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Faculty members' perceptions toward the Learning Opportunities During the Coronavirus (COVID-19) via Learning Management System (LMS)

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ABSTRACT
The COVID-19 Coronavirus pandemic has severely affected educational institutions, and learning has become wholly dependent on Learning Management System (LMS) that have helped in the immediate transition from face-to-face (F2F) to distance education. This study focused on faculty members' perceptions and opinions regarding opportunities involved in using learning management systems (LMS) during the pandemic. The phenomenological qualitative approach was used, and the sample included (15) faculty members. The data was collected through the semi-structured interview tool and analyzed using the objective analysis method. The results showed several opportunities for learning through learning management systems considering the Corona pandemic. These can be developed in the future through the continuation of learning through electronic platforms and the application of the integration between the electronic system and the traditional system. These opportunities were represented in four main topics: e-learning structure, social interactions, outputs, and attitudes toward e-learning, where each main topic contains a set of subtopics.

Keywords: Opportunities, Learning, Learning management systems (LMS), Blackboard, COVID-19 Coronavirus pandemic.

INTRODUCTION

The spread of the COVID-19 Coronavirus has caused most countries to make urgent and strict decisions to confront this epidemic and limit its spread (Dinh & Nguyen, 2020). The conclusion talks about how most workplaces have been closed in most sectors to limit the spread of the Coronavirus, although some medical and security institutions have been excluded (Liu et al., 2020). This led to almost wholly disrupting the everyday life that people were living. Curfews were imposed for most of the day to prevent the outbreak of this deadly disease as these measures have caused many significant damages to the lives of societies, including a decrease in production processes, an increase in unemployment, the emergence of negative feelings among people, and thinking about the unknown future such as the vaccine industry that combats the disease, as well as family and functional ties (Nadig& Krishna, 2020; Thakur & Jain, 2020). The educational sector is one of the first sectors that hastened the closure decisions in schools and universities to preserve students' safety and limit the spread of the virus among them (Zhou et al., 2020). The World Bank's report indicated that the Coronavirus caused the interruption of more than (1.6) billion students from education in about (161) countries, nearly (80%) of the regular students in various educational institutions worldwide (UNESCO, 2020). To ensure the continuity of the educational process during the suspension of face-to-face studies in educational institutions and to avoid future educational losses among students, a quick, smooth, and integrated transition from the traditional education system to the emergency system took place in no time.

This depends entirely on the use of digital technologies and tools in teaching and learning; distance has been adopted through LMS platforms as an alternative to face-to-face education due to the Coronavirus pandemic. These platforms offer features and capabilities that help develop a new online learning environment that supports teachers and students in achieving educational goals, including anytime, anywhere access to information, feedback, and flexibility. This has led to significant growth of LMS platforms during the pandemic, and all educational institutions have effectively transitioned from regular education to online education (Alturise, 2020; Asanov et al., 2021; Cicha et al., 202; Hu, 2021; Kansal et al., 2021; Martinez et al., 2021; Mok et al., 2021; Sintema, 2020; Ulla & Perales, 2021; Xhelili et al., 2021; Zhang et al., 2020). It is worth mentioning that the emergency and rapid transition from face-to-face education in schools and universities to distance education through e-learning management platforms was accompanied by challenges and opportunities that can be taken advantage of; for example, what is related to the educational problems

represented in the student's academic plans and programs, and technical issues related to the lack of previous experience using e-learning systems or the perception that it is difficult to deal with them. Moreover, most educational institutions, especially schools, were not ready to learn for many reasons, such as not having LMS through LMS. In addition, many faculty members needed higher proficiency levels in dealing with technology than they had previously acquired. They believed the ineffectiveness of distance education, as well as students who suffered from feelings of isolation through their inability to interact with their classmates in the virtual environment as was the case in the traditional environment, the significant psychological and social problems they have, the low level of achievement and mastery of different skills, the students' feeling of frustration, anxiety, anger for missing the campus, and the exposure of some students to loneliness as a result of their lack of classmates (Auger et al., 2020; Ayhan et al., 2021; Chiesa et al., 2021; Lee et al., 2021; Marek et al., 2021; Oçal et al., 2021).

On the other hand, many opportunities and benefits have been achieved through learning via LMS during the pandemic, such as the high digital efficiency of faculty members due to the practices of e-learning and the continuous use of the system during the educational process. This experience contributed to the acquisition of considerable knowledge and skills experiences, which is a qualitative education to their professional career, enabling students to enjoy the freedom to learn at times and places that contribute to meeting their needs, the ability to ask questions and express opinions without fear or anxiety, as well as increasing the participation of students and their families in the design of learning tools and teaching curricula (Griffith, 2020; Jena, 2020; Nadig& Krishna, 2020; Sintema, 2020; Thakur & Jain, 2020).

The educational system undoubtedly faced challenges and achieved gains during the Covid-19 pandemic; through the researchers' work as faculty members, they noted many questions and inquiries about using Blackboard as an LMS during the pandemic led them to research to understand better the opportunities and challenges of learning through LMS. This aligns with the recommendations of some scientific conferences (the Sixth International Conference for E-Learning, 2020; IEEE the International Conference for Education and Engineering, 2021; Learning and Technology Conference, 2022).

These called for the necessity of sensing many challenges and obstacles to this transformation, such as the digital gap, the extent of the readiness of the distance education infrastructure, the psychological difficulties of faculty members and students, the opportunities offered by e-learning management platforms during this pandemic, conducting more relevant studies, and what was directed by previous studies (Alakrash& Razak, 2022; Demır&GologluDemır, 2021; Sia & Adamu, 2020). The importance of conducting this research aimed at understanding more deeply the experience in education in the era of the Corona pandemic in terms of identifying the opportunities that faced the human element in the educational process that relied on LMS.

Based on the preceding, the phenomenological research aims to describe and explore opportunities related to learning through LMS during the Covid-19 pandemic from the viewpoint of faculty members at King Abdul-Aziz University and University of Tabuk. The research objectives can be achieved by answering the following research question:

Q1. How do the faculty members see the opportunities involved in learning via LMS during the COVID-19 pandemic?

The theoretical importance of this research as the (COVID-19) Coronavirus pandemic is an exceptional historical crisis that has cast a shadow over the entire educational system. Therefore, it is possible through its results to shed light on the opportunities that accompanied the transformation from the traditional method of education to the e-learning system and present its results to industry makers in the educational system to help them take advantage of the opportunities created by learning through LMS. The results of the research can also be used as an indicator of the effectiveness of LMS by taking the views of faculty members about their experience in distance education through those systems, as well as opening the field in front of researchers to conduct more related studies and opportunities to learn during the pandemic. Regarding the practical terms, its importance lies in improving the performance of the distance education system, developing human cadres, material capabilities, and attitudes by identifying related opportunities, as well as raising the digital culture of faculty members through performance dealing with digital tools in addition to developing learning management platforms and providing them with tools that contribute to the development of digital courses, interaction, and assessment tools in line with students' needs during distance education.

