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Distance Education Environmental Design Course in Karadeniz Technical University, Landscape Architecture Department

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ABSTRACT
It was observed that the novel coronavirus (Covid-19) identified for the first time in China in December 2019 turned into a pandemic within a short time. This led to urgent measures implemented by nations and educational institutions. Thus, on March 16, 2020, Turkish universities adopted distance education in 2020-2021 spring semester. The present study aimed to investigate the satisfaction levels of undergraduate students with the Covid-19 distance education applications in the Environmental Design Project 3 Course instructed in the Landscape Architecture Department at Karadeniz Technical University. The aim of the study was to determine the advantages and disadvantages and the problems associated with online instruction. The study was conducted with 68 students attending the Environmental Design Project 3. The study data were collected with a 5-point Likert type "Distance Education Satisfaction Scale" developed by the authors. The study findings demonstrated that the mean factor score that reflected student satisfaction varied between 4.56 and 1.47. It was concluded that the students were generally not satisfied with distance education (mean score: 1.47) due to "system errors" and "incompatibility of the software with the design course content". Although the students were highly satisfied with "the interest of the lecturers", the high satisfaction in this field did not improve general satisfaction.
KEYWORDS: Design education, distance education, environmental design project, landscape architecture.

1.INTRODUCTION

Although the history of distance education programs and courses in Turkey is not quite long, several universities provide mostly graduate level online courses and 120 universities host distance education research and application centers (YOK, 2020). The analysis of distance education in Turkish universities during the pandemic would reflect the technology readiness of the students and shape the expectations and experiences of the teaching staff. The pandemic will introduce new paradigms in education. The significance and role of Turkish universities in distance and digital education should be determined as early as possible (Montenegro and Yucel, 2020). In design disciplines such as architecture, interior architecture, landscape architecture, professional practical and educational processes have already changed significantly due to the advances in computer technology (Tarakçı Eren et al., 2018; Tarakçı Eren and Yılmaz, 2020). Today, technologies such as computer-aided design and virtual reality that significantly contributed to design education are not utilized only in education, but design is employed at every stage of professional practices. Due to the advances in computer and internet technologies, virtual reality and computer aided design software provided distance design education in virtual environments accessible on computer networks such as virtual design studios, virtual museums and virtual classrooms. Information technologies are employed extensively in education as in other fields. Current design education has also been affected by these developments. While in traditional design education, educators and students work face to face and interactively, due to the popularization of information technologies and the pandemic, existing traditional methods

have been supported by modern methods. Popularization of distance education models could also be observed in design studios. It is important to conduct and update the studio work in design education through the utilization of current technologies at the highest level.

2. DISTANCE EDUCATION METHOD

Distance learning entails conducting education with students and educators located in various locations utilizing distributed printed and electronic resources or communication technologies. With the introduction of the Internet as a delivery method in education, the distance education method acquired several unique advantages in the quality of education such as productivity and achievement over traditional instruction. This development was followed by significant adoption of distance education method by several educational institutions (Çavuşoğlu, 2013).

Distance education is not a single structure or pedagogical approach (O'Keefe, Rafferty, Gunder, Vignare, 2020; Teräs et al., 2020) but a systemic approach that utilizes various learning materials and communication methods which serve a specific purpose (Rapanta et al., 2020), including various interrelated parts (Moore & Kearsley, 2012). Conversion of traditional courses to online education requires a systematic and planned approach (Ali, 2020). It is important to ensure the right balance in distance education (Anderson, 2003) and to employ technology and pedagogy within a meaningful approach for predetermined goals (Anderson, 2009) for an active and efficient learning process and meaningful learning.

Distance education is an education method conducted on any computer network. The computer network could be a restricted workgroup or an environment without no limitations such as the internet. Distance education is one of the subsystems of E-Learning since it is conducted with electronic devices. Due to the employment of the Internet as an educational medium, distance education became competitive with formal education in several aspects that could affect the quality of education such as productivity and achievement, as well as several others. During the pandemic, the number of educational institutions that provide distance education increased significantly (Çavuşoğlu, 2013). Distance education could provide educational opportunities to a higher population and individuals of all professional levels and age when compared to traditional education. The geographical obstacles that have a negative impact on the delivery of education could be easily overcome by distance education (Özbudun, 2010). In distance education, students could be instructed completely independent of the space and partially of the time. In distance education method, the student accesses accurate information based on the subject and in a form developed by the instructors. Thus, there is no absenteeism in any course, and all course notes could be accessed by the students completely and a timely manner. Studies reported that distance education was at least as effective as traditional education based on the learning outcome and often more effective (Bernard et al., 2004; Cavanaugh, 2001; Cavanaugh et al. 2004; Cradler et al., 2002; Hobbs, 2004; Tallent Runnels et al., 2006; Waxman et al., 2003).

