material	2	12	6
PDF/HTML5/ePUB	26	294	11
Lecture Video	14	2271	162
Assignment	2	157	79
Exams	1	162	162

On the other hand, when the access/number of materials ratios are examined, it is seen that the source with the highest rate is the lecture video and exam activity, followed by homework activities, and the main course resources (pdf/html5/ePub) were visited 11 times on average. The number of materials/material access ratios are presented visually in Figure 110. Accordingly, it is evaluated that the lecture videos, which had the highest value in both total reach and unit reach, were used effectively in the context of this course. The high rate of visits to the main course material can be interpreted as the students using the resource effectively. It is considered that the reason why the interactive course material was rarely visited is that the lecture video and the course main material are seen as sufficient resources. As a result, the data obtained show that students mainly accessed lecture videos. Since it forms the basis of students' preparation as a pre-lesson activity, the high accessibility to this resource shows the effectiveness of the adopted learning approach.

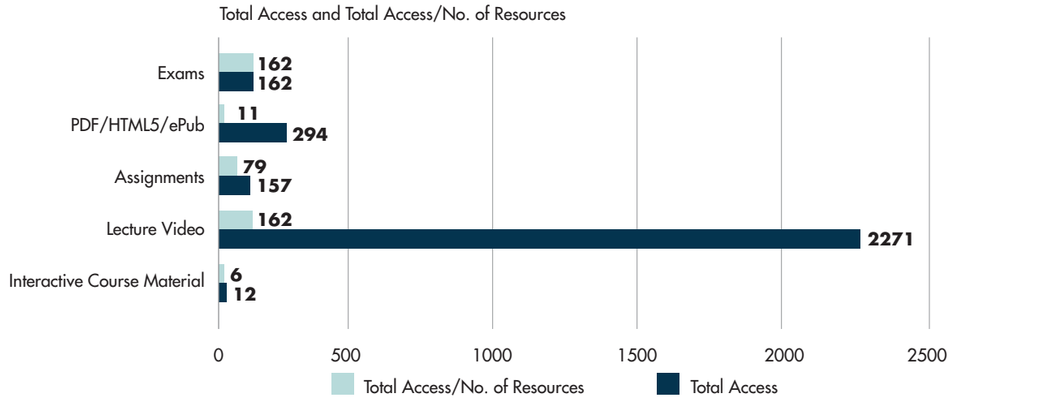

Figure 110. Total access and total access/no. of resources

When the learning analytics data, which consists of weekly access data for e-learning contents, is analyzed (Figure 111), it is observed that weekly access changes in parallel with course access data, and an increase in material access during the midterm week. The increase in material access observed during this exam week indicates that students used these materials to prepare for the exams. On the other hand, the fact that the lecture videos were visited at certain data intervals during the first nine weeks, except for the important weeks, shows that this content is regularly used by the students. In addition, the fact that the number of access to the main course material is parallel shows that the students regularly accessed this e-learning resource on a weekly basis. Assignment activity access increased during the final exam week.

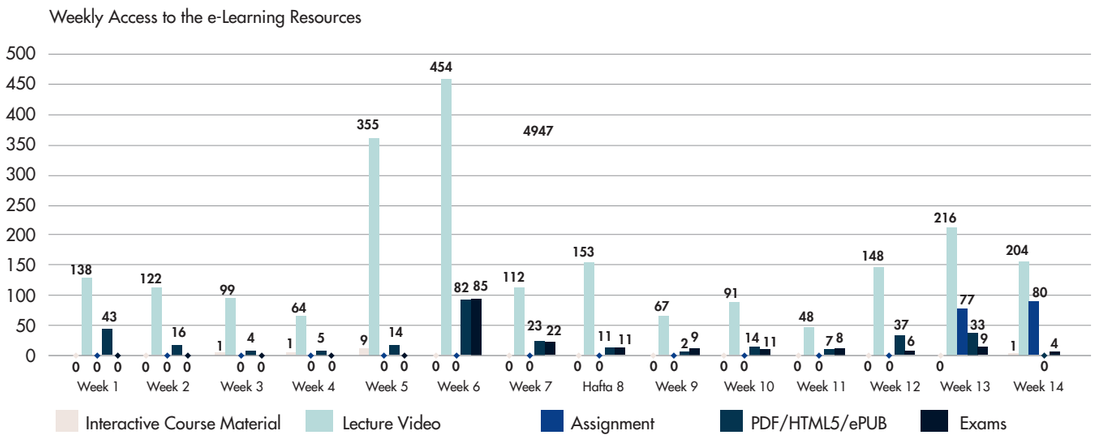

Figure 111. Weekly access to the e-learning resources

Course success

Since data on student achievement could not be accessed, relevant analyzes was not be possible.

