Difficulties in Teaching Online with Blackboard Learn Effects of the COVID-19 Pandemic in the Western Branch Colleges of Qassim University

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Abstract—The global COVID-19 pandemic has compelled educational institutions to shift from face-to-face teaching methods to fully online courses. This was possible with the help of information technology advances, which led to the creation of Blackboard Learn, a Learning Management System (LMS). By transitioning their systems to this newly developed LMS, the western branch colleges of Qassim University in the Kingdom of Saudi Arabia were able to support e-learning. To investigate the influence of online learning e-courses on educational institutions and learning outcomes, this paper intends to perform surveys on both faculties and students. The survey mainly focuses on course objectives, practical skills, faculty member's responses regarding query and discussion, explanations on applied courses, problem-solving, and improving teamwork skills. A comprehensive investigation of the faculties reveals that 59.08% of faculty members believe it is challenging to facilitate course objectives due to the lack of practical lab work and other detailed knowledge exchange on applied courses, which leads to the faculties being unsatisfied with online courses when compared with traditional systems. Moreover, 77.17% of the students think it is difficult to have discussions during online courses in order to solve queries, and this diminishes their problem-solving capability. In addition, with an online course system, there is no way to physically collaborate in teams and work on team projects to improve teamwork abilities.

Keywords—*COVID-19; blackboard learn; e-learning; learning management system; pandemic; difficulties; Qassim University*

I. INTRODUCTION

During the global COVID-19 pandemic, where most countries went into lockdown, traditional face-to-face teaching in educational institutions has been replaced by fully online, e-learning courses utilizing the Learning Management System (LMS). By using LMS, a student can perform all required activities via e-learning (electronic learning) including lectures, homework, assignments, quizzes etc. on an online platform. The use of Blackboard Learn and e-learning is effective because there is a combined interaction of students and teachers using the same online website with a remote interface. Online communication and e-Learning can be referred to as blended learning, according to authors in [1]. A proper environment, with a user-friendly interface, is a basic objective of the higher authorities [2]. It is worth mentioning that e-learning has greatly helped with the continuation of the educational system, without adverse side effects, during this tough period dealing with COVID-19. The e-learning system avoids the need for students to gather, which helps in suppressing the spread of the coronavirus, and ensures a reliable and safe educational environment. Without e-learning it would not be possible for the faculty and students to communicate efficiently and continue learning outside the educational institute [3] in this pandemic crisis. For that reason, there needs to be a proper methodology by which students and faculty members are guided and taught about the beneficial outcomes of e-learning in a way that they efficiently adopt to its environment as soon and as effectively as possible.

LMS is comprised of course contents like quizzes, survey, lectures and assignments etc. The course content and details can be accessed remotely from anywhere as long as you have a personal computer or smart phone internet access. The system facilitates easy communication between student and teacher [4]. As already discussed, Blackboard Learn has proved a worthy platform for productive communication between teachers and students, and it also has a justified and transparent grading system. A survey was conducted by authors in [5] on the development of a unified theory of acceptance and the use of technology (UTUAT), model which successfully addresses the lower adaptation of Blackboard Learn in educational institutes. The outcome of the research was in favor of e-learning as it could provide access to courses from anywhere, more efficiently than ever. Therefore, the goal is a detailed study of the Blackboard Learn LMS, specifically its usefulness and shortcomings in the e-learning space of the western branch colleges of Qassim University in the Kingdom of Saudi-Arabia.

II. E-LEARNING IN DISASTERS

Today, the world is facing the global pandemic of COVID-19, which presents a serious threat to every element of society. This has caused everyone to consider preventative measures against the virus. There has been a notable shift in risk assessment policies made by disaster management authorities due to the recent pandemic [6]. The sections relating to policy management have also been a part of the online e-learning system during these difficult times. Specifically, educational institutes and education in general have been badly affected due to COVID-19 as all worldwide educational institutions are closed [7]. In this challenging situation it is difficult for untrained faculty members and teachers to continue the

provision of education to students. The following section describes the necessary strategies that need to be employed during the current situation.