However, previous studies also reported disadvantages of distance education. Distance education students could employ several communication methods to communicate with their peers or teachers. However, none of these methods are as effective as face-to-face meetings. Furthermore, a student's attempt to communicate using a software would not be successful if the instructor is not online. Since communication between the instructor and the student is not face-to-face except in virtual classrooms, students should comprehend the course content using the information provided in the provided educational tool (Çavuşoğlu, 2013). Thus, the courses, which were not developed clearly and completely, would lead to incomprehension of the content. In these cases, instructor feedback about the student questions would not be immediate due to the communication problems. This is an important disadvantage of distance education; however, as mentioned

above, this problem could be resolved. Course content should be clear, accurate and complete. Furthermore, the fact that the distance education is a student-centered education method could be described as an advantage or a disadvantage. When compared to traditional classroom-studio education based on student achievement, although previous studies supported the effectiveness of distance education, students often failed to participate in online classes. In previous studies, it was determined that 50-70% of the students could not complete online programs or courses (Carr, 2000; Roblyer, 2006; Rovai & Wighting, 2005; Simpson, 2004).

Distance education is an important and current issue that should be studied in design education. The current design education curricula include three groups of courses: general, vocational and elective. These course groups also could function as studios, theoretical courses and IT laboratories. Environmental design project courses are important basic design courses in the category of studio courses. These courses entail drawing, sketching, feedbacks, and continuous instructor critic, are practice-oriented courses where modeling is also an important part of the process, and these courses are based on a master-apprentice relationship, and therefore they are quite challenging for distance education.

3. KARADENİZ TECHNICAL UNIVERSITY (KTU) DISTANCE EDUCATION CASE STUDY

In a statement by the Higher Education Institution on March 18, 2020, it was announced that 123 universities could employ the distance education platform and those that could utilize this platform should support others that could not. Karadeniz Technical University (KTU) offers all common courses at all levels on the distance education platform. Furthermore, joint distance education certificate programs are conducted with the Karadeniz Technical University Continuing Education Center (KTUSEM). KTU aimed the active utilization of the distance education unit (UZEM) based on the decisions of the state after the pandemic. KTU Distance Education Center employs the Adobe Connect system. Courses are instructed in virtual classrooms based on the weekly schedule, and regular courses are recorded for students who could not attend the live online courses. They could watch these videos later or once more.

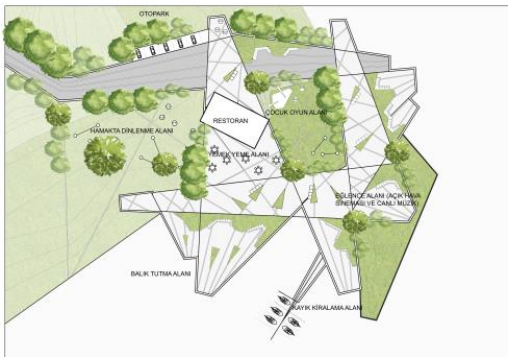
3.1. Environmental Design Project Course and Distance Education

It is known that learning by doing is important in all occupations that require design education, and it is conducted in studios based on master-apprentice relationship. Educators do not consider studios only as a space where the knowledge is acquired by doing, but also as a teaching and learning environment where basic knowledge is provided. This environment has significant contributions to design education through creative problem solving as an instructional instrument. Design studios are an ideal learning environment where students acquire initial design knowledge, improve their skills, and express personal ideas about design (Ketizmen, 2002). In a design studio, the biggest challenge for both students and lecturers is the lack of a creativity and design methods that would be adequate for all students and lead to achievement. The student should learn to cope with design challenges, and could improve design skills based on the instructor criticism with whom the student has a master-apprentice relationship. This process is conducted within the realm of client-consultant communications (Ketizmen, 2002; Özkan et al., 2016, Düzenli et al., 2018; Alpak et al., 2018, Ertekin and Çorbacı, 2010). However, it is very difficult to create this environment and maintain the master-apprentice relationship in distance education. Although it is possible to criticize student drawings verbally on Connect, it is difficult for the instructor to intervene using drawings and sketches. However, the process entails constant correction by drawing and redrawing. But this is not possible during distance education due to software limitations.