Conclusion and recommendations

In line with the recommendations of the Council of Higher Education, due to the COVID-19 epidemic, the "International Retail" course was given in the fall semester of the 2020-2021 academic year through open and distance learning and adopting the flipped classroom model. In order to present the course through open and distance learning, design and development studies were carried out, active guidance was provided to the instructor during the execution of the online course, and steps were taken to realize effective online course management.

In order to ensure effective online course management, in-service training was given primarily to support the techno-pedagogical competencies of the lecturer responsible for the course. In addition, various e-learning resources have been developed in order to carry out the course effectively through open and distance learning and flipped classroom model. In this process, faculty members, LearnERA experts and developers worked collaboratively in harmony. In this process, the LearnERA expert provided proactive guidance to the lecturer through good examples.

When students' access to courses and e-learning resources is evaluated, it is seen that a significant proportion of students have access to the course and course content. It is understood that students frequently access lecture videos and benefit from these materials in order to prepare for the exam. Finally, the faculty member states that he is satisfied with the process of redesigning and conducting the course with open and distance learning and flipped classrooms model, and the support provided by the LearnERA expert. As a result, it is recommended to enrich the course with different e-learning contents and to adopt similar designs in other courses.

9. Fundamentals of web design

Introduction

Fundamentals of Web Design course have been prepared for the fall semester of 2020-2021 Academic year for Gaziantep University, Technical Sciences Vocational School, Computer Technologies Department. The structure of the course is designed in accordance with the blended learning model. In September 2020, with the decision to hold the lessons remotely, the parts of the lessons that should be done face-to-face were made with the Web conference tool (Adobe Connect). These courses have been presented by Gaziantep University Distance Education Center (uzemgiris.gantep.edu.tr). A sample screenshot of a module belonging to the Fundamentals of Web Design course is given in Figure 112.

The flipped classroom model preferred within the scope of the course consists of " Course Preparation", "During Course" and "After Course" activities. During the course preparation stage, students are expected to study and complete the e-learning resources presented them before the "live lecture" given with video-conference. During the course, learning activities were carried out under the guidance of the lecturer. After the course, reinforcement activities such as quizzes were carried out. Thus, it is aimed to support students to provide permanent and deep learning.