A. Blackboard Learn e-Learning LMS

Online e-learning systems, specifically Blackboard Learn, have provided a suitable platform for both participants and learners to acquire knowledge, either separately or in collaboration. During this current pandemic, Blackboard Learn has provided some very important user benefits in the form of reliable and permanent online content. Also, it permits users and learners to stay at home and continue their education in an efficient way. Furthermore, travelling expenses for both students and teachers have become negligible due to the employment of e-learning, as it is available worldwide and remotely. Since different people are residents in different places, an online, remote interface for communicating and sharing knowledge is greatly needed [8].

Blackboard Learn ensures the efficient delivery of education in a digital format rather than the conventional and traditional education structures. Education and learning in soft form have reduced the use of paper and other writing materials, which also reduces the impact on the environment. In the current, global lockdown situation, people are avoiding unnecessary travel but still need to continue their education. Blackboard Learn is the safest option for acquiring quality education at home. However, Blackboard Learn still has some limitations. The author in [9] researched the limitations of Blackboard Learn, and found that basic knowledge and skillful use of a computer is very important to maximize knowledge acquisition using e-learning. Training and awareness regarding computer knowledge are costly. Furthermore, a teacher cannot explain an idea online as clearly as face-to-face. The author in [10] says that these limitations must not be ignored. Furthermore, due to health issues in this pandemic situation, people may not be able to properly concentrate on online learning, which is also a limitation.

III. E-Learning During the Coronavirus Outbreak

COVID-19 is an aggressive, highly infectious virus disease related to pangolins [11], which can be transmitted via physical contact between two human beings. The microscopic image of the virus resembles a crown, hence the common name coronavirus. The fatality rate of COVID-19 is far higher than conventional flu. In some people, a strong immune system and timely quarantine may be helpful in avoiding the spread, but it is particularly life-threatening for older people. To reduce the risks of this disease, and to keep humanity safe from disaster, the only method of protection is to isolate people from one another, and governments worldwide has imposed lockdown and quarantine measures [12]. Lockdown proves to be the most successful way of imposing social distancing, even for state officials and presidents [13].

Many countries have applied lockdown measures including closed markets, government sector organizations and, specifically, educational institutions such as universities and colleges. This has created a need for the adaptation of e-learning such as Blackboard Learn, which ensures social distancing and quality education. Blackboard Learn provides a

platform and interface for bi-directional communication between students and teachers to continue their process of learning during this pandemic [14]. Aside from various fields of education, Blackboard Learn also provides safety measures and guidelines to be taken in this current situation. The absolute advantage of e-learning is a move towards a modern and advanced learning method, avoiding traditional learning techniques.

Most of the top technical, engineering and management institutions, as well as some private learning organizations, have shifted at a rapid rate to the adaptation of e-learning, even though there are still some existing challenges and limitations in this approach. The research carried out on e-learning has not yet been fully established with a proper conclusion, where all pros and cons have been addressed regarding the proper utilization of e-learning [15]. Research has been presented concluding that online learning isn't significantly helpful in lower classes at school level. Still, a good number of higher educational institutions have acquired a great advantage from the adaptation of e-learning in this current global pandemic. Blackboard Learn is a kind of asynchronous and blended teaching system. Blackboard Learn, together with synchronized, on-campus teaching and interactions, are proving more useful than Massive Open Online Courses (MOOC).

