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RESEARCH ARTICLE

The Use of Learning Management Systems in Education During Covid-19 Pandemic: A Case Study of Teachers' Perspective

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Abstract

With the Covid-19 pandemic, most countries including Turkey started emergency distance education applications to ensure the continuity of education. As a result, distance education applications have become a supportive and mandatory part of face-to-face education in the following process. A learning management system (LMS) is needed to carry out teaching activities in online environments in distance education. This study aims to reveal the views and experiences of teachers regarding LMSs, in which they carried out distance education applications during the Covid-19 pandemic. The study was designed as a case study pattern. The study data were collected in April-May 2021 with a semi-structured interview form. The research study group consisted of 10 teachers who actively used LMSs in the distance education process of the epidemic period, selected by criterion sampling method. The interviews were analyzed by the content analysis method. According to the findings obtained, the applications used by teachers to manage the distance education process are EBA, Google Classroom, Edmodo, Classdojo, Microsoft Teams, and Twinspace. It was determined that participant teachers use LMSs for course and project management, flipped education practices, personal and professional development activities, and management of extracurricular and guidance activities. While it was revealed in the research that the most crucial advantages of LMSs are that the parents and teachers quickly follow the learning process of the students, the lessons are more efficient and fun, and these systems allow the students to progress according to their pace; it was seen that the most critical difficulty encountered is the deficiencies related to technological equipment. For the solution of problems encountered with LMSs; it was recommended to get parent support, to inform parents and students about training, to ensure active participation of students in the process and to increase interaction, to get information from experienced teachers and experts, to make the process more enjoyable with Web 2.0 tools and gamification.

Keywords: *Distance education, learning management systems, teachers, case study*

Introduction

The coronavirus (Covid-19) pandemic has had significant worldwide effects not only on health, socio-cultural life, and the economy but also on educational systems. Due to the compulsory break in education, governments have sought solutions to disrupt the ongoing instructional processes. The education system and schools were restructured to compensate for the interruption of education due to the pandemic. The data from United Nations Educational, Scientific and Cultural Organization (UNESCO) demonstrate that educational institutions across the country were temporarily closed in 194 countries in April 2020 due to the COVID-19 pandemic, and 91.3% of learners worldwide were affected by this situation. In search of a remedy for this situation, educators resorted to online platforms to reach out to students, webinars became a temporary classroom, parents were called for monitoring at home, and students got deprived of social interaction among peers. The Society 5.0 process and the digital transformation have prevented the education systems from being subject to entropy and helped the systems quickly adapt to the rapid changes (Kavrayıcı and Kesim, 2021; Kör, 2021, World Bank 2020).

As of March 2020, face-to-face education was partially suspended at Turkey's primary, secondary, high school, and university levels. In order to keep the disruptions of students' instructional processes at a minimum level, synchronous and asynchronous applications were utilized to ensure that education could be continued remotely. Distance education was carried out through live courses such as Zoom, EBA (Education Information Network), and TRT (Turkish Radio and Television Corporation). EBA TV aimed to reach 18 million students with different course options from all levels in this context. As a result of intense work, more than 1600 lessons and more than 20 thousand interactive content were developed and presented to students, and the platform is constantly growing and kept up-to-date (MEB, 2020a; MEB, 2020b).

In early 2020, distance education, distance learning, and online teaching gained importance again, although they were no new pedagogy or approaches to curriculum design. Distance education is often used synonymously with online learning, e-learning, distance learning, correspondence education, external studies, flexible learning, and Massive Open Online Courses (MOOCs). However, the standard features of any form of distance education are the separation of teacher-student by space or time or both, and the use of media and technology to enable communication and exchange in the learning process despite this separation. This can be achieved through printed learning materials, massive one-way broadcasting (TV and radio programs), or web-based exchange using social media channels or learning platforms. Researchers argue whether existing practices should be called 'emergency distance education' in contextual recognition of the extraordinary conditions in which they were developed and implemented. It is essential to clarify the difference between distance education and emergency remote education. The main goal of emergency remote education is to quickly create a temporary and alternative solution to the interrupted instructional practices after the Covid-19 breakout. The solution mentioned can be defined as bringing together teachers and students away from risks, quickly and not in a perfect way. While distance education aims to carry out learning activities, emergency remote education aims to continue teaching activities without interruption. In short, emergency remote education can be defined as the process of making distance learning activities similar to face-to-face education by

using technology (Sezgin, 2021; Telli and Altun, 2021; Unesco, 2020b; Williamson, Eynon, & Potter, 2020).

In the distance education process, a Learning Management System (LMS) is needed to carry out teaching activities in online environments. Learning Management Systems are defined as a solution that allows users to present their resources and content online. The most basic services provided by these learning packages are student enrollment, online content, and testing students. In addition, LMSs, which are used as online learning platforms in the world and Turkey during the Covid 19 pandemic, are used for purposes such as improving learning, providing better service to students, increasing the quality of the teaching and learning environment by using digital devices, and carrying out assessment and evaluation applications. LMSs are interactive online applications that bridge between teachers and learners, where classroom materials and activities are easily shared, and forum discussions about lessons can be made (Bahat and Işık, 2021; Sallum, 2008; Uddin, 2003).

Over the last few years, various learning management systems have been improved. In Table 1, some of the most widely-used LMS were presented with their short descriptions, target group, advantages and limitations (Altunkaya And Ayrancı, 2020; DiGiacomo, Greenhalgh and Barriage, 2021; Harjanto and Sumarni, 2021; Erdemir & Ekşi-Yangın; 2019; Pappas, 2015; Sudarsana et al., 2019; Tonbuloğlu, 2021).