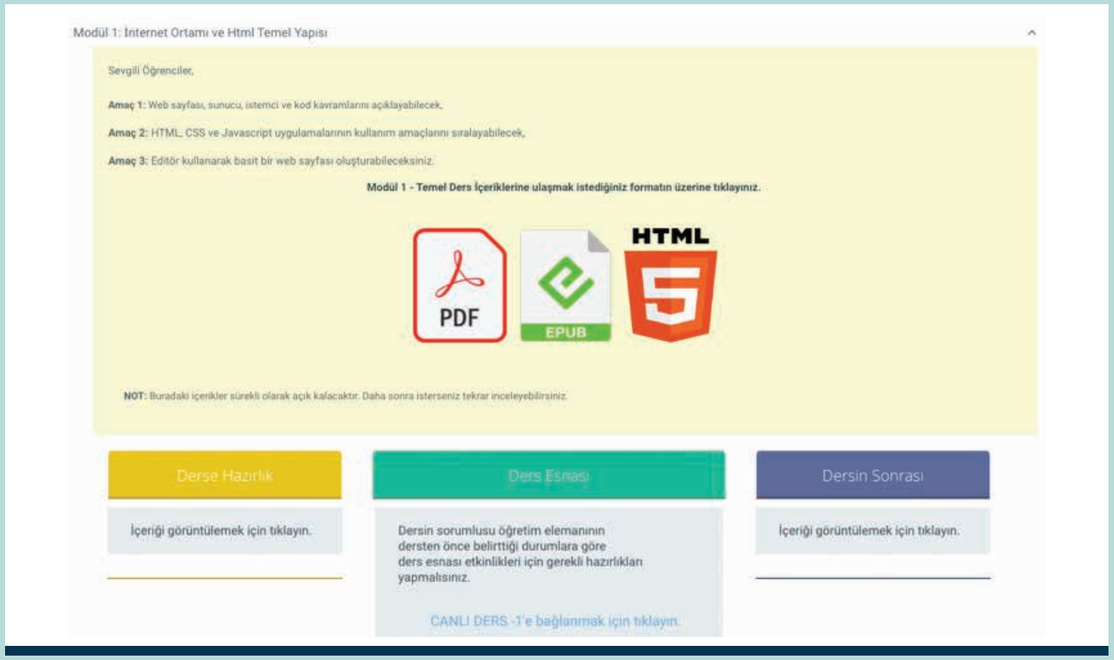

Figure 112. Web design fundamentals course module 1 screenshot

Course structure

The course is designed as 14 modules including midterm and final exam. First of all, learning objectives were first created for each module within the scope of the course. Accordingly, basic information such as the definition, purpose, content, assessment and evaluation process of the course were presented to the students in the syllabus section. In the weekly lesson plan, it was presented to the students at the beginning of the semester with the titles of which module and activity in which week.

In the orientation part of the course, a video about blended learning was presented to the students, and an introductory video of the course with the lecturer was also presented.

Within the scope of the plan made with the lecturer, the course content was presented in PDF, HTML5 and EPUB formats with a special design, as summarized in Table 1. In addition, for each module, lecture videos were produced depending on these contents. While the videos of the 1st and 11th modules are presented in interactive video format, interactive course content in HTML5 format has also been created for the contents of the 7th and 11th modules.
As a result of discussions with the lecturer, HTML-related topics were covered in the first 7 modules. After the midterm exam CSS was included in 3 modules, and Javascript was included in the last 2 modules. Before content production, the subject framework has been clarified thanks to the learning objectives developed with the lecturer. In the production process, the contents, which were drafted by the LearnERA specialist according to the learning objectives, were brought to the final format after the approval of the lecturer. This whole process has been followed through the ClickUP environment. In addition to the communication during the production process (since July 2020) the LearnERA specialist and the lecturer have held regular weekly meetings via Zoom tool or over the phone. Module 8 was prepared by the lecturer; all other modules were written by a LearnERA specialist. Some of the end-of-module questions were written or updated by a LearnERA expert. The scenario, shooting, voiceover and editing processes of all the videos were prepared by the LearnERA expert. The final editing (intro, video resolution and quality) for the broadcast was completed by the technical team.

The characteristics of the types of e-learning materials produced within the scope of the course are summarized under the following headings.

Main course materials:
The basic course material prepared in PDF, EPUB and HTML5 formats includes the basics of Web Design and sample code blocks that students can practice.

```
<!DOCTYPE html>
<html>
    <head>
        <title>Çerçeve Özelliklerinin Kullanımı</title>
    </head>
    <body>
        <h2>
        <a href="http://www.gantep.edu.tr" target=" cerceve1">
Gaziantep Üniversitesi</a>
        <a href="http://www.gantep.gov.tr" target=" cerceve1">
Gaziantep Valiliği</a>
        <a href="https://tr.wikipedia.org/wiki/Gaziantep"
target=" cerceve1"> Gaziantep Hakkında</a>
        <br><br>
        </h2>

        <iframe src="http://www.gantep.edu.tr" width="100%"
height="600" name="cerceve1"></iframe>

    </body>
</html>
```

Örnek 2. Name Parametresi ile Farklı Sayfaların Tek Çerçeve İçinde Açılması

Figure 113. Sample code block (model 6 - example 2)

Table 35. Fundamentals of web design course - table of contents

	Orientation Content	Main Course Material (PDF	Main Course Material (HTML5)	Main Course Material (ePUB)	Lecture Video	Interactive Course Material	Assessment Tools and Activities	Lecture Slides
Module 1	●	●	●	●	●	●	●	●
Module 2		●	●	●	●			●
Module 3		●	●	●	●			●
Module 4		●	●	●	●			●
Module 5		●	●	●	●			●
Module 6		●	●	●	●			●
Module 7		●	●	●	●		●	●
M I D - T E R M E X A M								
Module 8		●	●	●	●			●
Module 9		●	●	●	●			●
Module 10		●	●	●	●			●
Module 11		●	●	●	●	●	●	●
Module 12		●	●	●	●			●
F I N A L E X A M								

In addition, design elements such as research, attention, internet and application are included in the content (Figure 102).