A. Blackboard Learn e-Learning during COVID-19

It is not known how or when the COVID-19 crisis will end. It could take up to a year, based on the current numbers of deaths and infected people. This brings the likelihood of a full adaptation to e-learning in most parts of the world. To facilitate this, there is an urgent need for all participant to have a personal computer, the internet and a sound knowledge of using both. An uninterrupted internet supply is a huge challenge in underdeveloped and developing countries nowadays. The transition to e-learning is moving very swiftly, and the success of online learning greatly depends on the knowledge of teachers and their way of conveying it to students [16]. The interface needs to be user-friendly for tutors and teachers, and it is challenging to encourage web designers and web developers to adjust websites to make them meet the needs of teachers dealing with lockdown and social distancing. Teaching staff must find a method of understanding the online learning interface, and for that they can seek the help of more experienced colleagues and friends [17]. This is a good opportunity for faculty members to move up a gear and start learning new ways of teaching, in order to excel in their educational and professional careers. In a nutshell, it is clear that it will take a lot of effort for teachers to successfully provide and convey education to students, as they also need to protect their family members, and students need to be restricted by their parents from going outside and ensuring social distancing.

IV. History of Blackboard Learn

Two professional educational advisors, namely Matthew Pittinsky and Michael Chasen, formed the basics of online learning when they formed the company Blackboard LLC. Later, they partnered with IMS Global Learning. IMS Global was basically a non-profit organization included in the national

Educause program. As mentioned earlier, Blackboard Learn was launched with the theme of connecting faculty members and students so they can communicate anytime, anywhere, from any remote location. Teachers can upload the necessary course material from home, and students access it from home, completing their assignments online. An additional advantage to this is that their time management will improve over time. Furthermore, Blackboard Learn needed a course management company and they selected CourseInfo. Originally, CourseInfo was launched at Cornell University, and went on to serve as a course management company for Blackboard LLC. Blackboard LLC also contracted MadDuck technologies, which were previously very tough competitors of Richmond. Within the period of a single year, Blackboard LLC excelled by purchasing assess solutions from AT&T. In that time, Blackboard LLC acquired competitive enterpriser institute (CEI) special teams from colleges. Blackboard LLC started to purchase their competitor companies, like Promethius, which they bought from George Washington University. To manage financial issues, Blackboard LLC purchased shares in a transaction company called SA cash. Blackboard LLC was publicly launched in June 2004 after acquiring some $75 million from investing in the stock market. Blackboard LLC partnered with WebCT, and with their help they were able to cover online learning and course management of over 80% of North America. A research concluded that Blackboard LLC is currently being used by almost 70% of universities and colleges in the United States. A study in 2006 found that 60 countries, comprising about 12 million people, employ Blackboard LLC. Blackboard LLC contracts with different educational institutes, offering their services of online e-learning to nearly 2,200 educational institutions using 12 different languages. Blackboard LLC achieved a milestone when its shares on NASDAQ doubled their original price in 2005. Blackboard LLC acquired revenue by offering e-learning to a variety of educational universities. However, a great portion of the revenue was generated from the renewal of licenses of their two-product portfolio [18]. Blackboard LLC is now comprised of two products, namely Networked Transaction Environment (NTE) and Networked Learning Environment (NLE) [19, 20]. Blackboard LLC transactions are carried out by NTE. Its primary aim is to provide an easy interface and server to handle worldwide transactions of Blackboard LLC. Access to new accounts and settings is also being offered by NTE. NTE is an academic suite providing help regarding course and study content. Blackboard LLC can be seen as having NLE at its heart, due to the provision of different services related to education.

V. Utilization of Blackboard System

Along with providing an e-learning interface and LMS for communication purposes between teachers and students, Blackboard Learn also provides extra services like email, discussion boards, podcasts etc. Each user derives their own benefit from Blackboard Learn, as every user has a different way of using the application. For example, someone with an in-depth knowledge of e-learning and familiar with its long-term advantages, will gain more from using Blackboard Learn compared with a less capable user [21, 22]. The success of students in acquiring an education from Blackboard Learn is also dependent on the teaching methodology and awareness of the teacher. The teacher must have a comprehensive knowledge of the usage of Blackboard Learn, and must also be aware of its interface, as that is how he or she can deliver their knowledge to students in the best way [23]. The totally efficient use of Blackboard Learn has not yet been achieved, as a study conducted concluded that only 23% of faulty members have a complete knowledge of e-learning and its integration with books. To address this issue, proper guidance in the shape of tutorials must be provided to everyone involved in e-learning [24]. The study mentioned the advantages of e-learning which include easy communication, a user-friendly interface, an easy way to manage assignments and quizzes, and a transparent grading system particularly suitable for students. Research concluded that Blackboard Learn is currently being used by almost 70 % of universities and colleges in the United States.