2. LITERATURE REVIEW

2.1 Coronavirus pandemic and its impact on education

COVID-19 emerged in Wuhan, China, in 2019 and quickly became an epidemic due to its rapid spread. By March 2020, most countries had confirmed cases (Makgahlela et al., 2021), leading to increased fear of contact with people who may have the disease or anxiety about dying. In response to the pandemic, governments implemented social distancing, isolation, and self-quarantine, causing unprecedented economic and psychosocial impacts globally (AlMawee et al., 2021; Hamsan, 2021).

The pandemic presented a significant challenge to educational institutions worldwide, resulting in the closure of schools and universities and an emergency transition to distance e-learning (Alqahtani&Rajkhan, 2020).
Shifting to emergency remote teaching has become a mandatory goal so that the educational process does not stop with the imposition of social distancing and the closure of schools and universities (Eararslan, 2021). It should be noted that e-learning differs from emergency remote teaching as e-learning is built according to specific goals within a flexible environment based on an instructional design model that helps in the quality of teaching, the delivery of scientific content, the transfer of information, and the support of different modes of interaction (Wangdi et al., 2021), while the emergency remote teaching does not include the deliberate planning and well-designed process due to the speed of the transition, which led to limited time and deficiency in resources despite its use of web-based digital tools and various learning resources (Aslam & Sonkar, 2021). Some researchers have adopted the term emergency remote teaching for the educational system during the closing of educational institutions (Adnan et al., 2020).
The educational process in its new form, whether electronically organized in advance or during an emergency due to the pandemic, is considered one of the latest innovations in making use of technology in serving education (Griffith, 2020) as it contributes to enhancing students' digital knowledge and skills and harnessing them in their daily educational tasks (Guo et al., 2020). This takes place by providing access to educational media, information, live discussions, and participation in discussion groups, with the added flexibility of being available anytime and anywhere. (Kim, 2020). These advantages have made this digital environment the ideal solution to ensure the continuity of the educational process considering the pandemic, as the (Asio&Bayucca, 2020) study confirmed the role of e-learning during the Corona pandemic and its effectiveness in achieving the required educational outcomes. Coman et al. (2020), indicated the importance of distance e-learning, especially in exceptional circumstances such as the Corona pandemic. This importance stems from providing the opportunity for all learners whom the Corona pandemic has prevented from reaching schools and universities to learn and the flexibility to provide the appropriate time for the learner to ensure the continuation of the educational process. In the same context, the (Hasan & Khan, 2020) study stated that the distance learning digital environment provided many diverse sources for the learner, which immensely helped reduce individual differences among learners. Also, the (Popa et al., 2020) study clarified what is characterized by this environment by saving a lot of time and effort during the learning process, motivating the learner to acquire the most considerable number of skills and educational attainment. Finally, distance e-learning, as shown by Elumalai et al. (2020), helps students to be utterly self-reliant through their acquisition of self-organized learning skills that contribute to planning the learning process, setting goals, monitoring performance, and self-evaluating it, this thing that leads to managing their learning with high self-efficacy and efficiency.
Despite the importance of e-learning, emergency remoting learning during the pandemic has some challenges have accompanied this type of education, and among these challenges is what was indicated by Hung & Lee (2020), the lack of infrastructure for Internet networks, as well as the financial capabilities that require the purchase of some expensive devices that some families cannot afford. In contrast, the (Brown et al., 2020) study stated that the great challenge faced by this system is the ambiguity of the philosophy and objectives of distance e-learning and the poor experience of teachers in dealing with the distance education environment. Colizzi et al. (2020) identified the challenges as the lack of sufficient technical support and the poor preparation of teachers to practice distance education and its strategies, while Dong et al. (2020) stated that the challenges were the lack of training courses for the use of the distance education system and the lack of motivation for students to learn during distance education as well as the large number of problems related to sound and image during virtual online lessons. In addition, Fu et al. (2020) addressed some challenges, such as the inability to organize the educational process by default, which is consistent with the requirements of distance education, and the unwillingness of some teachers to use distance education. On the other hand, there are some challenges related to parents, as (Kissler et al., 2020; Zhou & Li, 2020) indicated where they faced many problems during the distance education period in terms of families that have many learners, as each student needs their computer or one of the smart devices such as a mobile phone or iPad in distance education.

2. 2 Learning Management Systems (LMS)

During the Corona pandemic, the LMS played an important and essential role in the process of sudden transformation of the educational process and maintaining its continuity (Li et al., 2020) as it contributed to creating a virtual learning environment with multiple advantages, very similar to what is being done in the traditional environment such as displaying scientific content, the interaction between the teacher and the learner, and applying various assessments like assignments and tests (Lavonen, Salmela-Aro, 2022). This happens through its comprehensive web-based educational system, which provides an interactive digital learning environment that enables the teacher to present and manage electronic courses and various educational activities and follow up and monitor the evaluation of students' performance and participation without being restricted to a specific time or place (Cejas Martínez et al., 2021; Jena, 2020).

It should be noted that there are two types of LMS: open-source systems that do not require payment for downloading or using, as well as any user can register with them and benefit from their services so that they can be developed and added to by others (Prime et al., 2020). However, taking advantage of some of these systems' features and characteristics may require additional fees. Moodle is the most famous open-source system, responsible for managing the educational process by displaying content, building tests, and facilitating communication and information exchange through discussion boards and chat rooms (Spinelli et al., 2020; Moorhouse et al., 2021).

Closed-source systems are the opposite of open systems since they can be owned, developed, and controlled by a particular party (Tran et al., 2020). For example, Blackboard manages the educational process electronically through an integrated software system, including recording and managing learners' data, providing educational content, providing exercises, assignments, and electronic tests, following up on the teacher's performance of his students for tasks and duties, evaluating their education and providing appropriate feedback to them, and communicating with teachers and students with each other through dialogue networks since the Blackboard system is one of the world's most potent and popular commercial LMS (Kado et al., 2020; Kaur et al., 2020; Zhang et al., 2020).

Several studies have examined how to employ these LMS in the educational process and their challenges. Chen et al. (2020) indicated the importance of using the Blackboard in the educational process, its effectiveness in improving students' cognitive and performance aspects, and its impact on user satisfaction. Kalyan et al. (2021), revealed positive perceptions of students' use of LMS and receiving virtual lessons, while the (Liu & Han, 2020) study showed that teaching via LMS caused students to feel bored and lonely. A large percentage of students believe that their focus is always away from the classroom while studying through LMS and that the efficiency of online education is not as high as they think. On the other hand, Barona & Ramirez (2021) concluded that using LMS during the pandemic was generally positive and that students preferred to study from home for health precautions and to gain more time for research and study, which was reflected in the increase in the academic average. Decuypere et al. (2021) show that studying via LMS was well received, and all participants agreed that online sessions save time and that their performance has improved due to the increased use of time. However, they indicated they faced some challenges, including methodological challenges, content perception, and technical and behavioral challenges during online sessions and exams. Chen et al. (2020) study came to confirm their results that factors such as the lack of direct interaction with learners and the sudden change in the environment were among those factors that strongly affected the learning process through LMS.