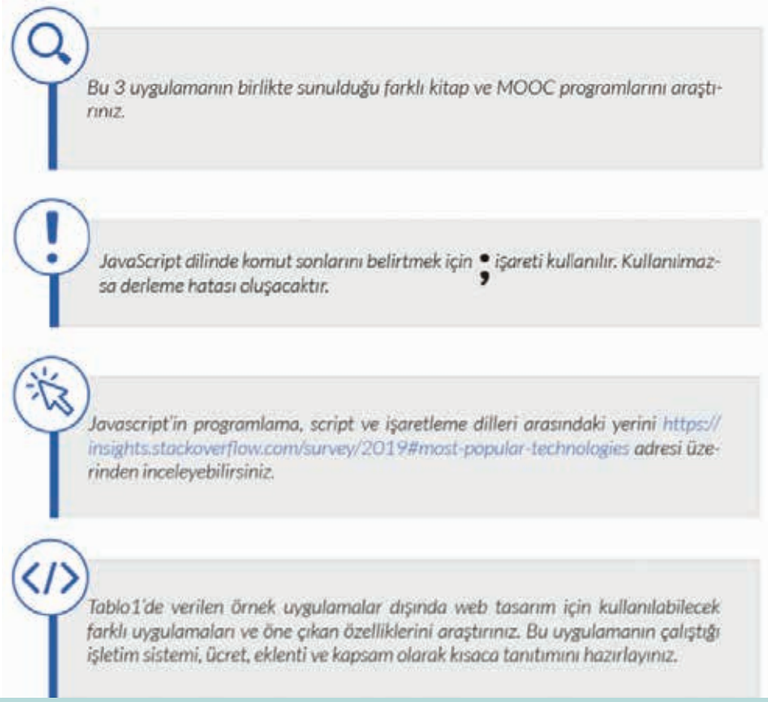

Figure 114. Design elements used in the main course materials

Special tables, graphs and figures were created and presented in the main course material (Figure 115).

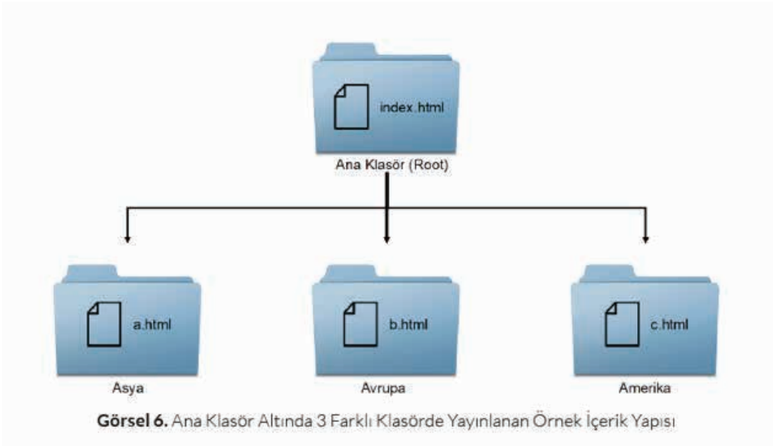

Figure 115. An example of visuals specially prepared for the Lesson (module 6 - figure 6)

Video:
A special video format has been prepared for Fundamentals of Web Design, which is an application-oriented course. After creating the content scenario, the LearnERA specialist prepared a presentation and the whole video was prepared by taking a screen record of the computer on which the application was made. Where necessary, theoretical explanations are given with animation support (Figure 116). The application and the result screen are shot in the same frame (Figure 117).