As mentioned above, being competent at using Blackboard Learn is very important for both students and faculty members and cannot be ignored, whatever the situation may be. Research conducted by authors in [25] concludes that lecturers and professors prefer to use of Blackboard Learn for optimized course management and online learning purposes. It also provides a good method of intercommunication between teaching staff and students. According to researchers in [26], some professors have difficulties, both personally and with their students, in learning to adapt to the Blackboard Learn interface and have issues with its flexibility. Large numbers of students working online can reduce the amount of time available to interact with their teachers and work out their assigned tasks online on Blackboard Learn [27]. A busy social schedule leads to limited utilization for some students [28]. Students need to work through tutorials for a better understanding of the Blackboard Learn interface, both for their own benefit and also to send feedback to their teachers so they can solve the students' problems remotely.

VI. Design Methodology of Survey

Colleges of the western branch of Qassim University located in the Kingdom of Saudi Arabia carried out a survey based on a questionnaire which included both students and faculty members. The questionnaire was comprised of a course offered by the Deanship about the adaptation and extension of e-learning into every department of the university. The course offered by the Deanship was included in the first phase of this very project. To carry out this project, e-learning was adopted for certain courses, namely Islamic 101, Psychology 101, and Islamic 102. A complete online course was developed by subject specialists with the help of the Deanship, investigate and understand the percentage of students willing to take online courses, and aldo to get an overall estimate of e-learning success. At the same time, the western branch colleges of Qassim University had already started implementing e-learning by offering six different online courses for students. After the completion of each topic and course, a survey was conducted in order to know whether the e-learning process was proving helpful or not, and to compare the results with conventional teaching methodologies.

A survey questionnaire was created online using Google forms, where all students and concerned personnel could complete the questionnaire online. The survey feedback was recorded and used in subsequent surveys to learn about any progress being made by the implementation of e-learning in the university. A graphical representation of the progress of e-learning was required for easy understanding and visualization of the survey results. This is why the Google spreadsheet was integrated with Google forms to present the complete analytical results graphically.

The survey was completed by both faculty members and students, of which the 22 faculty members comprised eight females and 14 males, and a total of 639 students comprised 271 female and 368 males. The participation process for the survey was made easy for the participants as they were sent an email including the survey link, which they could easily access from anywhere. The survey had different content for different genders, ages and academic positions, and for that purpose the overall survey questionnaire was divided into small sub-sections. The questionnaire was composed of questions where students and faculty members were directed to give feedback in the form of strongly disagree, disagree, neutral, agree and strongly agree. A comprehensive overview of the feedback received from the faculty members and students is listed in the results and discussion section below.

VII. RESULTS AND ANALYSIS

Surveys were performed separately on both faculty members and students attending full online courses, and detailed investigation of the feedback achieved from both sets of subjects was analyzed individually. The principal goal was to investigate any difficulties with or limitations of the online e-learning system of the western branch colleges of Qassim University during this pandemic COVID-19 situation. . The ultimate goal is to make improvements in the up-coming version of this system in the near future.

A. Faculty Response to Survey Questionnaire

The faculty questionnaires were composed of six questions regarding any difficulties and limitations of the online course being used during COVID-19. This mainly focused on course objectives, practical skills, training, and handling of the electronic course in such a way that all students become capable of self-learning to present practical work skills. Detailed analysis revealed that about 73.9% of faculty members can handle the full e-course efficiently, and 91.3% can manage student self-learning. Thus, during COVID-19, e-courses make it easy for faculty members to thoroughly guide students attending the course. However, students failed to present practical activities to their respective course professors. A detailed description of the various difficulties being faced are listed below.