3. METHODOLOGY

3. 1 Research Methodology

To achieve the objectives of the current research, which are related to describing and exploring opportunities accompanying learning through LMS during the Covid-19 pandemic from the viewpoint of faculty members at King Abdul-Aziz University and University of Tabuk, the qualitative approach with a phenomenology curve was used since it best suits it with the objectives of the current research in exploring and describing the participants' experiments through collecting deep data, then analyzing and organizing this data through explanatory methods to provide a deeper understanding of the research problem (Creswell & Poth, 2018). In addition, this methodology has been adopted for what distinguishes it from other research methods in revealing the reality of the current phenomenon and providing comprehensive explanations about how and why it occurs and how the respondent feels. This allows the researcher to be part of the research, get detailed answers, and understand the research sample's point of view, attitudes, and emotions more deeply about the research topic (Gray, 2014).

3. 2 Research Participants

A total of 15 faculty members participated from the Education Technology Department at King Abdul-Aziz University (KAU) and University of Tabuk (UT); 10 from KAU (52.6 % of faculty members) and five from UT (83% of faculty members), that total of 60% in both universities. They were chosen intentionally for the following reasons: the experiences of faculty members and students in dealing with LMS because of their relationship with the specialization, where many courses related to these systems are taught in the cognitive and skill aspect. This leads to obtaining more in-depth data and responses, an investment in the information collected from the participants, and a broad understanding of the phenomenon being studied, as well as by defining the intentional sample, it can be ensured that it possesses an adequate, diverse, and in-depth amount of information and its willingness to provide it, thus guaranteeing relevant expertise (Cohen et al., 2018).

3. 3 Data Collection

The data was collected through the semi-structured interview tool, where the interview tool is one of the most used methods in qualitative research to collect accurate data about the participants about their experiments, experiences, and attitudes towards learning through LMS during the pandemic, which is consistent with the

research premises in answering its questions (Punch et al., 1998). The construction of the interview tool consists of two parts: the first part will include an introduction to the topic, objectives, and purpose of the study, while the second part will consist of research questions related to each participant about opportunities to learn through LMS considering the pandemic. The interviews will be conducted in multiple stages, and each time the data is collected and then classified and analyzed according to specific categories until objective saturation is reached. Saturation means to stop collecting data when the new data does not provide any additions or objective value to the research, and there becomes saturation in the classifications (Charmaz, 2006).

3. 4 Procedures

After defining the methodology used and represented in the qualitativephenomenological approach, and selecting the participants belonging to the Department of Educational Technologies at the Faculty of Educational Graduate Studies at King Abdul-Aziz University due to their direct interaction with LMS before and during the pandemic; thus, obtaining deep information about the research problem, and determining the method of data collection that was determined by the interview tool because of its relevance in achieving the objectives of the research, which provides a description and exploration of opportunities related to learning through LMS during the Covid 19 pandemic from the viewpoint of the faculty members and students at King Abdul-Aziz University. Then the faculty members and students who were selected as participants will be called and given information about the research, its objectives, importance, and willingness to conduct interviews with them to collect the data about the research topic. They all showed willingness and interaction with the researcher. Later, the location where the interviews will be conducted will be determined, which is the building of the Faculty of Educational Graduate Studies and the Deanship of E-Learning and Distance Education. After that, the period for conducting interviews with the participants was determined and it was during the academic year (2021) when the researcher used face-to-face interviews with a period ranging from (60 to 90) minutes and recorded them in one of the audio recording programs in order to be tabulated later. During the interview, the interviewer clarified the purpose of the research, and open-ended questions and motivational methods were used to motivate the participants to explore opportunities associated with learning via LMS during the Covid-19 pandemic.Some questions were asked to the participants about their experience in learning through LMS during the pandemic, whether the experience was positive or negative, the educational platform that was used, and the opportunities provided by their educational experience through LMS during the pandemic. Notes were taken during the interviews and shortly after.After the completion of all interviews, all interviews were reviewed and ensured that the participants' responses were related to the research objectives, and then were read by two members of the teaching staff working with the researcher in the same specialization to give the data collected greater reliability and validity. After that, the data was entered through the qualitative data analysis program (Nvivo) so that the program allows us to manage, organize, encode, and classify it according to common features and characteristics into more representative topics, and then review them in the form of tables and conceptual maps to make it easier for the researcher to interpret the results.

4. RESULTS

After entering the data for the interviews, which amounted to (10) interviews for the participants in the (NVivo) program, they were organized in the form of (85) codes, which were read more than once and reviewed in order to reach the main topics (themes) where they were confined to (4) main topics, under each main topic falls a group of sub-topics that can be put forward as follows:

- **E-Learning Structure**: It includes the sub-topics (e-learning content, virtual classroom management, Internet and communication, readiness to use the system, system environment, assessment).
- **Social interactions**: They include the sub-topics (communication among students and members, attracting and motivating students, motivation, and interaction of students).
- **Outputs**: They included the sub-topics (developmental skills, life and organizational skills, job and research gains).
- **Attitudes towards using e-learning**: These sub-topics go under this topic (transition from traditional education to e-learning, contentment and acceptance of the new system, feelings towards e-learning) as shown in Figure 1.