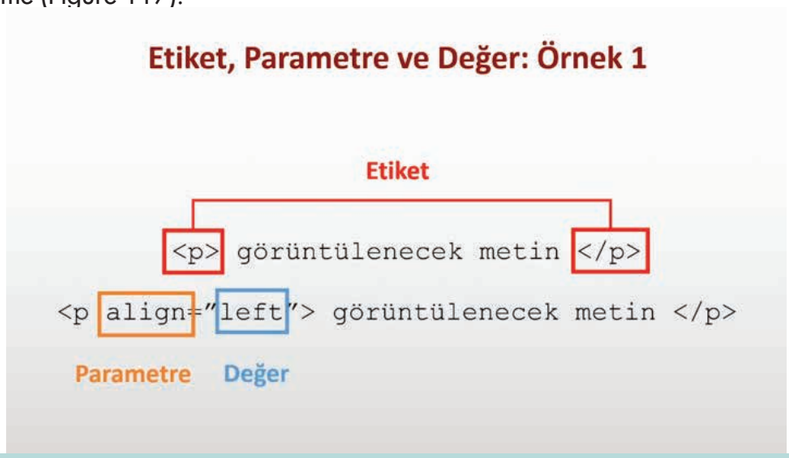

Figure 116. Lecture video theoretical section example

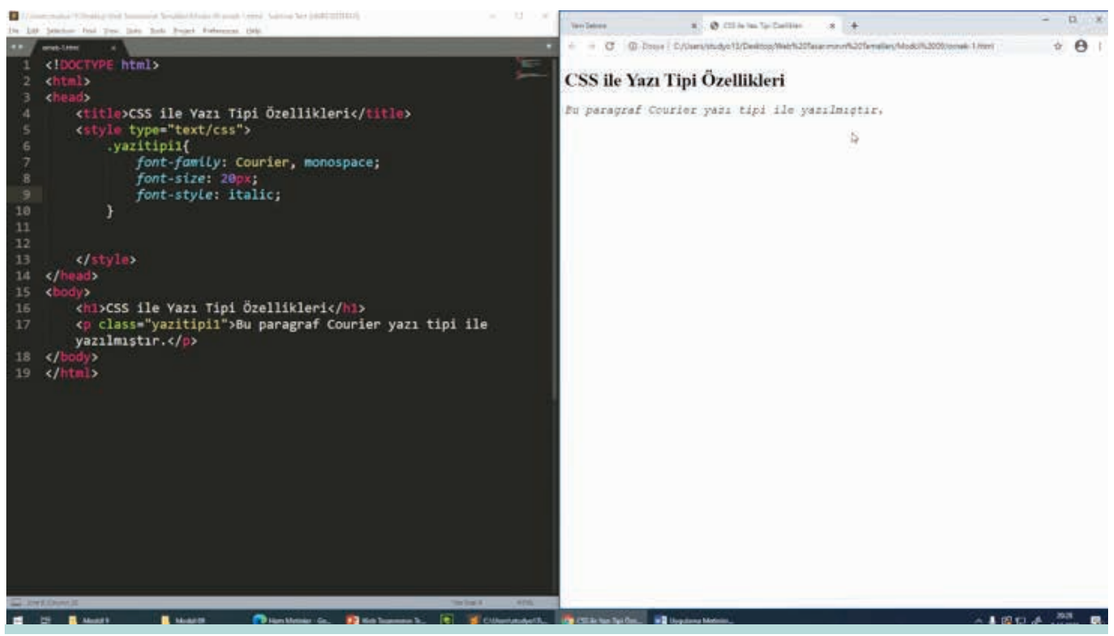

Figure 117. Lecture video application section example

A total of 3 hours and 15 minutes of video was prepared for 12 modules.

Interactive video:
The videos prepared for module 1 and module 11 within the scope of the course are also presented as interactive videos.

Interactive course contenti:
Depending on the importance of the modules, the main course material and interactive course material were produced before the midterm and final exams together with the lecturer. This material was created by the LearnERA technical team using a custom sceneario and software. A live stream, animation, and user-controlled content are presented, enriched with questions (Figure 118).

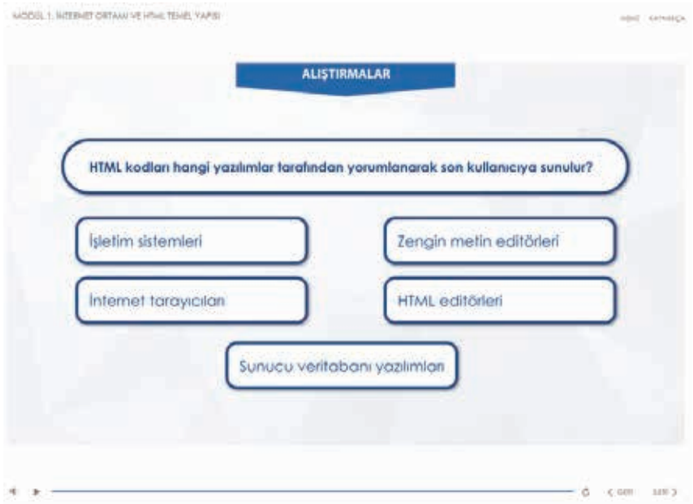

Figure 118. A sample part of interactive course content (question)

