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International Conference on Research in Education and Science
March 24-27, 2022   Antalya, TURKEY

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Examining the Opinions of Faculty Members on Online Exams with SWOT Analysis

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Abstract: This research aims to determine the strengths and weaknesses of the online exams, as well as the aspects that can be evaluated as opportunities and threats, by making a SWOT analysis of the online exams that are frequently used in the distance education process. For this purpose, the study was designed with the case study technique, one of the qualitative research methods. The research data were collected from academics who teach at the university and work in different titles and units. The questions prepared by the researcher, considering the factors related to the SWOT analysis, were presented to the participants as a structured interview form via an online form. Content analysis was used to analyze the data. The collected data indicate that online exams are powerful in terms of low cost, easy assessment, fast, and practicality. On the other hand, online exams have some weaknesses, such as technical problems, internet connection interruptions, difficulty with the exam preparation process, and security issues. Easy access to students and flexibility stand out as opportunities offered by online exams, while cheating was the biggest threat that the participants frequently mentioned. In the context of the results obtained, some solutions and suggestions are presented in relation to the relevant literature.

Keywords: Online exams, Distance education, SWOT analysis

Introduction

The COVID-19 epidemic, which affected the entire world in 2020, forced changes into every aspect of life, including education. In this period, distance education has suddenly become an essential concept in all fields (Abualhaija, 2022; Alshehri, 2022; Atabey, 2021; Atak, Yaşar, & Purzer, 2022; Atılgan, 2021; Ekin, 2022; Ghosh, Jansz, & Ghosh, 2022; Hu & Huang, 2022; Hu, 2021; Johar et al., 2021; Kibici, 2021; Kilincer, 2021; Liu & Cheng, 2021; Onuralp, 2021; Qi, 2021; Tsai, 2022; Ye, 2021). Moreover, all educational activities have been switched from face-to-face to online platforms due to the epidemic. The long course of the epidemic has brought about a long process of distance education activities, and online exams, which are an integral part of distance education, have become more used than ever before.

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Distance education is a form of education designed with a systematic approach in which students and educators are structured independently of time and place (Gunawardena & McIsaac, 2004). In other words, it is a learning process in which students benefit from and stay away from the learning source regardless of time and place, and interaction is carried out with remote and online systems (Abood & Abu Maizer, 2022; Alshammari, 2022; Bertiz & Hebebci, 2021; Habib & Morse, 2022; Ozturk, 2023; Özkul & Aydın, 2016). The key of success to such online and distance education is to use active learning activities with inclusion of peer learning, peer feedback, peer argumentation, and formative assessment activities (Latifi & Noroozi, 2021; Latifi et al., 2020, 2021; Noroozi, 2022; Noroozi et al., 2020; Valero Haro et al., 2019; 2022). This is also the case with online exams. Distance education, which was once considered a special form of education using non-traditional education systems, has become an important concept in the field of education today. Concepts such as networked learning, connected learning spaces, flexible learning, and blended learning systems have expanded the scope and revised the nature of previous distance education models. Web-based and web-enhanced courses are now emerging as traditional programs compete to join the "anytime, anywhere" educational nutrition craze (Gunawardena & McIsaac, 2004). Jones (1996) basically explained distance education as follows (Demir, 2013):

- The different locations of the teacher and the learner
- Organizing and designing the teaching material
- The use of the teaching material in a way that makes the teacher and the learner think together
- Use of bidirectional message transfer
- Learners' personal realization of learning

Assessment tools used to measure the achievement levels of learners should contain features such as reliability, validity, practicality, objectivity, and distinctiveness. While measuring and evaluating, various methods such as written exams containing few open-ended questions or many short-answered questions, multiple-choice tests, oral exam practices, observation-experiment, projects, exercises, and assignments should be used (Yıldız & Uyanık, 2004).

Assessment and evaluation approaches are also critical in distance education. In face-to-face education, assessment and evaluation are mostly preferred with traditional (open-ended) exams. In distance education, the process evaluation approach is prioritized instead of the outcome evaluation approach. Various assessment and evaluation tools were used online during the emergency distance education period. These mainly include projects, assignments, and online exams (Ünsal, 2021). To that end, the Council of Higher Education in Turkey has announced a number of basic principles for online exams (YÖK, 2020).