Table 1. *Some of the most widely-used learning management sytems' features, advantages and limitations*

	Short Description	Advantages	Limitations
EBA (Educational Information Network)	✓ Created in 2012 ✓ An educational platform where learning is carried out through self-study in the online environment, materials are used effectively in pre-lesson preparation and post-lesson repetition, and in this way, technology-education integration is possible. ✓ The target group includes: School Administrators Teachers Students Parents ✓ The Website: www.eba.gov.tr	✓ Includes lessons, exams, library, live lessons, e-books, e-journals, worksheets, reports, portfolios, files and professional development videos ✓ File sharing, creating a survey, organizing events with deadlines, assigning oral and written tasks ✓ Getting reports about students' progress and portfolio features ✓ Assessment of the learning process and giving feedback ✓ Creating a lesson flow by using the pre-designed materials	✓ Distance education courses cannot be held at the desired time; conflicts occur ✓ The need for different supportive courses, activities, and materials for disadvantaged students who need special education and have learning difficulties ✓ The lack of the feature of automatically following the students' time of entry and exit to the course and the time they are in the course to follow up the students' attendance more easily
EDMODO	✓ Created in 2008 ✓ An interactive platform for mutual collaboration and social networking between teachers and learners. ✓ Provides a safe and easy way for users to connect, collaborate,	✓ Uploading profile photos, sharing documents, links, and videos ✓ Easy access and sharing the uploaded materials in the library	✓ Limited access to internet connection ✓ Complicated Website ✓ Taking time for adjusting to a new tool ✓ Incompatibility of mobile app and Website

	exchange ideas, and share educational content ✓ The target group includes: Teachers Learners Parents ✓ The Website: www.edmodo.com	✓ Participation in micro-blog discussions ✓ Enabling to and manage questionnaires, and present assignments ✓ Parents tracking the learning progress of their children ✓ Giving the students assignments with a deadline ✓ Providing instant feedback	✓ Lack of notifications from mobile app ✓ Limited storage for uploading videos
CLASSDOJO	✓ Created in 2011 ✓ An educational platform with a mission to "bring communities together and give them the tools, ideas, and energy to improve education for all kids" ✓ The platform's features include a points system to facilitate classroom management, instant teacher-parent communication (on the individual or class level), and student portfolios (among others). ✓ Transforms the actions and behaviors of students into data that are recorded, stored, and shared. ✓ The target group includes: School Administrators Teachers Parents Students ✓ The Website: www.classdojo.com	✓ Builds on established classroom practices and as potentially effective implementation of those practices ✓ Allows for communication between teachers and families in real-time and across many languages ✓ Increased communication between them and their parents, increased awareness: performance; and increased chance of parental support ✓ Increase in overall classroom participation	✓ Thought potentially to have pernicious impacts on students through the commodification of their educational behaviour ✓ The absence of documented and necessary caution or preventative measures toward protecting student privacy and security. ✓
GOOGLE CLASSROOM	✓ Introduced in 2004 by Google Apps for Education. ✓ Specifically designed to promote an interactive learning environment for educational purposes. ✓ Lets teachers create and post materials (pictures, videos, links), invite students, assign students, conduct quizzes, and manage administrative needs. ✓ The target group includes: Teachers Learners Parents ✓ The Website: https://classroom.google.com	✓ Helps classroom management ✓ Empowers teachers' authority to create and post content materials for students ✓ Safe and secure ✓ Improves cooperation and collaboration ✓ Centralized data storage	✓ Difficult account management ✓ Limited integration options ✓ No automated updates ✓ Difficult learner sharing ✓ Editing problems ✓ No automated quizzes and tests

Several studies have been conducted in the literature on using learning management systems effectively and the positive effects of learning management systems on education. Yıldırım et al.

(2004) determined various criteria in the context of general features and functionality, instructional design, management, and technical infrastructure to determine the features that a good LMS should have. The study conducted by Bahçeci and Yıldız (2016) on LMSs used in adult education determined that technological tools in teaching affected the trainees' attitudes. It was determined that the trainees had positive ideas about using LMS in teaching, but they had difficulties in the first stage. All of the trainees participating in the study stated that providing other courses through LMS would be beneficial. It was concluded that the views of the trainees taken within the scope of the study would contribute to the use of LMS in lifelong learning.

Sudarsana et al. (2019) listed the benefits of using Google Classroom as to improve the teachers' and students' quality to use technology wisely, especially for the learning process, saving time, being environmentally friendly, overcoming the distance of residence, increasing collaboration among students, timeless communication, and as secure document storage. Kör (2021), in his study, selected the five most preferred LMSs in the world and compared them in terms of general features, ease of use, technological infrastructure, hardware and software requirements, plug-in supports, and learning analysis supports, and suggested a list of selection criteria as a recommendation. In the study, according to the effectiveness criteria determined for LMSs; Moodle learning management system was determined as the most effective management system since it has a lot of language support, measurement and evaluation options are wealthy, it is suitable for preparing interactive content, and the system has a high level of security.

In their study, Yamamoto and Altun (2020) examined the effectiveness of digital learning platforms, which is an inevitable part of distance education with the Covid -19 epidemic process, according to user experiences. The study predicted that digital learning platforms might be structures that serve as leading platforms, not learning support systems soon. In their study, Özüdoğru and Şimşek (2021) found that LMSs are used for planning, measuring and evaluating course processes, and communicating with learners. It has been mentioned that the effect of the system on the teaching process and practice are providing planning, supporting communication, providing easy access, and some limitations. Durak, Çankaya and, İzmirli (2020) found that Moodle and ALMS are the most widely-used LMSs in their study, in which they examined the distance education platforms of universities in Turkey. The participants stated that the most challenging job was to train the lecturers about distance education systems.

Due to the benefits of e-learning on students, the demand for learning management platforms is increasing today, and it is vital to investigate the factors affecting e-learning (Ehlers & Hilera 2012). The necessity of using web-based education tools in educational institutions has led to the need to research, develop and maintain learning management systems. Learning management systems provide opportunities such as learning autonomy, progress according to individual learning speed, creating a collaboration and communication environment, measurement, and evaluation (Benigno & Trentin 2000; Sykes & Roy, 2017). The study findings are expected to be a reference for educational use. It is thought that the research will be a resource for practitioners, program developers, and users by reflecting teachers' experiences on the use of learning management systems. It is also expected that this study which aims to reveal the views and practices of teachers regarding LMSs, will contribute positively to the solution of potential problems that teachers may experience with these platforms. Furthermore, due to the limited number of studies in this field, especially in schools

affiliated with the Ministry of National Education, and the lack of direct research on this subject in Turkey, it is thought that this study will contribute to making decisions to improve LMSs.

This study aimed to reveal the views and practices of teachers about LMSs used during the Covid-19 pandemic. For this purpose, the following questions were answered. During the Covid-19 pandemic;

- Which LMSs do teachers use?
- For what purposes do teachers use LMSs?
- What are the positive effects of LMSs on lessons?
- What are the difficulties encountered in the use of LMSs?
- What are teachers' solutions for the difficulties encountered in the use of LMSs?

Method

A qualitative research method was used in this study, which aims to reveal the views and practices of teachers on learning management systems during the Covid-19 pandemic. The main focus of qualitative research is to understand, explain, explore, discover, and clarify situations, feelings, perceptions, attitudes, values, beliefs, and experiences. Accordingly, the study designs are often based on deductive rather than inductive logic, are flexible and emergent in nature, and are often non-linear and non-sequential in their operationalization (Kumar, 2011, p. 104). Within the framework of this view, the qualitative approach was chosen as the method of the research because of the necessity of revealing the perspectives and experiences of the teachers who used the learning management systems during the pandemic, which was discussed in the scope of the study, by examining in-depth and clearly.