Course delivery

In the implementation of the course, the main course material and video of the relevant module were published at the beginning of the week. In the orientation module of the course, it is explained that these contents should be reviewed by the students before the course. On the day of the lesson, the application was repeated by the lecturer in the live course environment, and the subject was reinforced. After the course, the students were guided to the evaluation tools of the relevant module and it was ensured that the students saw their own situation on a weekly basis. Although it was reminded by the LearnERA specialist, the discussion forums was not used by the lecturer.

Course evaluation

It was emphasized that the main course materials and videos were used by the students before, during and after the course. This use is also reflected in the rate of single use evaluated throughout the period. It was observed that 73 (94.8%) of 77 students who took the course login the course at least once.

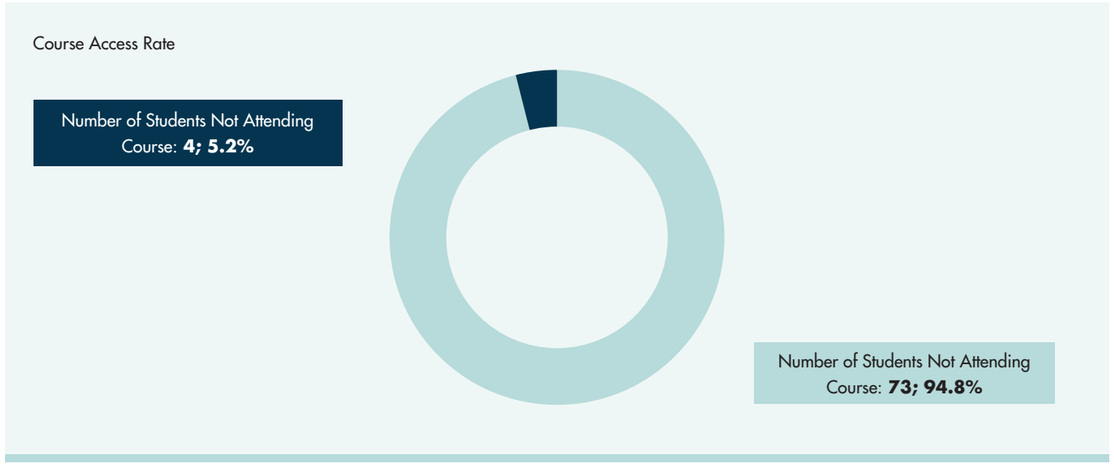

Figure 119. Course access rate

With the transition to the distance education model for the first time in Gazirantep University due to the Covid-19 pandemic, the importance of the content prepared for blended learning has increased. However, due to first time of intensive using of a learning management system by students and many academic, an adaptation process was needed. This situation is reflected in the weekly usage reports (Figure 120).