Moreover, from Fig. 1, it can be discerned that 18.18% strongly disagree and 40.9% disagree that the developed e-content of the course in this way will facilitate achieving the objectives of the course. However, 13.63% agree and 18.18% strongly agree that course objectives will be fulfilled. Feedback from the remaining 9.09% of faculty members was neutral. Analysis reveals that the majority of faculty members think the

objective of the course may not be facilitated using online e-learning.

From Fig. 2, analysis reveals that 18.18% strongly disagree and 36.36% disagree that the e-content of the course achieves scientific accuracy, however 18.18% agree and 9.09% strongly agree regarding the e-course content accuracy, and the remaining 17.39% of faculty members' feedback was neutral. It is can be seen that a total of 54.54% of the faculty members disagree that the e-course content has scientific accuracy. Whereas, Fig. 3 shows that about 40.9% of the faculty agree that online courses are appropriate for students. It is evident that the majority of the faculty members are against online courses since the basic course objectives can rarely be achieved.

Fig. 4 shows that that 18.18% strongly disagree, 36.36% disagree and a total of 31.91% agree that the course concerned with practical skills related to the course objective. It is evident that the majority of the faculty disagree that the course concerned with practical skills related to the course objective. All the faculty are conscious that fulfilling the practical course objective is challenging.
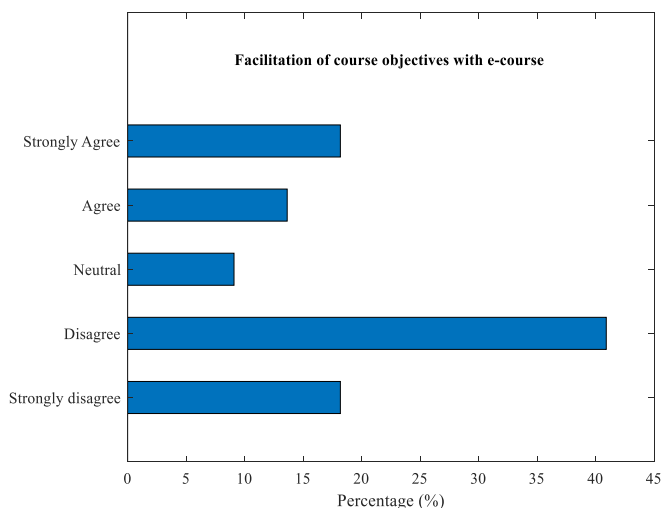

Fig. 1.   Faculty Response Regarding Facilitating e-course Objective.
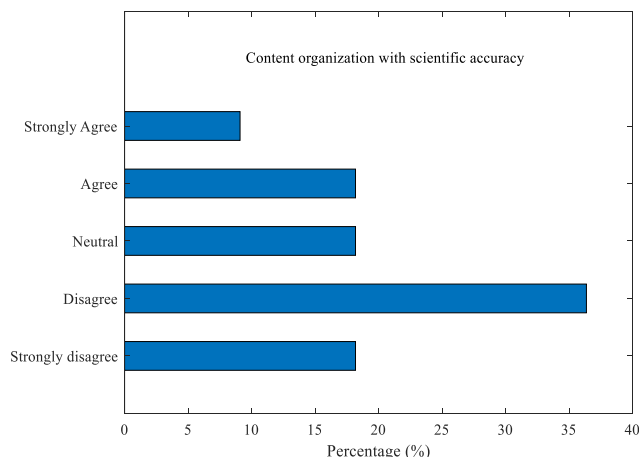

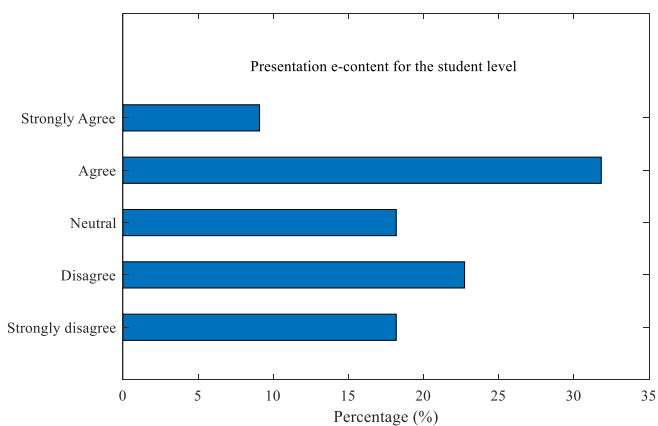Fig. 2.   Response about Content Organization with Scientific Accuracy.