The present study was designed as a case study, one of the qualitative research methods. In case studies, which focus on how and why questions and examine a phenomenon or event that the researcher cannot control, one or more situations that exist in a limited context are analyzed in-depth (Creswell, 2007; Yıldırım & Şimşek, 2011). This research aimed to examine the use of learning management systems in teaching-learning processes during the Covid-19 epidemic period. This method was chosen because it was aimed to analyze this existing situation in-depth and in terms of various aspects in its conditions. The study data were collected in April-May 2021 with a semi-structured interview form. The research study group consisted of 10 teachers who actively use LMSs in the distance education process of the pandemic period, selected by criterion sampling method. The interviews were analyzed by the content analysis method. The research design is described in Figure 1 below.

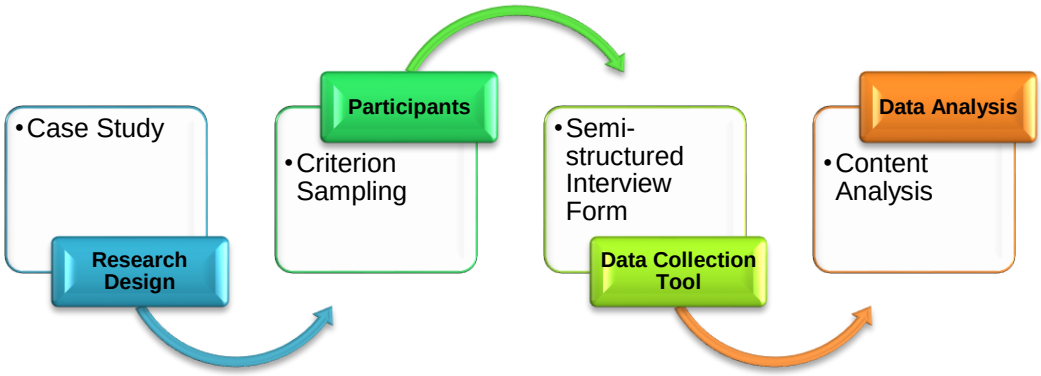

Figure 1. *Research Design*

Study Group

The participants consisted of teachers who actively used learning management systems as of the Covid-19 pandemic period and worked in different provinces of Turkey in the 2020-2021 academic year. Criterion sampling, one of the purposive sampling methods, was used to determine the teachers in the study group. The criteria taken into account and the steps applied while taking the purposive sampling are as follows:

Using the system: The criterion of actively using LMSs in their lessons was considered to determine the study group's teachers. According to this criterion, the study was conducted with ten teachers who agreed to participate.

Time of use: The first criterion determined in creating the working group is the use of LMSs in the distance education process since March 11, 2020, when the first Covid-19 case was seen in our country.

Frequency of use: In the first stage, after the teachers who used LMS in their classes during the coronavirus epidemic were determined, the teachers' frequency of system use was taken into account. In order to provide different views and diversity among teachers with a different frequency of use of LMSs, a working group was formed in which all opinions would be represented.

The demographic information of the participants is presented in Table 2 below.

Table 2. *Demographic ınformation of the participants*

Participants	City	Gender	School Type	Branch	Experience	Educational level	Number of classrooms managed
P1	İstanbul	Female	Secondary S.	English	16	Master's Degree	4
P2	Mersin	Female	Science&Art Centre	English	11	Master's Degree	13
P3	Sakarya	Male	Science&Art Centre	English	18	Master's Degree	12
P4	Mersin	Male	Secondary S.	English	9	Master's Degree	2
P5	Mersin	Male	Secondary S.	Türkçe	21	Bachelor	4
P6	Gaziantep	Female	High School	English	6	Bachelor	7
P7	Eskişehir	Female	Primary S.	Primary School T.	25	Bachelor	2
P8	Samsun	Male	Primary S.	English	15	Master's Degree	9
P9	Bursa	Female	Secondary S.	English	11	Master's Degree	8
P10	Eskişehir	Female	Pre-school	Pre-school	14	PhD	2

When Table 1 was examined, participants contributed to the study from different cities in Turkey. As for their gender, six of the participants are female, and four are male. Furthermore, one of the teachers in the study group works in kindergarten, two in primary school, four in secondary school, one in high school, and two in science and art centers. When the branches of the participants are examined, there are seven English teachers, one Turkish teacher, one classroom teacher, and one preschool teacher. The teachers' professional experience ranges from 6 to 25 years in the research. In addition, three of the teachers constituting the study group are undergraduate, six graduate, and one doctorate graduate. As for the number of classes the participants led during the pandemic, the number of classes varies between 2 and 13.

Data Collection Tool and Analysis of Data

Research data were collected through a semi-structured interview form developed by the researcher. The form containing semi-structured interview questions was prepared according to the research purpose by examining the literature. After the semi-structured interview form was prepared, it was presented to two field experts working in educational sciences. With the changes made according to the feedback received from the field experts, the form was given its final form after a preliminary interview with two participants. The semi-structured interview form created consists of 7 items. In the form, questions about which learning management systems are used, for what purposes LMSs are used, the positive aspects and difficulties encountered, and the solutions are included.

The research data were obtained through Zoom and phone interviews with the study group. First, the instructions for the interview were read to the teachers, and their approval was received. Then, audio recordings of the interviews were taken. The interviews lasted an average of 20-25 minutes. Content analysis technique, one of the qualitative data analysis techniques, was used to analyze the research data. It can be stated that content analysis is the most appropriate technique in social sciences in cases where it is desired to study who said what to whom, why, about what, and

how (Kızıltepe, 2015, p.263). Content analysis helps reveal the hidden content rather than the content that is noticed at first glance and is defined as a second reading in the message to reveal the elements that affect the individual without being seen (Bilgin, 2006). In content analysis, data is not transmitted directly to the reader. Instead, it is aimed to reach concepts and relationships that can explain the collected data (Yıldırım & Şimşek, 2011, p.223). In content analysis, creating categories and subcategories is of great importance in correctly interpreting and analyzing the content (Kuckartz, 2014). In this process, first of all, the voice recordings of the participants were analyzed and written down. Then, the written data were coded according to the order of the sub-problems of the research. Next, themes were created according to the coding, and finally, the findings were reported.