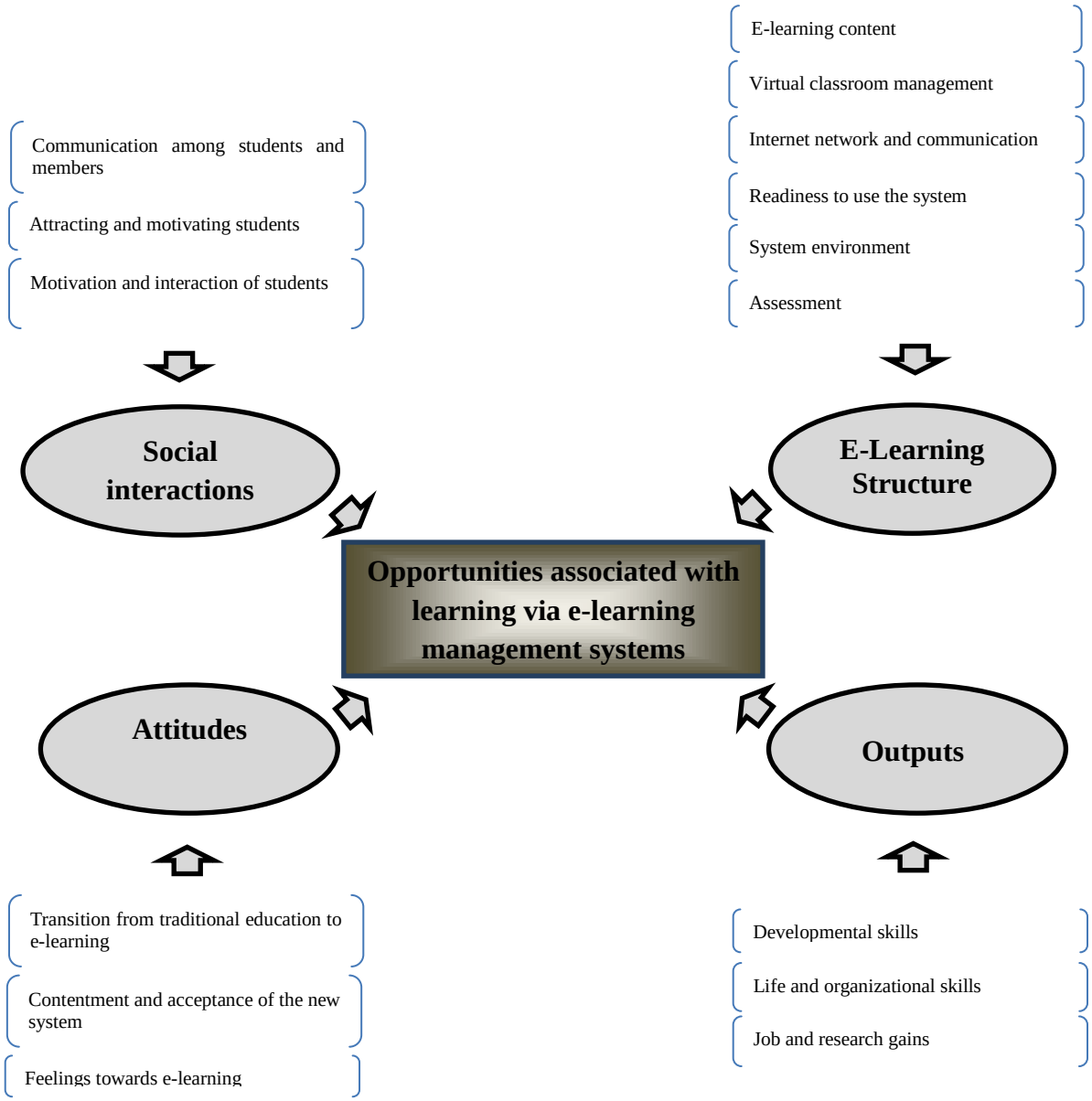

Figure 1: Main and sub-topics of the opportunities associated with learning via LMS.

4.1 Opportunities related to e-learning structure

The structure of e-learning that has been identified in (6) sub-topics has been discussed (e-learning content, virtual classroom management, Internet and communication, readiness to use the system, system environment, assessment).These sub-topics can be presented as follows:

4.1.1 E-learning content

Faculty members see that the opportunities associated with digital content through the e-learning management system are based on strengthening learning management systems digital content development processes, where faculty members can call a variety of digital objects through sources linked to the Blackboard system such as YouTube. The faculty members have described theopportunities for digital content in a variety of forms. Some of them were explicitlymentioned (written)in texts as follows:

"Blackboard systems have provided me as a faculty member with many resources that I can use easily to add educational contents such as educational videos available on YouTube." (A6)

Also, through the learning management system, it is possible to build participatory content synchronously or asynchronously between students and faculty members through blogging tools and participatory editors.One participant says:

“Digital content has become much easier through the Blackboard system and most of the time my students and I use blogs to build digital content, create web pages, add any content across these pages, and link them to multiple sources.” (A9)

4.1.2Virtual classes' management

The faculty members indicated that the opportunities related to managing virtual classrooms are represented in the possibility of conducting study sessions in which the faculty member presents the scientific content, saves synchronous lessons, and refers to them later. One of the participants explains this by saying:

"The lectures that are recorded in high quality via the Blackboard help me in managing the educational process;so, I do not need to repeat the lessons that have been explained to the students." (A1)

Virtual classes provide opportunities to meet and communicate synchronously with students, as the lecture is given to them online from anywhere and at any time. This is evident from what one of the participants mentions:

"Learning through Blackboard has saved me a lot of time and helped me to give lectures anywhere and meeting students has become easier and more flexible compared to traditional classes." (A4)

Allowing students to open dialogue through virtual classrooms encourages them to participate without fear or distraction, to follow up on attendance and absence so that this is done electronically. One of the participants in this regard says:

"The Blackboard e-learning management system has greatly benefited me in managing the virtual classroom through electronic preparation, absence and attendance statistics, notifying students of their absence rates, and discussing and engaging with students in an unprecedented way." (A5)

4.1.3 The Internet network and communication

Regarding the "Internet network and communication" and the opportunities associated with it, the faculty members stated that with the beginning of the spread of the Coronavirus in the world, the communications and information technology sector in the Kingdom responded to this exceptional circumstance by allocating additional frequency domains, increasing the average consumption of the learner, and following up on the performance of the communications network.This contributed to enabling digital education, the ability to enter the Blackboard e-learning management system, uploadingthe educational content, and dealing with all system tools quickly without problems in the network and communication. One of the participants expresses this by saying:

“I think one of the biggest opportunities learned during the pandemic is the initiative of telecom companies to allocate educational packages for free or at low prices, and I personally benefited from this service at the beginning of the pandemic. This helped me and my students to access the system and continue the educational process without any problems and join these packages" (A3).

4.1.4 Readiness for using the system

Regarding the readiness to use the system, the faculty members see that the Blackboard e-learning management system was used before the pandemic at the university. Therefore, there is already a readiness to use it by some faculty members. One of the participants says:

“I have previous experience using the Blackboard e-learning management system before the pandemic, and I used the system infrequently to communicate with students, explain some lessons, and conduct exams.” (A5)

The opportunities in this aspect lie in going deeper into the uses of the system, forcing all faculty members to optimally employ the system in the educational process, and fully use the system during the pandemic. One of the participants speaks about this depth by saying:

"Suspending studying, converting it online, and relying on Blackboard in the educational process, one of the opportunities that made me use the system's tools effectively and urged me to discover many of its tools that I did not know before and did not know their importance and ways to use it." (A2)

4.1.5 The system's environment

In the system's environment, the faculty members referred to a set of opportunities related to the Blackboard system environment.The most important of which is its provision of a set of tools that support the educational process such as assessment, communication, content uploading, student work submission, peer assessment, student group management, student grade collection and organization, creating surveys, and tracking and monitoring tools.One participant expresses this by saying:

“With the pandemic, I discovered that using the Blackboard system is a great environment for the learning process; indeed, it's enough to provide interactive electronic courses. The system also provided me with synchronous and asynchronous tools that helped me make the student spend more time in synchronous classes and then continue the learning process through asynchronous tools in the system.” (A5)