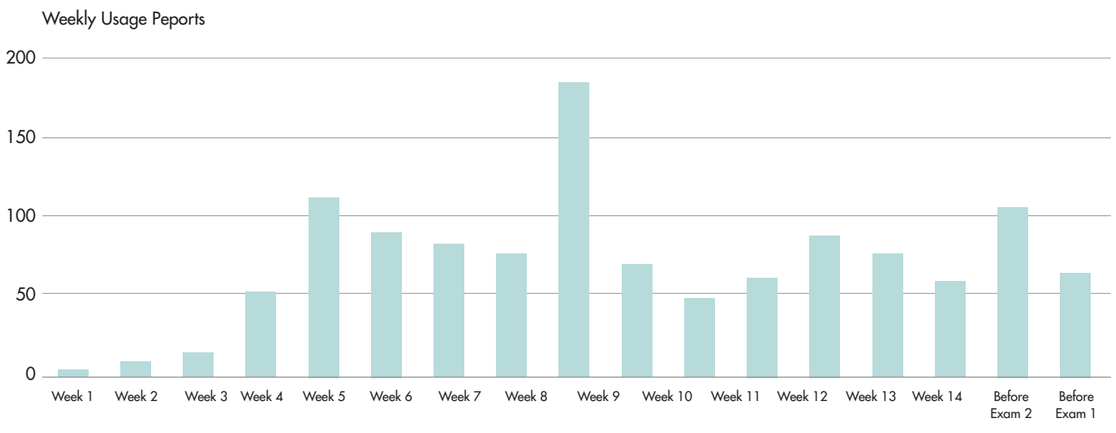

Figure 120. Weekly usage rate

The usage rate, which was below the average in the first four weeks, increased to over 100 in the 4th week. The highest usage was observed in the week of the midterm exam. The rate of the average usage after the midterm exam increased again before the final exam. The fact that the main course materials can be downloaded and used offline is one of the uses that cannot be measured in the online report. The importance of introducing the system and the contents to the students earlier by the lecturer at the beginning of the semester becomes evident.

Examining the usage rates by material types (Figure 121), it was seen that the highest demand was for Exams. The least usage was in the interactive course material.

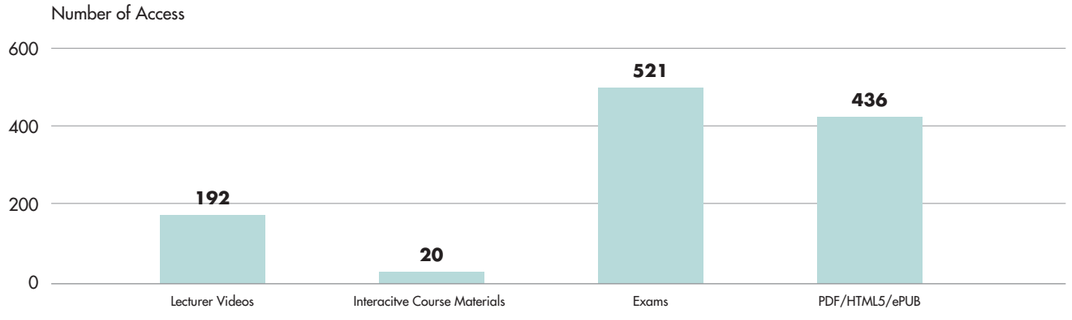

Figure 121. Access numbers by material types

In order to better understand these access numbers, it will be more explanatory to evaluate them according to the total number of materials (Table 36).

Table 36. Access by Number of Materials and Types

Content Types	Access Numbers	Number of Content	Access/Content
Interacitve Course Materials	20	2	10
Lecturer Videos	192	12	16
PDF/HTML5/ePUB	436	33	13
Exams	521	13	40
Total	**1169**	**60**	**19**

In Table 36, it can be seen that the exams was used 521 times in total. For this reason, it can be seen that the exam activity types are used mostly on average. After this material, lecture videos, were used as the second on average. The average usage was lower because the main course material was given in 3 different formats. For PDF/HTML5/EPUB, which was presented as the main course material, 323 of the 436 accesses were PDF, 68 HTML5 and 45 EPUB content. The usage rate of the PDF type in the main course material was 74%. It can be said that the usage rates are low because HTML5 has to be used online and EPUB requires an ebook reader.

The rate of use of course materials by weeks is given in Figure 122.

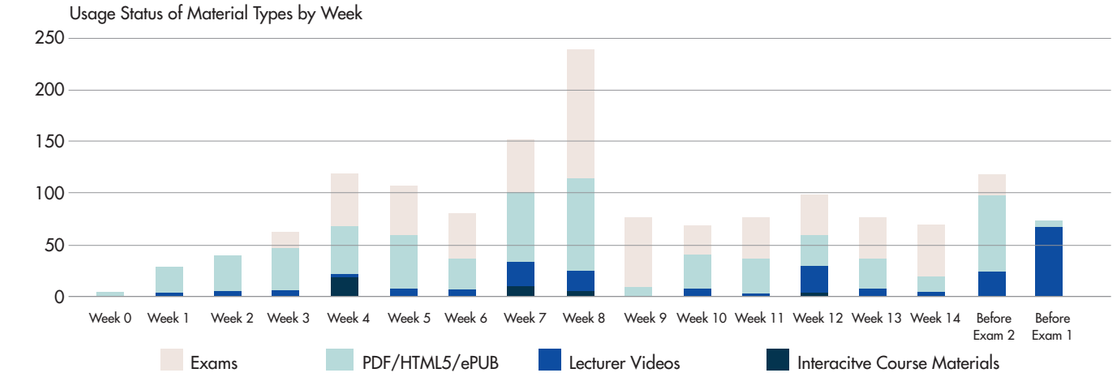

Figure 122. Usage status of material types by week

When Figure 122 is examined, it can be seen that the main course material is mainly used before the midterm exam. From the 4th week, the exam activity has come to the fore. The lecturer emphasized that the information was shared with the students that they would answer the questions from the online exam questions. For this reason, it can be said that the exam material is used so much.