Findings

In this section, the findings of the research are presented. The findings were thematized under the headings of the use of learning management systems, their positive effects on the lessons, the difficulties encountered, and solution suggestions for these difficulties. Information on LMSs used by teachers is given in Figure 2.

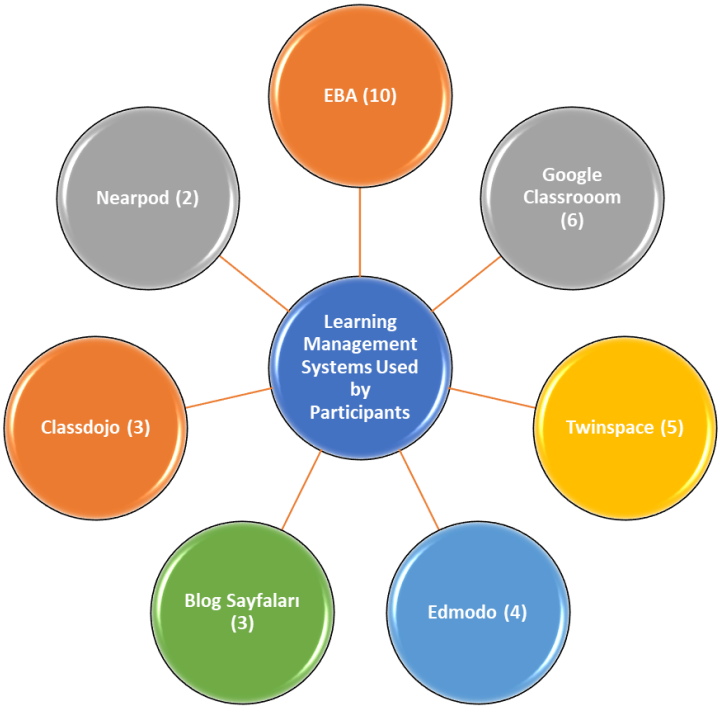

Figure 2. *Learning management systems used by teachers*

When the findings obtained in the context of the learning management systems used by the teachers were examined, it was seen that all of the participating teachers actively used the Education Information Network (EBA) platform. While Google Classroom, Twinspace, and Edmodo are among the most preferred learning management systems, it was revealed that Classdojo, Nearpod, and some Blog pages are among the other preferred LMSs. During the pandemic, P3 expressed the decision-making processes in the selection of the learning management system as follows:

When the schools closed last year, we researched what to use for distance education in the first two weeks, but we did not decide immediately. First, we tried Google Classroom and Zoom. Next, we looked to see if it could be Edmodo. Then, we tested the Microsoft TEAMS app as teachers and finally settled on Microsoft Teams. We have been using this application for a year as we see it as more functional.

When the factors affecting the choice of learning management systems used by teachers are examined, it was seen that teachers mainly focus on functionality. At the same time, it was stated by the participants that practicality, affordability, suitability for the level and age of the student, and usefulness are also determinants in the selection of LMSs.

Usage Purposes of Learning Management Systems

Findings regarding the intended use of learning management systems are given in Figure 3.

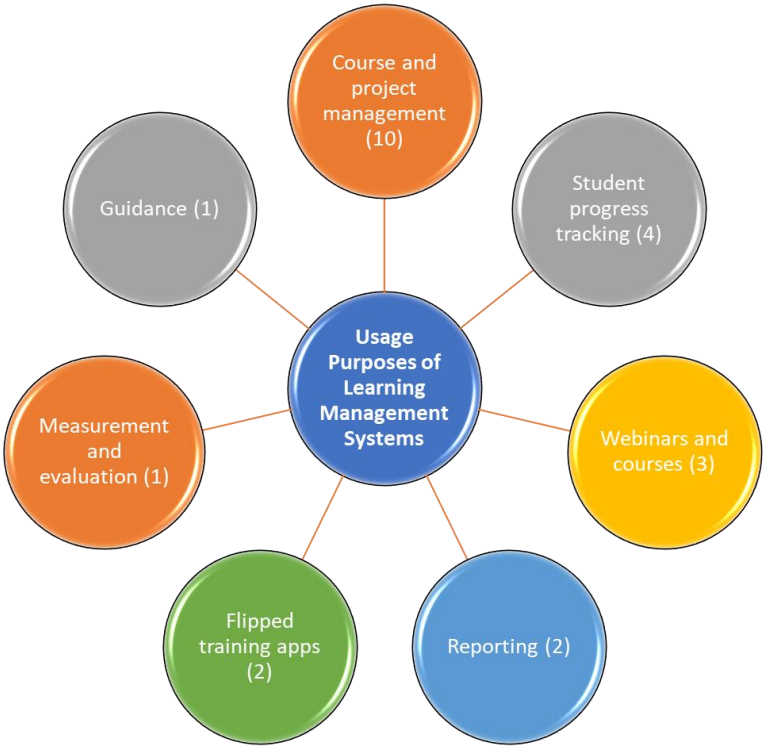

Figure 3. *Usage purposes of learning management systems*

When Figure 3 was examined, teachers mostly used these systems for the course and project management in terms of the use of learning management systems. Especially considering that all participants were carrying out eTwinning projects, it was determined that participants used these systems for project management and distance education, flipped classroom, and project-based learning applications during and before the Covid-19 pandemic. Focusing on course and project management and flipped education practices, P7 pointed out that LMSs serve many different

purposes in the teaching-learning processes by expressing the purposes of using the learning management system with the following words:

> *During the pandemic, learning management systems have become a necessity for almost all of us. Since we do distance education, course management, project management, in-class and extracurricular activities… Well… Besides, as classroom teachers, we believe that every child is born with a talent, and we do different activities to discover them. At this stage, I also benefited from learning management systems. Another purpose of my use of LMSs has flipped education applications, which have become a necessity in the distance education process. I used learning management systems both to control my students and to get their feedback on the course topics I taught.*

Four participants (P1, P5, P6, P8) stated that they use learning management systems for student development and follow-up. Participants pointed out that using a learning management system provides students and their parents with data about their academic development. For example, P5, who stated that the data obtained is decisive in making decisions about student success, explained the as follows:

> *I generally use the learning management systems that I use in the emergency distance education process, so that I can follow up the tasks related to the assignments I give outside the classroom, projects, and to express the books they read and to follow up on me. I also use them to reinforce the lessons and topics I teach in live lessons. I also keep track of the assignments I give to my pupils. Finally, I use them to keep track of tests or other worksheets.*

Among the purposes of using learning management systems, three participants (P3, P6, P10) expressed their opinions about tracking Webinars and courses. Drawing attention to the importance of using learning management systems for webinars and conferences for students and parents and teachers' individual and professional development, P3 expresses his views as follows:

> *We opened a virtual conference room with Microsoft TEAMS and organized Webinars for our students. In addition, we held some information meetings for our parents. We have also benefited from this practice in the preparation and management stages of the projects that we intend to apply for corporate purposes.*

Two participants (P1, P7) who stated that they use learning management systems for flipped classroom applications underlined that LMSs allow students to progress according to their personalized learning styles and at their own pace, and that they prefer students who learn the subjects with their efforts because they have the chance to practice in the classroom environment. P2, who stated that he gives tasks to his students over LMS for assessment and evaluation applications, emphasized that these applications increased the motivation of students to learn outside of school. P10, who expressed his opinion that he used LMSs for guidance activities, stated that they found LMSs helpful in academic, social, and emotional support to parents and students, especially in distance education.