4.1.6 Evaluation

The last sub-topic of the e-learning structure is related to assessment, as faculty members believe that the opportunities associated with this aspect are based on the diversity in assessment tools such as tests, assignments, and discussion forums, as well as the diversity of test questions where the Blackboard system includes (17) types of questions in addition to automatic correction and instant feedback.One participant report that:

"The Blackboard e-learning management system provided me with an opportunity to get acquainted with various tools for evaluating students and to use and deal with question banks that I did not know previously, which made it easier for me to prepare organized and diverse questions that are automatically corrected." (A7)

Another participant states:

"When using the system's assessment and tests tool, I was surprised by the wide variety of question types supported by the system." (A10)

The Blackboard system supports question banks and keeps previous questions to be recalled when needed to be used in one of the tests or to update them. One of the participants comments in this regard:

"I personally benefited from the old questions stored in question banks and participated in enriching the question bank.It was nice to use these questions by myself." (A5)

4.2 Opportunities related to social interactions

The second main topic related to social interactions has been reviewed in (3) sub-topics (communication between students and members, attracting students' attention and motivating them, students' motivation, and interaction).These sub-topics can be presented as follows:

4.2.1 Communication between students and faculty members

The faculty members agreed that there are many opportunities associated with the process of communication between students and faculty members through the e-learning management system. This is considered as one of the most prominent things that can be benefited from through these systems by supporting continuous communication between the member and the student or students between them at anytime and anywhere. One participant state:

"According to me, learning through the Blackboard system facilitated the process of communication between me and the students, not only by communicating with me as a faculty member but also between students themselves at any time and from anywhere." (A9)

It is worth noting that the e-learning management system, as the faculty members indicate, is equipped with many tools that support the process of communication between faculty members and students, and which greatly help in supporting the educational process. One of the participants comments:

"I used the e-mail as a means of communication between me and the students. Then it developed into using and opening more flexible channels such as tools provided with the system such as blogs, wikis, and Blackboard course messages." (A6)

Faculty members can communicate with students via the Blackboard using various devices, whether computers or smart devices such as mobile phones, and use system tools such as Blackboard course messages, announcements, and e-mail associated with the system, which in turn facilitates the process of communication between the parties to the educational process and contributes to its continuity.In this regard, one of the participants points out:

"While dealing with the Blackboard system, I found it easy to communicate with students, especially when using the Blackboard application on smart devices, as it helped me quickly send messages related to the course I teach, whether I was in my office, home, or car. It also provided me with a good way to respond to students and answer their inquiries." (A4)

4.2.2 Attracting the students' attention and motivating them

Faculty members believe that the e-learning management system has contributed greatly to attracting students' attention and motivating them towards the learning process.This is one of the important opportunities during learning through these systems, due to the current generation's association with digitization, as this generation is classified as a digital generation that favors dealing with devices and technology.The Blackboard system is distinguished by its multiple tools that contribute to building scientific content supported by multimedia that attract students' attention and motivates them towards learning, in addition to allowing them to benefit from various digital tools and linking them to scientific content. In this regard, one of the participants mentions:

"Blackboard tools have helped me motivate the students, where the content creation tool has enabled me to diversify in the form of educational material content that I present to my students. I have used multimedia as PowerPoint presentations and video clips." (A7)

In the same context, one of the participants adds the following:

"Through the Blackboard system, I was able to draw the attention of my students and motivate them to engage in learning. I benefited from converting the traditional content of the subject into interactive digital content with ease through the system's friendly-user tools." (A1)
Also, the Blackboard system, as the faculty members went, is easy and flexible, and it is equipped with tools that attract attention, such as discussion forums, blogs, and wikis, through which conversations and inquiries between students and faculty members can be made and notes followed-up. All these activities and interactions add elements that attract students' attention and focus on the Blackboard system. One of the participants explains:
"Putting a set of questions in the discussion board and letting the students express their feelings about these questions attracts the students' attention most during class time." (A2)
On the other hand, one of the participants adds the following:
"Commenting, asking questions, expressing opinions, and providing immediate feedback via the virtual class or deferred via system messages, made my students more attentive to the scientific content." (A10)

4.2.3 Students' motivation and interaction
Faculty members indicate that learning through the e-learning management system increases the learner's motivation to learn through the attention that the digital content is provided with multimedia.In this regard, one of the participants says:
"When I entered the Blackboard system in order to follow the statistics of students' views of the educational lessons, I noticed that students repeatedly entered the contents of the course in which I used a set of images, sounds, videos, and figures." (A4)
The faculty members also see that students' confidence in the Blackboard system, which is represented in their previous experiences, dealing with it, and their satisfaction with it, greatly contributed to increasing the learner's motivation and interaction, as the students are familiar with the system, and they have advanced capabilities in using it.One of theparticipants mentions:
"Students have good experience in using the Blackboard system in terms of accessing content, interacting with it, submitting tests and assignments, and communicating.This made the student have the motivation to learn and interact easily." (A9)
Faculty members describe the Blackboard system as an effective way for students who do not have the ability to speak in front of their colleagues or stand and express ideas and opinions in traditional learning systems, which may affect and negatively affect their motivation towards learning and positive interaction. One of the participants confirms this as follows:
"Through my use of the Blackboard system, I found an increase in students' questions and their interaction during the presentation of the lecture in a synchronous manner through chat-box or in an asynchronous manner through the system's communication tools such as electronic mail more than before." (A5)
In the same context, another participant also adds the following:
"It appears to me that the system's environment helped the students to be brave in asking questions, it reduced fear, shame, and confrontation, which was reflected in their interaction with me during the explanation of the course." (A8)
Faculty members believe that the Blackboard system is an integrated system that possesses a set of tools that contribute to enhancing students' motivation and increasing their interaction during learning. Interaction can be done through speaking, writing or using emoticons. A participant says:
"I think that learning through the Blackboard system gave students some characteristics,which are different from the traditional system, such as using a microphone, writing messages, or comments.These new characteristics resulted in an increase in motivation towards this type of learning." (A6)

4.3 Opportunities related to outputs
The third main topic, entitled outputs, included several sub-topics that contained: (developmental skills, life and organizational skills, job and research gains). These sub-topics can be presented as follows:

4.3.1 Developmental skills
Faculty members see that there are many skills acquired during the emergency transition from face-to-face education to distance education through Blackboard LMSconsidering the Corona pandemic, as the pandemic was a reason for refining talents, discovering, and developing professional and technical skills for many faculty members. The experience allowed the participants to benefit from professional and technical development, and the development opportunities varied at the level of joining training courses specialized in building and developing traditional content and transforming it into electronic content suitable for the learning platform. This is expressed by one of the participants:
"During the pandemic, I benefited a lot from the intensive training courses in e-learning and building and developing digital content provided by King Abdul-Aziz University." (A2)