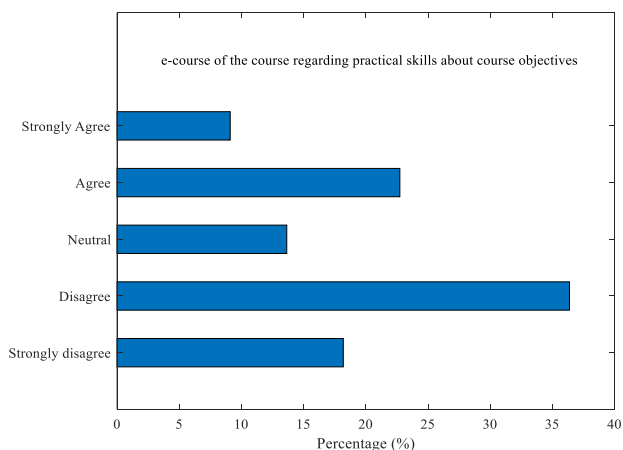Fig. 3. Feedback about e-content Presentation for Student Level.

Fig. 4. Response Regarding Practical Skills about Course Objective.

Further Fig. 5 shows the details of the faculty response regarding their satisfaction with online e-learning course. It can be clearly seen that 13.63% strongly agree, 22.72% agree and a total of 49.36% disagree regarding satisfaction with the online course. However, it is worth mentioning that the faculty still feel it is the most reliable and best alternative solution to teaching and learning in this COVID-19 pandemic.

Detailed results of the faculty questionnaire are listed in Table I. Analysis concludes that the majority of faculty members agree that the electronic full online course offered by the western branch colleges of Qassim University, achieve the course objectives with appropriate e-content which are characterized with scientific accuracy, language integrity, with practical skill that can be easily browsed.

B. Students Response to Survey Questionnaire

The student questionnaire section was mainly concerned with the faculty response regarding query and discussion, explanation about the applied part of the course, asking questions during online courses, the ability to solve problems and, improving teamwork skills. From Fig. 6, it can be clearly seen that that only 4.85% strongly agree and 4.38% agree that the faculty were interested in responding to discussion and inquires, whereas 34.14% disagree, 43.03% strongly disagree and 13.61% students have neutral feedback. Analysis concluded that students are facing problems and difficulties in

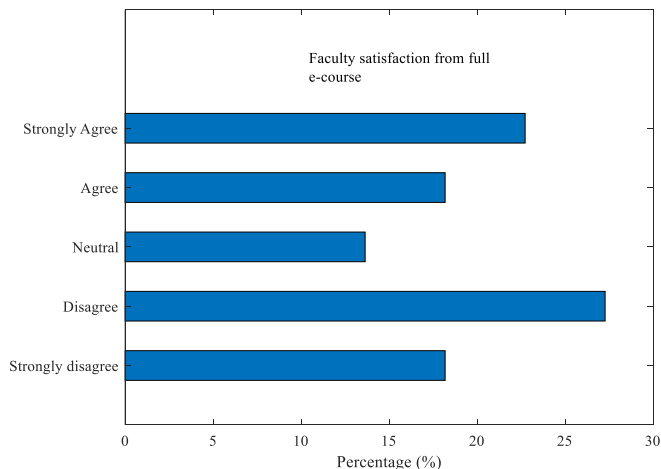discussions and inquires which arise in their minds during full online courses.

Fig. 5. Faculty Feedback Regarding Satisfaction from Full e-courses.