Positive Effects of Learning Management Systems on Lessons and Challenges Faced by Teachers

In the study, the positive aspects of the learning management systems regarding the lessons and the findings of the difficulties encountered are given in Figure 4 according to the teachers' opinions.

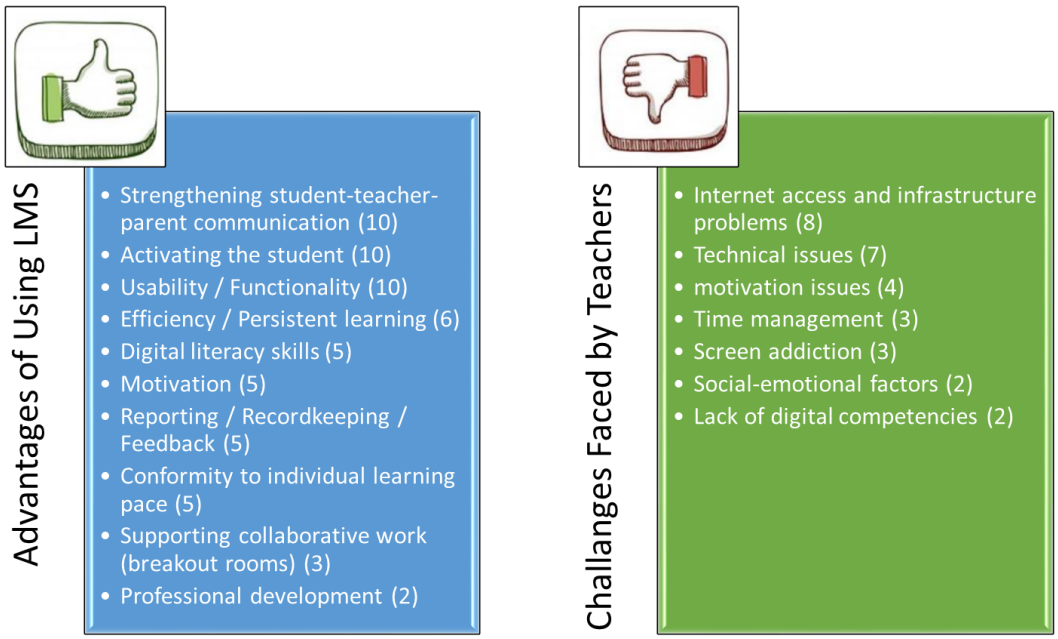

Figure 4. *Pros and challenges of using learning management systems*

When Figure 4, in which the positive aspects of learning management systems related to the teaching process and the findings of the difficulties encountered in practice, were thematized, all participants argued that these systems strengthen the student-teacher-parent interaction in the context of the advantages offered by LMSs. It is possible to say that the reason for the participants to express their opinions in this direction was that these platforms provide uninterrupted education under all conditions and offer a fast, practical, and functional teaching-learning environment. Expressing that he used Classdojo to strengthen student-teacher-parent communication, P9 expressed his views on this application as follows:

> *I mostly use Classdojo for course management and communication with parents. For example, since pictures can be uploaded to Classdojo, working parents can know what their children are doing at school. In this respect, it is a good application. I can say that our relationship with parents has improved a lot in Classdojo. As I said, it's good for them to get some news from the activities at school.*

In addition to this, P1 emphasized the need to provide information on strengthening student and parent communication and expressed her views on this subject as follows:

> *In order to increase interaction, first of all, it is necessary to explain very well to students and parents what these applications serve. It is necessary to give clear information about how this will positively affect their lessons or their activities. Since they are technology-based, parents should be told how to use them at a level they can understand, maybe with videos or how to do it with*

informative notes, if possible, so that students and parents should be informed that these systems are beneficial.

When the findings of the positive aspects of the learning management systems regarding the teaching process were examined, it was seen that all participants emphasized the dimension of making the student active. LMS users thought that students attend classes more, develop their self-discipline skills, and become more autonomous in charge of their learning thanks to these systems. Again, all participants focused on usability and functionality as a positive aspect. Underlined by P4, "The ability to provide uninterrupted education through learning management systems under all conditions such as epidemics, natural disasters, and emergencies" highlighted remote access to education and functionality thanks to these platforms. P8, who discussed the valuable and functional dimension of LMSs in terms of teachers, students, and parents, expressed his views as follows:

The existing content shared with students in learning management systems is beneficial for being safe, convenient, and easy and fast-tracking of students. I think it is a common positive aspect for all stakeholders using these systems: they are economical, and the content is open to all students. In terms of parents, they can easily follow both students and teachers. This is a huge advantage for them as well. In addition, the easy-to-use interface and easy homework tracking increase the usefulness of these platforms.

It was seen that there are six participants (P1, P2, P3, P6, K9, P10) who expressed their opinions on the efficiency and permanent learning of learning management systems. The participants agreed that the lessons were more productive, emphasizing that the students could repeat the lessons unlimitedly and do many exercises through the learning platforms. Stating that LMSs provide students with fun and more permanent learning, P2 emphasized that thanks to multimedia content, students' academic success increases, and they apply what they have learned in exams and situations they encounter in their daily lives.

As one of the advantages of learning management systems, one of the themes emphasized by the participants was the development of students' digital literacy skills thanks to these platforms. Five participants (K1, P3, P8, K9, K10) highlighted digital literacy as the most critical skill that LMSs developed in students. Expressing her opinion in this context, P10 emphasized that the lessons to be managed through learning management systems could be alternatives to the classroom in the learning-teaching processes or environments that would significantly contribute to the classroom with the following words:

Digital environments have shown us that learning is not limited to four walls. Today's children are already alpha children, so they use technology better than we do. That is why I observe that their digital skills develop further thanks to these platforms in a controlled manner. Moreover, some students are so prone to technology that it seems that they will soon be able to continue their education from a young age without the need for a physical teacher, thanks to artificial intelligence.