Another participant adds:
“I gained new skills related to designing the course content through the development courses offered by the Deanship of E-Learning.” (A1)
The faculty members also indicated the increase of their high digital efficiency while learning via the Blackboard system, in terms of their acquisition of skills to use the system tools such as creating educational material content and creating tests. One of the participants reflected this when he spoke about his digital efficiency after using digital learning platforms during the pandemic:
“I benefited from creating and presenting lessons in a variety of ways and creating tests on the Blackboard platform in easy and convenient ways.” (A10)
In the same disposition, one of the participants states:
“I have participated in many local and international e-learning communities to raise my digital skills and increase knowledge in my specialization.” (A7)
Faculty members describe the e-learning experience during the Corona pandemic as the stage of reaching sufficient experience in using the Blackboard e-learning management system and its tools by accumulating experience, practicing, solving previous problems, and sharing knowledge through social networks. One participant refers to this by saying:
"Now, if you meet any faculty member who used the blackboard in any major, he/ she is able to deal with it efficiently."(A4)
Moreover, the participants remind us that the Blackboard e-learning management system has a great role in gaining the skill of self-study by attending development courses and conferences offered by educational and training institutions during the pandemic. Accordingly, faculty members started looking for training courses to gain more knowledge and skills and find appropriate solutions.One participant says:
“Learning through digital learning platforms encouraged me to self-study. I became self-reliant in searching for the best solutions to provide the content of the course material to my students.” (A3)
The faculty members indicate that learning via LMS has clearly enhanced self-study skills through easy access to information and learning through digital video channels or specialized training platforms. One participant mentions:
"I encountered many problems when using the Blackboard system and I made use of the video tutorials to solve them..." (A6)

4.3.2 Life and organizational skills
Faculty members believe that working from home is not that bad in general, but rather provides many opportunities that can be invested well while learning through the Blackboard system.Among these opportunities is to take advantage of the time spent in transportation back and forth to and from the university daily. One of the participants says:
“I go to work on a daily basis, and it takes me over an hour and a half to get back and forth, but with the learning through Blackboard I was able to make use of that time.” (A5)
The use of the Blackboard platform in the participants’ performance of their work tasks contributed to creating opportunities in their personal and organizational lives, the thing that helps in one way or another to improve the performance of the participants. In this regard, one of the participants mentions:
"With the Blackboard system, I saved a lot of effort, money, and time, and I benefited from the time spent in transportation with my family. I also saved the money spent on transportation." (A3).

4.3.3 Job and research benefits (gains)
Faculty members believe that the pandemic period and distance education through the Blackboard e-learning management system witnessed a state of community participation through social networks, during which many faculty members reviewed their successful experiences and participated in finding solutions to the problems that faced the field. This led to an increase in community awareness of the e-learning experience. A participant state:
“During the pandemic, I participated in educational forums and training blogs to explain some practical lessons in the Blackboard system.” (A1)
Some faculty members were also distinguished in providing strategies and positive experiences which led to the success of the e-learning experience. Consequently, their accounts were spread and some of them had the opportunity to move to the field of professional training and provide educational courses that improved their financial income. One of the participants says:
“While learning via Blackboard, I created my own YouTube channel explaining everything related to the Blackboard system, and I was recruited as an e-learning instructor.” (A9)
Among the career gains, the faculty members stated that using the Blackboard platform enabled them to use computers and smart devices in an advanced manner, which in turn led to diversifying the ways of presenting lessons by making interesting presentations for students.One of the participants expresses this by saying:

“My use of the Blackboard system has allowed me to provide a variety of lessons with less effort and high efficiency compared to face-to-face teaching.” (A5)
Participants see that many specialized and non-specialized faculty members do research, and even have advanced skills in searching for sources of information. One of the participants says:
"Because of my complete dependence on the computer and the Internet in the teaching process during the pandemic, I became curious to search for any information." (A10)
Another participant adds:
“I searched a lot for test questions in my subject which made me access many websites and sources of information.” (A2)
In the same context, the participants mentioned that e-learning paved the way for students to develop the skill of searching for information on the web as the Internet is rich in information sources such as digital libraries and virtual museums. One of the participants says:
“I ask my students to do some assignments that requireresearch into reliable sources of information.” (A5).
Another participant adds:
"Surfing the Internet motivates my students when they carry out the tasks required fromthem and search for information.They now have skills in searching for different sourcesof knowledge on the Internet." (A7)

4.4 Opportunities associated with attitudes towards e-learning
Attitudes towards e-learning have been addressed in (3) sub-topics: (transition from traditional to e-learning, contentment and acceptance of the new system, feelings toward e-learning). These sub-topics can be presented as follows:

4.4.1 Transition from traditional education to e-learning
The faculty members see that the process of moving from the traditional educational system to the e-education system is accompanied by a set of opportunities that gave them the practice of a new type of education, which is e-learning.This type of education was an opportunity for them to develop their technical and educational skills, and to identify digital tools that may suit the needs of their students.Through this transition, modern educational technological developments such as virtual classes, building electronic tests, and recording lectures have been taken advantage of to support and develop the educational system in order to build the skills of highly qualified professional scientific cadres. They highly appraised the smooth and direct transition to the digital environment. In this regard, one participant says:
“Since the Ministry of Education announced the suspension of face-to-face studies and the transition to distance education, my online lectures began the next day in an easy and smooth manner.” (A8)
Also, the transition from traditional education to e-learning contributed to the innovation of new ways, methods, and means, acquiring a lot of digital skills and dealing with technology among faculty members.This made them have positive attitudes towards e-learning. One of the participants expressed this by saying:
"Now, I have more inclinations than before towards e-learning, as I have acquired many digital skills and tools due to the transition from traditional education to e-learning." (A4)
The participants point out that the important opportunity in this transition, which created good attitudes toward e-learning, is the reduction of the burden on the faculty member to some extent, and the change of his/ her role in traditional education, being the center of the educational process, has turned into a supervisor, planner, and catalyst, and work tasks became mutual between the faculty member and the learner. One of the participants says:
"During the application of learning through the Blackboard system and my frequent use of the system, I found many of the tasks that I had previously performed during the face-to-face education changed and became assigned to the students." (A6)
The participants also see that one of the opportunities associated with the transition from face-to-face electronic education is the contents of the courses that have become accessible to students more flexibly, regardless of the time or place. One of the participants expresses this by saying:
"One of the most wonderful opportunities in e-learning is the digitization of courses and making them available in the system for students..."(A9)
The participants also describe recording the lectures, going back to them, and the possibility of downloading them as important opportunities that made a big difference in the attitude towards e-learning. One of the participants in this aspect says:
“The Blackboard system is wonderful, as I can record all my lectures and refer to them as I and my students and use them at any time and place…" (A3)

4.4.2 Contentment and acceptance of the new system
Faculty members believe that education has suffered greatly from society’s acceptance of the idea of integrating technology into education for many years, where technology for them was a luxury or entertainment. But, the

beginning of the pandemic, was a great opportunity that imposed society's acceptance of the e-learning system, keeping in mind that it is a necessity and a solution to a problem experienced by this society, where everyone interacted to learn the necessary techniques and they were activated with conviction, acceptance, and satisfaction. One of the participants expresses this by saying:

"There was difficulty in changing the idea of switching from the traditional method of education to the method of e-learning, and because of the pandemic and so as to prevent the spread of the disease and its transmission to our families at home, we started accepting this new system." (A1)

Many administrative systems have also been changed due to the change in the education system and the transformation of the learning environment from traditional to virtual.Even the persuasions of many officials towards e-learning have also changed. One of the participants mentions:

"E-learning has proven its effectiveness as it was the best solution during the Corona pandemic, and many government departments have turned to the electronic environment..." (A10).