In the Environmental Design 3 course instructed during the sophomore year in KTU, the topic was "Sera Lake Restaurant Environment Design". Students were first asked to

research the relevant literature (abstract-character harmony, concrete-real design examples), and then to list the activities conducted around a restaurant. Then, each student determined a scenario and a concept for the area. The students were expected to develop a function scheme for the activities based on this concept to improve their creativity skills. They were asked to develop an original formal approach based on the activity list, the concept and the scenario they developed based on the literature review. Thus, they produced draft sketches and models. One of student proposals were selected and the spatial construct, in other words, the scale based on the capacity, and form and furniture based on the activity was determined. Examples for the 2019-2020 Spring Semester Environmental Design Project 3 Course online education outcomes are presented in Table 1.

Table 1. Distance Education EDP ÇTP 3 (Sera Lake) Outcome Examples

Through these processes, the student produces knowledge, develops ideas and achieves results in the design studio within a master-apprentice relationship. However, in distance education, models were not produced due to the material procurement problems and the difficulties experienced by the instructor in noticing and criticizing the mistakes in models. Furthermore, it was not possible to draw desired number of quality sketches. It was suggested that these difficulties negatively affected the learning outcomes in the course.

APPLICATION

A survey was conducted with 68 students who attended the course to investigate the positive and negative effects of distance education on design education and student satisfaction with the program. In the survey, the students were asked to evaluate the distance education in the environmental design project 3 course using a 5-point Likert-type (5: High, 1: Low) "Distance Education Satisfaction Scale". The scale questioned

- The interest of the instructors,
- System errors,
- Internet connection problems,
- Inadequacy of technological equipment such as computers,
- Suitability of the software for design course content, and
- Student satisfaction with distance education.

4. FINDINGS

The survey conducted with the "Distance Education Satisfaction Scale" revealed that the general satisfaction of the students with distance education was low (Mean score = 1.47). The low satisfaction was due to "system errors" (Mean score =1.59), "adequacy of the software with the design course content" (Mean score = 1.63), and "internet connection problems" (Mean score = 2.90). The mean "lack of computer equipment " was 3.87 since most students attending design departments already have computers. The highest mean score was observed in "the interest of the faculty members" (4.56). However, this score was not sufficient to increase the overall satisfaction level. The mean scores are presented in Figure 2.