Online exams are the online form of face-to-face exams. Through online exams, assessment and evaluation processes of learners' skills, ability levels, knowledge levels, or competencies are carried out with information technology tools (Gülbahar, 2013). Online exams have advantages for both teachers and learners. These include low cost, fast implementation and fast results, implementation time flexibility, detailed statistics of results, low

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assessment errors, more reliability, question pool, quick updating, analysis, the inclusion of multimedia-based content, and storage of applications (Dreher et al., 2011; Frankl & Bitter, 2012; Hewson, 2012; Kuikka et al., 2014; Sırakaya et al., 2015; Solak et al., 2020). On the other hand, some negative aspects of online exams are experienced. The requirement of a device with an internet connection for the implementation (mobile device or computer), the possibility of cheating in the exam, the possibility of the examiner being a different person than the person who should be, and security problems are also weaknesses of online exams (Anderson et al. al., 2005; Jung & Heon, 2000; Sırakaya et al., 2015).

Many different approaches and methods can be used to evaluate and/or analyze a situation. One of these methods is the SWOT analysis, which is produced from the initials of the words "Strengths - Weaknesses - Opportunities – Threats (Türegün & Kaya, 2019). Prof. Heinz Weihrich suggested SWOT analysis in 1982 (Weihrich, 1982:54). In this method, the strengths and weaknesses of an examined situation and the opportunities and threats that these aspects may pose are evaluated together (Arslan, & Kevser, 2021). In other words, it is a systematic method that helps determine a future strategy based on the situation examined (Güldiken, 2016). While the analysis reveals the strengths to take advantage of the opportunities, it also provides information on what can be done to strengthen the weak sides and take precautions against possible threats (Erçetin, 2019).

Significance of the Research

COVID-19 has dramatically highlighted the importance of distance learning for the sustainability of education. Assessment and evaluation, one of the most important parts of education, were generally carried out online based in this process. However, online exams have brought many concerns, especially cheating and lack of infrastructure (Bilen & Matros, 2021; Fask et al., 2014; Golden & Kohlbeck, 2020).

With the onset of the COVID-19 epidemic, the number of studies on distance education has increased rapidly in the literature (Hebebci, 2021; Kibici, 2021; Unger & Meriran, 2020). However, this situation does not apply to distance education studies for online exams. In this respect, it is vital to evaluate online exams from a general perspective and evaluate the opportunities and limitations they provide, as well as their strengths and weaknesses, and guide future studies in this field.

Purpose of the Research

This research aims to examine instructors' opinions about online exams, which are frequently used in the distance education process, with the SWOT analysis approach. In this context, this research seeks answers to the following research questions:

1. What are the strengths of online exams?
2. What are the weaknesses of online exams?

3. What are the opportunities provided by online exams?
4. What are the threats caused by online exams?

Method

Qualitative methods were used in this research due to their potential to provide in-depth information. In the design of the research, the case study was preferred, which allows focusing on an existing situation (Cresswell, 2013).

Study Group

The study group of the research consists of 7 instructors actively working with different genders, branches, titles, and professional experiences. Purposive sampling was used in the formation of the study group. The demographics of the study group are shown in Table 1.

Table 1. Demographics of the Study Group

Variable		f	%
Gender	Male	4	57.15
	Female	3	42.85
Department	ICT	2	28.57
	Civil engineering	2	28.57
	Educational sciences	2	28.57
	Computer engineering	1	14.29
Title	Prof. Dr.	1	14.29
	Assoc. Prof. Dr.	1	14.29
	Assist. Prof. Dr.	2	28.57
	Res. Assist.	1	14.29
	Lecturer	2	28.57
Experience	7-10 years	1	14.29
	10 years and more	6	85.71

Table 1 indicates that there are 3 females (42.85%) and 4 males (57.15%) regarding the gender variable, while there are instructors from ICT (f=2; 28.57%), civil engineering (f=2; 28.57%), educational sciences (f=2; 28.57%) and computer engineering (f=1; 14.29%) in terms of departments. Most of the instructors have 10 years or more experience (f=6; 85.71%) and have different titles (Table 1).

Data Collection Tools

Personal Information Form, which includes demographics such as gender, department, title, and professional

experience of the participants, and a structured online exam evaluation form developed by the researchers were used as data collection tools in the research.

Data Analysis

The collected data were first reviewed by both researchers and prepared for analysis. Then, it was analyzed by content analysis within the steps of SWOT analysis.

Validity and Reliability

Expert opinion and member checking were used to ensure validity (Yıldırım & Şimşek, 2011). Additionally, the percentage of agreement of Miles and Huberman (1994) was examined. As a result of the percentage agreement, a high value such as 95.2 was found (70% and above is considered sufficient).