With the continuation of the e-learning management system, participants reported that they became more confident and satisfied with e-learning.One of the participants says:

"After a period of passing the pandemic and using the Blackboard system to learn, the conviction increased more, and it became an urgent necessity" (A7).

4.4.3 Feelings about e-learning

The participants believe that the great fear due to the interruption of education due to the Corona pandemic in the educational community and families was received by positive feelings of satisfaction and reassurance for the return and continuation of education.Despite the resistance of some at the beginning of the new experience, the acceptance rates rose with the passage of time by all participants in the educational process, and, indeed, some of them see the continuation of e-learning as a necessity because of the pandemic and what might happen if we encounter other pandemics or problems in the future.

The faculty members indicate that e-learning is a great opportunity to experience this type of education and to benefit from its services in continuing the educational process in the required manner. So, it was a great opportunity for those who find it difficult to attend training in traditional classes due to geographical distribution and their preoccupation with family obligations that do not allow them to attend the courses are following a specific schedule.This was reflected in their feelings about this type of learning. One of the participants says:

"In the past, it was difficult for me to attend some training courses or scientific conferences outside my region.With e-learning, I was able to attend any course or conference so easily." (A5)

The participants add that many faculty members and students had a passion for technology and enthusiasm for dealing with this digital platform.Many of them felt confident and positive about e-learning.One of the participants mentions:

"I found a lot of positive feelings about e-learning. I was very happy with the Blackboard tools and how it made it easy for me to give lectures." (A1)

The participants also describe that feelings towards e-learning are feelings of satisfaction, by giving an opportunity to some students who had feelings of shyness or hesitation to overcome these negative feelings and the emergence of several students with different talents through educational platforms.One of the participants says:

"While dealing with my students in the digital environment, a group of students appeared to me with diverse skills and talents, such as speaking, recitation, design, and performances." (A7)

5. DISCUSSION

The goal of the current research to describe and explore the opportunities associated with learning through LMS during the covid-19pandemic from the point of view of the faculty members at King Abdul-Aziz University. Though a lot of studies have explored the topics related to the challenges that LMS encountered during the Corona pandemic, what is characterized by the current research is the opportunities that have accompanied this kind of learning, and the attempt to interpret this phenomenon in a qualitative analysis manner, by collecting data, creating initial codes, and then reviewing and reading data line by line in order to reach a phase of deepening and saturation. This is to enable the researcher to limit all of this in concepts, categories, and specific topics expressing the meanings of the data collected.Finally, the data was organized and addressed in the form of tables, figures, and conceptual maps that allow the process of interpretation, analysis, and discussion.

The search results are consistent with a number of theoretical frameworks and educational models about the readiness and willingness of faculty members to use technology as a technology acceptance model (TAM), which refers to the effectiveness and success of technical acceptance through the user's awareness of the desired benefit of technology and the easeof using it, which in turn is reflected towards it in terms of desire and motivation (Bodendorf& Franke, 2022).

By asking the participants about their readiness and willingness to use the Blackboard e-learning management system during the pandemic, most of them answered that there is an adaptation to the crisis,good preparation for distance learning, and that they consider the Blackboard e-learning management system as a marvelous alternative to continue learning in addition to possessing a variety of capabilities to deal with its tools. This is because they already used it before the pandemic in distance learning programs provided by the university, as well as its use in conducting some tests, assignments, and communication with students.
The search results revealed many opportunities that could be obtained during the Blackboard e-learning management system during the pandemic, and that these opportunities were divided into four main topics, and under each topic of a group of sub-topics discussed as follows:

5.1 E-Learning structure

Regarding the e-learning content that is provided to students and its unique characteristics such as the use of multimedia in building content, calling digital objects such as YouTube and slideshows, and integrating them into the content, in addition to the flexibility and participatory educational content from the opportunities provided by learning via Blackboard.This is what aprevious study (Lanka et al. 2021) mentioned. Some of the opportunities were also related to virtual classrooms and their management, and what can be achieved through that virtual environment such as controlling students' attendance and tardiness and replaying the educational lectures (Zhou & Li, 2020). Also, internet networks and communication are among the opportunities it tackled in terms of the availability of the university's infrastructure, the availability of various communication networks, and the provision of assistance to students and faculty members regarding free or discounted Internet packages. It is worth noting that King Abdul-Aziz University always provided non-stop technical support for the system by calling, WhatsApp, the university website, or e-mail messages.Regarding the opportunities related to readiness to use the system, because of the previous experiences of the faculty members when using the Blackboard system, they had the opportunity to dive deeper into the system, which gave them the opportunity to learn about its tools, and capabilities, and deal with them in an advanced manner(Xhelili et al. 2021).About the opportunities involved in the system environment, the Blackboard system is considered one of the strong and distinguished systems in supporting the educational process; Therefore, the faculty members were provided with opportunities to deal with its advanced tools in displaying the educational content, creating tests, and the presence of tools supporting learning such as discussion forums and adaptive learning (Ulla et al. 2021). Finally,concerning e-learning structure, assessment, and the opportunities associated with it, the system provided the faculty members with a set of various and different assessment tools which were described by the faculty members as high-quality tools that suit the students' levels in addition to the ease in grading and providing feedback (Tran et al., 2020).

5.2 Social interactions

Communication between students and faculty members is one of the opportunities associated with social interactions, where they were of very high core values as they make the educational process in continuous contact without spatial or time limits.This had a great impact on making the Blackboard system offer multiple advantages and capable of supportingstudents while learning through communication channels available on the system(Asanov et al. 2021, Baptista et al. 2020, Chen et al. 2020). This is also consistent with the principles of the connectivism theory, which indicates in its principles the importance of maintaining communication for the educational process to continue (Suen et al. 2022). As formotivating and attracting the attention of students, the system tools such as the multimedia learning content tool, simple system interface, easy handling of its tools, learner's ability to participate either in content-building, delivering speeches, giving educational demonstrations…, all of which are given a lot of positively influential opportunities in the learning process.This goes in line with the principles of learning patterns and the(VARK) model on taking the importance of learning patterns in the design of digital learning content that increases the learners' attention and motivates them toward learning (Heng et al. 2022, Newton & Salvi, 2020). When talking about students' motivation, interaction, and associated opportunities, it is clear by changing the role of a faculty member to the facilitator of the educational process by interacting with his students in the Blackboard system, his immediate comments on students' responses about their learning, and helping them understand through discussions synchronous and asynchronous system tools, leading to students' reactions and increasing their motivation towards acquiring knowledge and development of different skills. All of this was discussed in the constructivism theory that emphasizes the role of the active learner and the change of roles of teachers and learners (Bermejo et al. 2021).