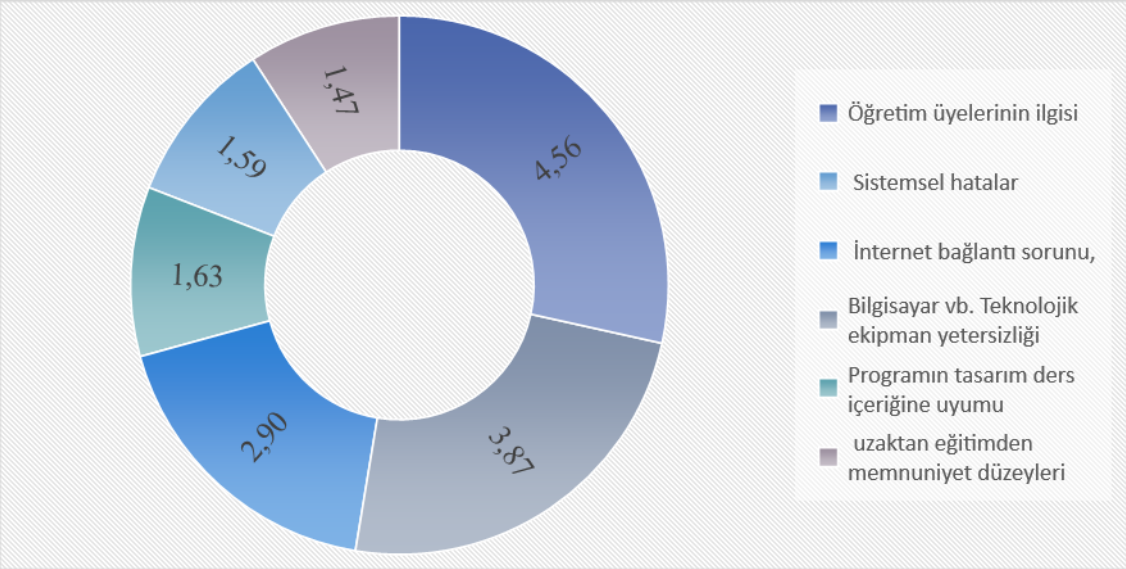


Figure 2. Average satisfaction with distance education

The crosstab and χ2 analyzes demonstrated that the level of satisfaction with distance education was only correlated with "system errors" and "adequacy of the software for the design course content" ($p < 0.05$). Interest of the faculty members, internet connection problems, and lack of computer equipment variables did not affect satisfaction (Table 2).

Table 2. χ2 analysis conducted to determine the correlation between the scale items and satisfaction

	Value	**df**	**Asymp. Sig.**
Interest of faculty members	4,183[a]	2	,123
System errors	**16,111[1]**	**4**	**,003**
Internet connection problems,	5,699[a]	6	,458
Lack of technological equipment such as computers	3,105[a]	6	,796
Adequacy of the software for design course content	**19, 936[1]**	**6**	**,003**

5. CONCLUSION AND RECOMMENDATIONS

It was determined that the temporal and spatial flexibility of design education conducted with the distance education method and its suitability for individual learning were considered as the main strengths by educators (Sezer et al., 2017; Taşlıbeyaz et al., 2014). On the other hand, the lack of adequate instructor-student interaction was reported to be the most significant limitation of this method (Taşlıbeyaz et al., 2014). Thus, several distance education theories were developed to overcome its limitations. According to the equality theory, one of the distance education theories, the equality between the learning experiences of distance education and traditional education students would lead to more equal learning outcomes (Karataş, 2003; Simonson et al., 1999). However, the reason and the stage of origin of the problems experienced in the learning process remains uncertain. The instruction of applied design courses such as the environmental design project is quite challenging for both students and instructors in distance education. The present study findings demonstrated that distance education sofware were not developed for design education, which negatively affected the satisfaction level of the students. This complicated the distance instruction of the course that requires a master-apprentice relationship, criticism by scribbling, and continuous corrections on drawings. The students and the instructor should maintain communications on phone applications outside the class, which is tiring and troublesome for both parties. Difficulties in modeling complicates the perception during the integration of the land curves and design, and students experience

problems in transferring the design elements to three dimensional models. Internet connection problems during the live course was a problem for certain students despite the fact that they could watch it later since their work could not be criticized by the instructor. Also, certain students experienced frequent system errors and lack of technological equipment such as computers also led to poor quality drawings.

The study findings revealed that the students were most satisfied with the interest of the faculty members in the process. Because the design could not be completed during the distance education course and the instructors monitored and corrected the drawings, designs, etc. of the students every day through phone applications, e-mail, etc. and constantly communicated with the students. Otherwise, achievements or course outcomes would not be possible in this process. The course outcomes thus emerged successfully and at the desired level.

It seems highly possible that the technology will reach a level that would allow distance education in theoretical courses in the near future. However, in a curriculum such as design education that includes various fields of expertise, topics and details, it seems difficult to develop the relevant courses in a complete, qualified and fully adequate manner with the virtual reality technology. Thus, despite technological advances, distance education will continue to be insufficient for design education course content.

This problem could be resolved with virtual design studies that would allow geographically remote designers to create designs in digital environments via collaboration and communication. Members of the design team could communicate with each other in interactive and non-interactive sessions. They could share their knowledge and views about design in a computer environment (Maher et al., 2000 ,; Tong and Çağdaş, 2005, Sakarya, 2019). The inclusion of communication systems and experimentations with the Virtual Design Studio by universities around the world led to several examples. Adaptation of these applications in Turkey would improve the achievements.

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