Findings

Findings Regarding the Strengths of Online Exams

Information on the answers given by the instructors about the strengths/superiorities of the online exams is shown in Table 2.

Table 2. Findings Regarding the Strengths of Online Exams

Category	f	%
Convenience	5	29.4
Speed and practicality	4	23.5
Low cost	4	23.5
Archiving and Storage	2	11.8
Time-space independence	2	11.8
Total	**17**	**100**

Table 2 suggests a notable point that the points emphasized by the instructors are the convenience of online exams (f=5; 29.4%), speed and practicality (f=4; 23.5%), and low cost (f=4; 23.5%). Some of the direct quotations of the opinions obtained in this context are as follows:

"Since exams are conducted in a completely digital environment, this provides convenience in the assessment and evaluation process, and exam results can be easily announced." -Inst5

"It helps quick finalization and offers easy modification." -Inst2

"...Loss of time and financial losses (food, travel fee, etc.) spent when going to school or exam center, as well as no paper costs." -Ins6

"... Compared to the classical exam, it is easier and cheaper for students to store and achieve answer

sheets." -Inst2

"Students can determine the most suitable exam environment for them…." -Inst7

Findings Regarding Weaknesses of Online Exams

In line with the opinions obtained from the instructors, information on the weaknesses of the online exams is given in Table 3.

Table 3. Findings Regarding the Weaknesses of Online Exams

Category	f	%
Security (Help from outside, cheating)	6	50
Technical and infrastructure problems	2	16.6
Student monitoring	2	16.6
Validity and reliability	1	8.4
Long preparation time	1	8.4
Total	**12**	**100**

All instructors except for one underlined that the biggest weakness of online exams is the security (f=6; 50%). The security problem mentioned here is the possibility of students getting help from someone or various sources or cheating. In addition to this, other weaknesses mentioned are technical and infrastructure problems, student monitoring, long preparation process, and validity and reliability. Some of the direct opinions received from the instructors are given below:

"It is out of our control that the student gets help and cheats during the exam. From the moment the student takes the exam, they can get help and cheat by using other means…." -Inst3

"It is challenging to ensure validity and reliability in online exams. There is a high probability of students cheating, and it is very difficult to catch." -Inst5

"Not being able to follow the student, the increase in complaints when the internet is disconnected, and this cannot be proven, the exam preparation takes time because it is done over the system." -Inst2

Findings Regarding the Opportunities Offered by Online Exams

Information on the answers given by the instructors about the opportunities offered by the online exams is shown in Table 4.

Table 4. Findings Regarding the Opportunities Offered by Online Exams

Category	f	%
Speed and convenience	3	30
Sustainability	2	20
Saving	2	20
Archiving and storage	1	10

Technology literacy	1	10
Fair assessment	1	10
Total	**10**	**100**

The findings regarding the online exams reveal that the instructors have different opinions on the opportunities offered by such examinations (Table 4). In this context, the major categories are speed and convenience (f=3; 30%) and sustainability (f=2; 20%), which are followed by the categories of saving, archiving and storage, technology literacy, and fair assessment, respectively. Some of the direct opinions collected from the instructors are as follows:

"It ensures that exams can be held when epidemic diseases increase, such as during the pandemic period, and when students and instructors need to be in their own environment." -Inst5
"While the number of digital exams is increasing day by day (such as E-YDS), it is an opportunity for our students to be prepared for such digital exams. It can also raise the technology literacy." – Inst6
"Evaluation of the exam even becomes fairer and faster" -Inst7
"Time, labor, and consumable savings take place (paper, optical forms, etc.)." -Inst3

Findings Regarding the Threats Caused by Online Exams

Information on the dangers and threats caused by online exams is given in Table 5, in line with the instructors' opinions.