Five participants (P2, P4, P5, P6, P10) who emphasized motivation as a positive aspect of learning management systems stated that the students' motivation towards the course content increased with the help of LMSs. However, the one-to-one communication opportunity provided by face-to-face education is not available in emergency remote or distance education. Therefore, the

participants underlined that the critical point in presenting the course contents is to present the contents in a systematic, exciting, and entertaining way. For example, K6, who uses the Classdojo application for virtual classroom management, expressed her views on this subject as follows:

> *Thanks to the Classdojo application, there was a sweet competition in the classroom, the motivation of my students increased thanks to the scoring system and the use of personal avatars, and the application also helped me a lot in terms of classroom management.*

Five participants (P1, P3, P6, P8, P10) who highlighted the reporting/record keeping and feedback elements in the context of the positive contributions of the learning management systems to the process, discussed their opinions on this subject in the context of the ease of follow-up it provides to students, parents, teachers, and school management. Some of the advantages offered by the distance education platforms' participants are providing immediate and positive feedback to the students with their practical use, keeping the records obtained in the system as a portfolio, and facilitating measurement and evaluation thanks to the reporting feature. Furthermore, expressing that the reporting and record-keeping feature allows parents to follow students' progress, P1 emphasized that school-family cooperation is also strengthened in this way.

Five participants (P1, P2, P3, P7, P8) highlighted progress in learning according to individual pace as a positive aspect. While P2 and P8 stated that the progress of the students according to their pace is under the mastery learning approach and there are no students left behind; P1 and P7, on the other hand, emphasized that the lack of time limitation allows students to act without being tied to a group. Emphasizing the necessity of being planned, gradual and interactive regarding the principle of progress according to individual speed, P3 stated that students' productivity and creativity come to the fore in this process with the following words:

> *To benefit or not to benefit positively from the use of learning management systems may vary depending on how you use this system. For example, I planned and implemented distance education as both synchronous and asynchronous, as I started last year in the spring semester and continued this year. In other words, I prepared various activities for the student before and after the live lesson. For each week, I prepared a course flow and materials to support them, and I also benefited from ready-made materials about our topic that I found useful and shared them in our virtual classroom each week, with certain gradualness. Thus, the student came to the live lesson with a certain preparation for our study topic. We did interactive activities in the lesson. Afterward, he used other digital materials that I shared, and finally, he did the performance task I asked him to and sent it to me. As such, the student had the opportunity to work and learn at his own pace. When he got stuck, he reached me via message via TEAMS, so teacher-student communication gained new dimensions. This led me to look at the educational process differently. He constantly pushed me to the point of producing content so that students could work better and more willingly on their own. It helped me to meet new Web 2.0 tools. It led me to professional development in terms of dealing with a new situation.*

Three participants (P2, P7, P10) emphasized the feature of supporting collaborative work as a positive aspect. Participants stated that the break-out rooms feature in P10 Zoom and Microsoft Teams applications, which draw attention to the difficulties of collaborative learning activities in

virtual environments, is a functional feature that compensates for this deficiency. Stating that he had small group work done on these platforms, P7 underlined that users should enter the rooms from time to time and control.

Two participants (P2, P3) stated that the use of learning management systems in lessons contributed to the professional development of teachers. Stating that he also took synchronous and asynchronous courses on www.etwinningonline.eba.gov.tr, a platform open to all teachers, P2 stated that running eTwinning platform projects helped him quickly adapt to the learning management systems they started using when the pandemic emerged. P3, who also had similar views, emphasized those information technologies, Web 2.0 tools, and eTwinning have a positive effect on teachers' ability to use LMSs:

> *I have been following the studies on the use of technology in education for years, and I try to attend events and conferences in this field. For example, I attended courses on Web 2.0 tools in education. eTwinning projects allow you to bring technological innovation to your education. When you are used to all these, it is not difficult for you to use learning management systems.*

Research results revealed that learning management systems have some aspects of being improved. Therefore, according to the teachers' views, the study tried to determine the difficulties of using learning management systems. When the findings related to this theme were examined, it was seen that the most common difficulties faced by eight participants (P1, C2, P3, P4, P5, P6, K8, P10) were internet access and infrastructure problems. Emphasizing that problems related to internet access increase inequality of opportunity in education, K10 emphasized that unlimited internet quota should be given to students and teachers by internet providers for EBA and similar platforms. K5, who emphasized that the problems arising from the internet infrastructure also resulted in the students' disconnection during the live lessons, underlined that this problem also causes time loss for both teachers and students.

In the context of the difficulties encountered in the use of LMS, seven participants (P1, C3, P4, C6, K7, P8, K10) emphasized that the support of information technology teachers in schools is sometimes not enough, and students tend to stop attending the system and live lessons when they encounter technical problems frequently. Furthermore, they stated that the problems such as password and e-mail verification, in particular for Classdojo and Edmodo applications, were experienced by parents as difficulties.

Four participants (P5, P6, P8, P10) highlight the difficulties experienced by students and teachers in online platforms as difficulties in motivating and focusing on lessons. It has been found that teachers experience Zoom fatigue due to the long screen time when they attend too many online classes, and similarly, students experience focusing problems due to the shorter attention span, especially as the students are very young.

Three participants (P2, P4, P6), who see the problems they experience with time management as the most critical difficulty, addressed this problem primarily from teachers' point of view. Explaining a specific problem in time management with an emphasis on planning, P2 describes the situation as follows:

My school administration plans the lesson for my students. As a result, a class time conflict occurs between my and my son's classes. I have similar issues with the professional development courses we take online from time to time.

Three participants (P2, P4, P6) who considered screen addiction the most critical difficulty encountered in learning management systems stressed that this problem could be solved in cooperation with families. In addition, participants emphasized that children, defined as the Alpha generation, are more likely to become addicted to these devices than other generations since they are introduced to digital devices and the internet at a very young age. P6 stated that the closures during the pandemic also affected this situation, also called digital addiction. P2, on the other hand, underlined that posture disorders, eye health problems, sleep, and nutrition problems come to the fore in connection with looking at the screen too much and spending too much time in front of the computer.

Among the study's findings, two participants (P4, P10) expressed their views on the social and emotional problems experienced by students due to screen addiction, which is one of the adverse effects of learning management systems. While explaining this situation, K4 drew attention to the psychological, social, and emotional negativities experienced by the students and expressed his thoughts as follows:

I feel the lack of factors such as close contact, eye contact, and touching, as in face-to-face communication, in the lessons I conduct with my students through distance education. This situation greatly impacted the students' communication with each other. For example, children playing chirpy with each other during recess sit in the silence between live classes. I think that children experience a lot of social and emotional problems.