Course success

Student-based success points could not be obtained at the end of the semester from the lecturer. For this reason, the relationship between material use and success could not be examined. However, when the student-based material usage data was examined, it was seen that 73 different students accessed a material 1169 times in total. It was observed that 27 different students had less than 10 accesses, while 29 students had access to 20 or more materials (Figure 123).

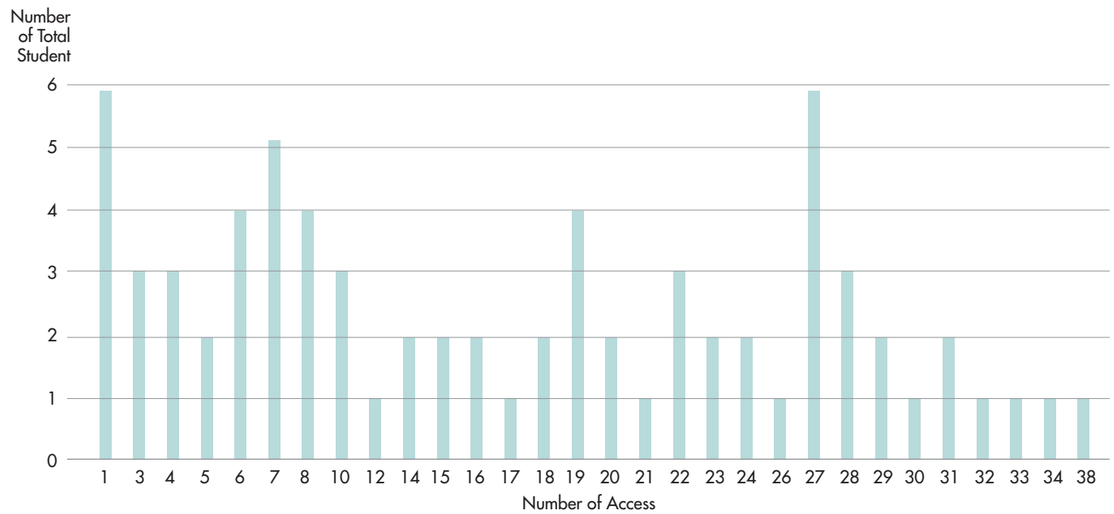

Figure 123. Access status by number of students

Conclusion and recommendations

Course content
A certain time was given to the lecturer regarding the preparing of the main course content, but the content was created by a LearnERA expert before the Fall semester of 2020 due to the short schedule. The lecturer prepared only the 8th module of the basic course material.

Although it is not recommended by the LearnERA specialist as part of the introduction to web design, Javascript was introduced in the last 2 modules, but it was observed that students who did not have sufficient programming education had difficulties in understanding these subjects. In the evaluation made by the lecturer, it was stated that these subjects would not be included in the course for the next year. Apart from this, there are no deficiency, correction or update in the course content was stated by the lecturer.

In the following years, if the lecture will be done without using the last 2 modules, the content can be presented with more applications and different examples.

Course structure
It has been observed that the use of the Learning Management System for the first time requires a period of adaptation for academic staff and students. Although it is considered that the academic staff will be more experienced in this respect in the following years, it is recommended to implement an effective orientation program for the students who will enroll to the vocational school for the first time. In this orientation program, detailed information about the types of materials, and practical information should be given to the students that can maximize benefit from these materials.

Assessment and evaluation
Since the Fundamentals of Web Design course is an application-oriented course, students should be encouraged to practice more, and a learning-oriented process should be set up, not an exam-oriented study. In this context, it is recommended to integrate an e-portfolio system in which students' achievements can be evaluated on a weekly basis.

Final thoughts
The content prepared for the Fundamentals of Web Design course has been prepared as an effective course with its up-to-date content, diversity of genres and modular use. Different assessment and evaluation methods can be used more efficiently by attracting students to the process more effectively and focusing on practice.

Table index

Figure index

This project is funded by the European Union.
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