Table 5. Findings Regarding the Threats Caused by Online Exams

Category	f	%
Security (Help from outside, cheating)	6	75
Interaction	1	12.5
Lack of control	1	12.5
Total	**8**	**100**

It is seen that almost all of the instructors regarding the Threats Caused by Online Exams focus on security (Table 5). When the answers given in this direction are examined, it is seen that the general concern of the instructors is cheating in the exams (f=6; 75%). Some of the comments received under this heading are as follows:

"...I think that most of the students did not complete the exams with their own efforts. For this reason, I think that they did not get enough knowledge and skills from these courses and an inadequate generation emerged in these fields." -Inst3
"...in an uncontrolled environment, it increases the likelihood that more students will expect to cheat... ...they may seek to develop new methods of cheating. In addition, new and uncontrolled communication

channels that can be used in cheating among students can develop." -Inst5

"No interaction at all during the exam. The fact that children born in the digital age are completely disconnected from interaction, asocial, and lacking in self-confidence." -Inst6

Discussion and Conclusion

In this study, a SWOT analysis was made using the instructors' opinions for the online exams applied intensively during the COVID-19 period. The instructors' opinions were divided into categories under the four headings of the SWOT analysis. Thus, a general perception of online exams was aimed to be revealed. In the SWOT analysis, the three most frequent answers given by the instructors for each theme are shown in the SWOT matrix in Figure 1. The SWOT matrix can be explained as a structure in which strengths and weaknesses, opportunities, and threats are given holistically, and various combinations can be created from this (see Figure 1).

Figure 1. SWOT Matrix

Based on the research findings, it was concluded that the strengths of online exams are convenience, speed, practicality, and low cost within the scope of the instructors' opinions. Online exams, which take their place in education with distance education, have benefits for both students and educators. Obtaining results quickly, saving time and cost, storing and archiving, and minimizing human errors are some of the prominent benefits for educators (Angus & Watson, 2009; Kuhtman, 2004). When the opinions in this study are examined, it is

seen that the instructors generally make the evaluation from their own perspective. This may be due to the use of a structured interview form in the research.

Online exams bring with them many advantages as well as disadvantages. The weakness often mentioned in this research is that online exams have a serious security vulnerability. This issue has also been discussed in the literature (Dermo, 2009; Stuber-McEwen et al., 2005). Almost all of the instructors think that students cheat during online exams. There are studies with similar results in the literature (Kennedy et al., 2000; Rogers, 2006; Stuber-McEwen et al., 2005). To this end, most of the participant educators in Rogers (2006) and who benefited from online exams in their lessons noticed at least one cheating or cheating attempt in every online exam. However, there are also studies that suggest the opposite. These studies highlight the potential difficulty of finding tangible evidence of cheating in an online exam (Fask et al., 2014; Watson & Sottile, 2010). Similarly, Farzin (2016) states in their study that online exams reduce the possibility of cheating by the opportunity to ask different questions of a similar nature to each student.

The first three opportunities offered by online exams are speed and convenience, sustainability, and savings. It is seen that these categories stand out among the advantages of online exams. It is known that when sufficient conditions are provided, conducting the exams online brings many opportunities. Various sources emphasize that online exams prevent the waste of paper, effort and time caused by traditional exams (Kuikka et al., 2014). Besides, the fact that education and exams are sustainable under all conditions provides an important convenience for the normal course of life. In that sense, Hebebci et al. (2020) mentioned the positive effects of continuing education activities even in the worst conditions.

The first three threats caused by online exams are security, interaction, and lack of control. Under this category, it is noteworthy that the biggest concern of educators is cheating. Studies in the literature emphasize the threats posed by online exams (Abdelrahim, 2021; Ullah et al., 2016). Adapting to the sudden transition to distance education, providing the necessary infrastructure, and activating the distance education application and research centers that are inactive in many places have taken some time for universities. In this process, assessment and evaluation were made with online exams and homework to ensure the continuity of education. However, as time passed, it became a matter of debate whether the measurement and evaluation methods applied with the education given were effective (Ezginci, 2020). In this context, the discussions on the security of online exams are expected to continue. The interaction problem, one of the important problems in online environments, is another key finding in this study. Significantly, there are contradictory statements about student monitoring. While some instructors think that it is easy to monitor in online environments, others claim the opposite.

Consequently, it is indisputable that online exams gave their first serious test unprepared for the COVID-19 pandemic. The sudden confrontation of almost the whole world with such an important issue and the inability to give the necessary reflex has led to opposing opinions and prejudices towards online exams. Some research results also support these arguments. However, considering the adventure of distance education that started with writing a letter and how quickly its transformation into synchronous online classes took place, we can claim that

online exams will be much better in their current position in a short time. Compared to traditional exams, the superiority of objective and fast assessment, saving, and archiving will make online exams a permanent part of education life in the near future. Within the scope of this study, the following recommendations for research and practice can be presented:

- The number and quality of studies on security measures in online exams should increase.
- Attempts can be made to solve existing infrastructure and technical problems.
- Research can be conducted on different methods and techniques that focus on online exams.

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