K10, on the other hand, stated that some of their students' anxiety and stress levels increased, they had communication difficulties, and some children showed a tendency to commit violence at times. It was among the findings that the academic achievement of these students decreased due to social and emotional factors.

Two participants (P1, P9), who considered the lack of digital competencies in the context of the difficulties encountered, discussed this issue from the perspective of both teachers and students. It is observed that the lack of digital competencies of teachers reveals the consequences of their inability to effectively use the educational technologies they have to use in distance education platforms and their inability to be sufficiently beneficial to students. Underlining that students are left unattended in the distance education process due to teachers not using any learning management system such as EBA effectively, K1 emphasized that students and teachers should have enough knowledge on this subject.

Recommendations For The Solutions to the Problems Encountered in the Use of Learning Management Systems

In the study, the findings regarding the solution proposals of the problems related to the learning management systems according to the teachers' opinions are given in Figure 5.

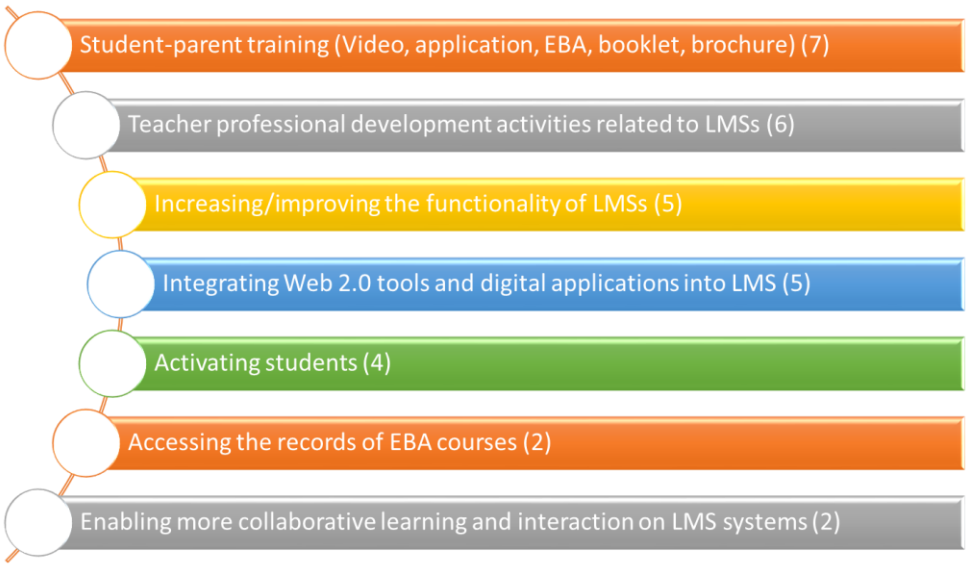

Figure 5. *Suggestions for solutions to problems related to learning management systems*

According to the findings obtained in the context of solution proposals regarding the difficulties experienced in learning management systems, the results are related to student-parent information training, teacher professional development activities, making LMSs more functional, integrating digital tools into the system, activating the students, accessing the course records and incorporating cooperative learning activities.

In the context of the problems encountered in learning management systems, seven participants (P1, P4, K5, P6, P7, K8, K9) stated that the most critical suggestion is to inform students and parents. Participants expressed that student and parent information should be provided through training, informational videos (tutorials), information brochures, and the EBA platform. Proposing a model similar to professional learning communities, P8 stated that teachers or field experts sharing their knowledge and experience with other teachers at regular intervals and regularly would be especially effective in developing digital skills. Besides, P4 stated that it would be informative and guiding to prepare interactive distance education sets in Z book format via the EBA platform for school administrators, teachers, students, and parents. P5 recommends following social media to inform teachers, students, and parents, using forum pages, and examining good practice examples.

Six participants (P3, P4, P5, P6, P8, P10) presented teachers' participation in professional development activities to solve the problems encountered. P6 stated that it would be beneficial to train teachers, especially on time management. While P5 emphasized that in-service training activities such as webinars, seminars, and conferences for teachers should be increased, P9 emphasized that teachers can take advantage of Youtube and similar informative platforms. In

addition, P3 stated that the duty of teachers in this regard is to review the teaching methods and techniques they use and to keep themselves updated according to the conditions.

Six participants (P2, P3, P5, P7, P8, P10) regarding the suggestions in the context of making LMSs more functional and practical emphasized that the functionality of the platforms should be increased, and some aspects that are open to improvement should be developed. In this context, P5, who expressed his opinion, pointed out that the records of the courses held on the EBA platform should be accessible, and the point feature should be made more functional. Similarly, P8, who gave an opinion on the EBA platform, mentioned that the content adding conditions of this system should be more adaptable.

In the context of suggestions for more effective use of LMSs, five participants (P2, P4, P5, P7, P10) suggest integrating Web 2.0 tools and digital applications into LMSs. Expressing his opinion on this subject, P10 stated that Web 2.0 tools enrich the platform's content and increase the visuality. In addition, P7 stated that he got positive feedback from his students by integrating Web 2.0 tools into LMSs and that he caught the age with the following words:

> *I added a quiz I created with a Web 2.0 tool, a lesson topic I created to learning management systems. As a result, I was able to get immediate feedback from my children. In order to increase the effectiveness of learning management systems, I think, as I have just mentioned, teachers need to be conscious. However, of course, we were all unprepared for this process. Well, I wish all my colleagues to take these pieces of training as soon as possible. No matter our ages or how experienced we are in the profession, we shouldn't be separated from children. The era of teaching the future children with the old methods is over. I believe that the more we renew ourselves in terms of technology, without being behind them, the more knowledge we have, the more useful we will be.*

Two participants (P3, P4) focused more on enabling cooperative learning and interaction on LMSs. In this context, P3 expressed his views, emphasizing that the systems will provide synchronous and asynchronous applications and more interaction and include measurement and evaluation tools within themselves.

> *First of all, I think that it is more effective for learning management systems to offer the opportunity to benefit from synchronous and asynchronous education at the same time. In other words, it should allow not only sharing, messaging, file transfer but also live lessons when necessary. Then, again, it may be more functional for the teacher to present the measurement and evaluation tools within itself. In addition to these, I think providing some tools that students can use for cooperative learning will increase the system's effectiveness.*

Four participants (P2, P3, P6, P10) stated that making students active as the most critical skill among the solution suggestions for the more effective use of learning management systems. K10, who expressed his opinion on this subject, drew attention to the necessity of a democratic classroom environment by saying, "environments should be created where students can express themselves comfortably.