5.3 Outputs

By analyzing the data and based on the results of the study, the developmental skills were among the opportunities that the faculty members acquired during their use of the Blackboard system during the pandemic. The reason behind that was that we all were obliged to use the system and even the too many training courses designed to help the faculty members led to the opportunity to reach digital competence in using the Blackboard

in the educational process.This is consistent with what was confirmed by a study by (Martinez et al. 2021), and the results of the (Khalil et al. 2020) study, which show that most of the faculty members' use of digital learning platforms contributed to providing them with modern educational technical skills that meet their needs through the diversity of teaching processes, which helped these technologies enable them to control their educational needs in a constructive manner and providing them with structured instructions for self-learning.In fact, this leads us to the self-learning skill, which has grown significantly among faculty members during learning through Blackboard LMS during the pandemic, due to the member's need for continuous learning of everything that is emerging in the updated system.Therefore, it was a great opportunity for them to acquire many skills related to the optimal use of the system, which is what went into (Muller, 2021) study. Among the opportunities created by the educational process through Blackboard's LMS are the acquired life and organizational skills, as this transition created an opportunity to manage time for faculty members and students, in terms of enabling them to deliver, explain and follow up on the educational process at anytime and anywhere.This was confirmed by the study conducted by (Hu & YH, 2021). Yet, these preferences emerged after the participants indicated that learning through electronic platforms during the pandemic has advantages that varied between the flexibility it provides in learning, saving time and money, and making use of free time to develop their life skills (Kalyan, 2021).Finally, this context implies career and research gains, as there is no doubt that this era is accelerating and depends almost entirely on technology, and business has become managed through digital environments. Moreover, when the pandemic came, it was necessary for every faculty member to deal efficiently with the e-learning management system, and this is what led to the acquisition of knowledge and skills about these environments.This is consistent with the study of (Mok et al. 2021).Furthermore,based on Nadig& Krishna (2020), some faculty members became curious to learn more, and they happily got involved in these environments, which led to their transformation from trainees into professional trainers. Again, this enabled them to gain fame, open distinguished channels, and forums, and in addition to that, they have advanced skills in searching for sources of informationto practice self-study and acquire several digital skills.

5.4 Attitudes towards the use of e-learning

One of the opportunities introduced by learning through LMS is the quick and direct transition from traditional to electronic education. When Saudi universities stopped traditional F2F classes and moved to online learning to ensure the continuity of the educational process during the COVID-19 pandemic, the speed with which the transition into online learning occurred was amazing and unprecedented. Besides, the results of the research revealed positive trends that began gradually towards e-learning, centered on what accompanied the transition from the professional development of faculty members concerning various digital skills, in addition to their discovery of the system environment that facilitated the teaching process by the exchange of roles between them and the students, the involvement of many students in the explanation and presentation, and the use of the support tools provided within the system. The great engagement of faculty members in dealing with the system was also noted after spending a short period using the Blackboard platform during the pandemic, which is consistent with Hayat et al. (2021), revealed rapid changes in attitudes toward the use and preference for the e-learning system during the learning process where many opportunities can be exploited. According to the opportunities associated with contentment and acceptance of the new system, they are represented in changing contentment and reaching a state of acceptance and accepting the e-learning experience on a large scale from all groups or categories. Cejas et al. (2021) agreed with this, which also indicated an improvement in the acceptance of the electronic educational experience, as well as Sepulveda-Escobar et al. (2020), stated that there is excellent contentment among faculty members about the importance of digital environments and the use of electronic learning management systems during the educational process. Such joy and acceptance of the new system emerged after the obligatory and actual trial of the Blackboard system and using it completely in managing the educational process during the pandemic. The various advantages of the system, like the flexibility it provides in learning, the effectiveness of its tools, saving time and money, enhancing digital efficiency, and finally, concerning the feelings towards e-learning that were met with great fear of interruption of education due to the Corona pandemic in the educational community and families, such advantages created positive feelings of satisfaction and reassurance for the return and continuation of education through the Blackboard system. Despite some resistance at the beginning of the new experiment, not only did the rates of acceptance increase over time by all participants in the educational process, but also some participants saw the continuation of e-learning as a necessity because of the pandemic and the post-pandemic. The faculty members felt these feelings because this digital environment allows for self-development, coping with the modern technical era, and is an opportunity to arrange business and… To complete it quickly and to exploit the vast amount of information and knowledge available on the web to provide students with scientific material and not be satisfied with the official curriculum, as mentioned in the study by (Guo et al., 2020).

6. Implications to study

6.1 Implications to theory

The importance of the current research lies in its theoretical aspect is to provide a list of opportunities related to learning through LMS during the pandemic, to highlight the role of distance education in maintaining the continuity of the educational process, and to provide an interactive digital environment to attract the interest of students and faculty members, direct attention towards distance education, and raise awareness of its importance, forming positive attitudes towards distance learning and teaching for both students and faculty members.

6.2 Implications to practice

The practical importance of this research stems from its importance in creating training programs for faculty members that will raise their efficiency in digital skills, providing an applied plan to give all material requirements that will improve the performance of the distance education system, and developing digital environments, learning styles, and e-teaching methods.

7. Limitations and future research recommendations

This research is limited to using Blackboard as LMS as it is the only LMS used in government universities; another limitation was by applying the study with faculty members in two universities, King Abdul-Aziz University and University of Tabuk. These faculty members from Education Technology Department with significant experience using Blackboard before the pandemic with great potential and profound experience with LMS. Future research may focus on e-learning in other universities, study faculty members' challenges, and apply a study like the current study but using a different sample, e.g., students.

8. CONCLUSION

The research was designed to diving deeply into the details of the experience the faculty members went through and to explore the opportunities that they encountered while using the Blackboard e-learning system during the Corona pandemic, as there was almost consistency with what the participants in the study mentioned among themselves with the presence of minor differences, as well as an agreement with some previous studies. The results of the research are summarized as follows: the opportunities that resulted from learning through the Blackboard system and the gains as a result of using the system, for example, the continuation of the educational process despite the conditions of the pandemic, the provision of digital content in multiple forms and patterns, which achieves attraction and interaction, the use of the virtual classroom tool in managing the educational process, deepening the system's kits and access to digital competence, diversifying the use of assessment tools, employing the interactive system environment to raise students' motivation, professional development for participants, as they were able to join many training courses and workshops to increase digital skills and obtain job gains, forming positive feelings and change in acceptance contentment for the e-learning experience.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding authors upon reasonable request.

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