Two participants (P4, P10) underlined the need to access EBA course records regarding the solution of problems experienced in learning management systems. Again, two participants (P3, P4) argued that enabling more cooperative learning and interaction on learning management systems would make the systems more effective.

Discussion, Conclusion and Recommendations

Since the 2000s, when technology integration into education accelerated and a rapid transition to the blended learning model was experienced, platforms where face-to-face education is supported by distance education have become increasingly important. With the acceleration of digital transformation in the Covid 19 pandemic, discussions have indicated that learning management systems can be an essential part of face-to-face education and even the basis of education. This study aimed to examine LMSs according to teacher practices. According to the findings obtained in line with the teachers' opinions, in general, the LMSs have been concluded to make the lessons more efficient and effective in distance education. It has been determined that participating teachers use EBA, Google Classroom, Edmodo, Classdojo, Microsoft Teams, and Twinspace platforms to manage the distance education process. It is seen that teachers use LMSs for a course and project management, flipped education practices, personal and professional development activities, and management of extracurricular and guidance activities in the context of their intended use. While it is understood in the research that the most critical advantages of LMSs are that the parents and teachers quickly follow the learning process of the students, the lessons are more efficient and fun, and these systems allow the students to progress according to their pace, it is seen that the most crucial difficulty encountered is the deficiencies related to technological equipment.

The findings obtained from the research were consistent with the results of Soong et al.'s (2001) studies. The study concluded that e-learning platforms are affected by human factors, technical abilities of the learner and educator, their attitudes towards e-learning, the degree of communication and teamwork, and the structure of available information technologies. Furthermore, it is seen that all these factors are directly affected by the dedication and abilities of the instructor.

Coates, James, and Baldwin (2005) stated that corporate managers should develop a supportive environment for staff using the LMS by developing best practice models and establishing forums where staff can share their ideas and discuss their experience with systems. The present study concluded that it would be effective for teachers to share good examples and professional experiences of learning management systems. In this context, it can be said that the research shows parallelism with the current study.

In his study, Mısırlı (2007) concluded that the lessons taught with traditional methods were not attractive by the students and that teaching a lesson using Web-assisted learning management systems had a positive effect on learning. Similarly, the finding that LMSs provide students with fun and permanent learning was included in the current study.

Some empirical studies emphasized that while parents take an active role in students' academic life, student grades, children's attendance, and enthusiasm decrease (Hill & Tyson 2009). Nonetheless, Barutcu's (2020) study showed that students are more likely to be motivated to study when educators have urgency and need for further prospects, and this is reaffirmed with reassurance and assistance from parents. Similarly, in the current study, it was found that parents are aware of the academic life of the students' thanks to the reporting, record-keeping, and instant notification features of the learning management systems. However, Hill & Tyson's study differs from the present study, decreasing in student achievement, lesson participation, and motivation.

According to the data obtained from the research, the participants stated that the learning management systems, especially the EBA platform, provide a safe learning environment for students. However, in the study conducted by Floyd, Schultz, and Fulton (2012), it was determined that there are security vulnerabilities specific to Moodle, and it was noted that the system should be improved in terms of teacher and student security. Therefore, in this respect, the study does not coincide with the current study's data.

Dron (2018), in their study, emphasized that one of the advantages of LMSs is the digitization and automation of many of the traditional campus teaching functions and pedagogical activities. However, the current study found that LMSs create a disadvantage in teaching students social-emotional skills. In this respect, Dron's research differs from the present study.

According to the current study's findings, LMSs have a significant advantage of improving the quality of communication with the help of data sharing tools in themselves so that student-teacher and teacher-parent communication becomes fast, practical, and functional. Likewise, Kraleva et al. (2019) found that LMSs improve the communication between users, such as sharing text and multimedia information and bringing the modern LMS systems closer to the concept of social networks.

According to the present study's findings, the EBA platform and all other LMSs, which the participants have experience in using, mainly were found compelling, and the users thought that these platforms support learners' online and remote learning process. On the contrary, Irfan et al.'s (2020) study prove that higher education policies implementing online learning are not accompanied by platforms supporting online learning. Therefore, this research can be used as a reference to explore further the barriers students face when applying online learning. In one way, Irfan et al.'s study seem compatible with the current study. They found that, in general, lecturers must at least be knowledgeable at presentation software, text processing, assessment, and videoconferencing to use online learning. Likewise, in the current study, teachers highlighted the importance of teacher training activities on the same and similar topics.

The study's findings concluded that project-based learning and e-portfolios are beneficial for students and can improve their learning capacity through the use of e-learning carried out on LMSs. In addition, the usage of project-based learning and portfolios also helps parents keep track of their children's progress and get instant feedback about their performance. Likewise, Hatip's study (2020)

revealed similar results and stressed the importance of distance learning tools affecting on the readiness of educators and students in carrying out learning processes.

The current study concluded that the most preferred LMSs are EBA and Google Classroom. Since the study was carried out in schools affiliated with the Ministry of National Education, all teachers stated that they actively use the EBA system and found it functional, although some aspects needed improvement. Recent studies have made comparisons of various Learning Management Systems based on their cost and ease of use. Similar to the current study's findings, Hall's (2003) most emphasized features seem to be the system's access, security, and scalability. Kör (2021), on the other hand, determined that Moodle learning management system is the most effective management system due to the reasons such as having a lot of language support, rich assessment and evaluation options, being suitable for preparing interactive content, and having a high level of security, according to the effectiveness criteria determined for LMSs in his study.

It is believed that the results obtained from this research will be beneficial to learning management system users and practitioners. It has been determined that the first feature that practitioners look for in the platforms they use is user-friendliness. In this context, it should be taken into account by the application developers that the learning management systems should have a simple, plain, and functional interface. In addition, it is expected that these systems will be enriched with contents suitable for the individual characteristics and levels of the students in terms of content and infrastructure and turn them into artificial intelligence-supported systems that allow them to progress at their own pace. It is recommended that the Ministry of National Education establish centers that provide continuous support to teachers with a solid infrastructure regarding support services in distance education and organize various in-service training on this subject. Teachers' opinions about learning management systems were taken in the current study. Future studies can be designed by taking the opinions of school administrators, students, parents, the other education stakeholders. The research was designed as a case study. Phenomenological studies are recommended to researchers, in which the rapid and sudden changes in education during and after the pandemic are more comprehensively described.

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