TABLE I.   DETAIL INVESTIGATION OF SURVEY BASED ON FACULTY RESPONSE

| Questions	Faculty decision (%)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Facilitation of course objectives with e-course	18.18	40.9	9.09	13.63	18.18
Content organization with scientific accuracy	18.18	36.36	18.18	18.18	9.09
Presentation e-content for the student level	18.18	33.72	18.18	31.81	9.09
e-content of the course regarding practical skills about course objectives	18.18	36.36	13.63	22.72	9.09
Satisfaction from full e-courses	18.18	31.81	13.63	22.72	13.63
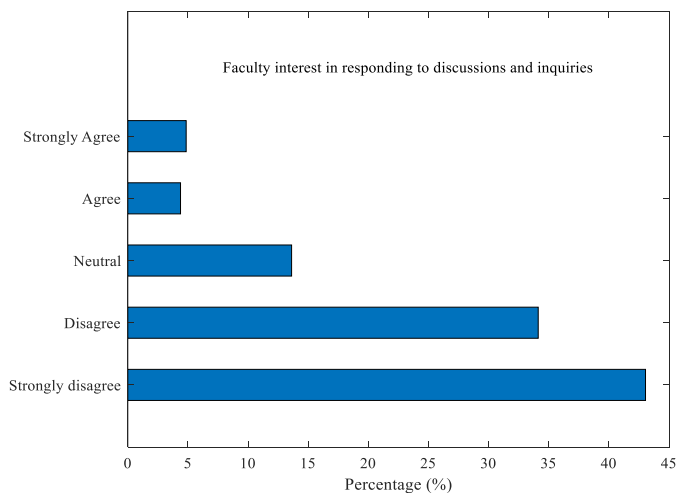
Fig. 6. Students Feedback about Faculty Interest in Responding to Discussion and Inquiries.

From Fig. 7, it is evident that 8.45% strongly agree and 8.29% agree that the faculty provide detailed explanations, whereas about 36.61% disagree and 27.69% strongly disagree with explanations about the applied part. In comparing both agree and disagree responses from students, it can be seen that majority of students have difficulties with the detailed applied knowledge.

In addition, Fig. 8 shows that 11.58% strongly agree and 9.58% agree that the e-course helped them to improve their ability to think and solve problems, whereas 32.70% disagree and 26.60% strongly disagree that helps to improve ability. This analysis concludes that the majority of students face problems with their studies and can't find a way to solve the problem.

Finally, Fig. 9 shows that 11.89% strongly agree and 13.14% of students agree that teaching with the new e-course, based on the full online course of Blackboard Learn helps to improve teamwork skills, whereas 33.64% disagree and 22.84% strongly disagree with this decision. Online courses don't involve any face-to-face meetings, and discussion are rare, therefore greatly influence teamwork skills.
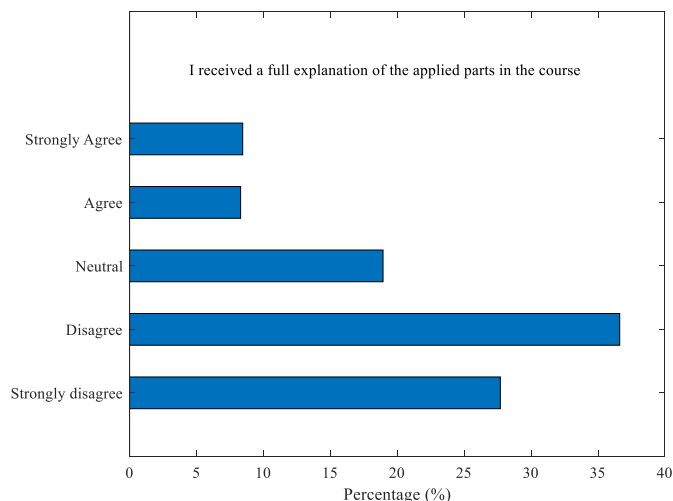

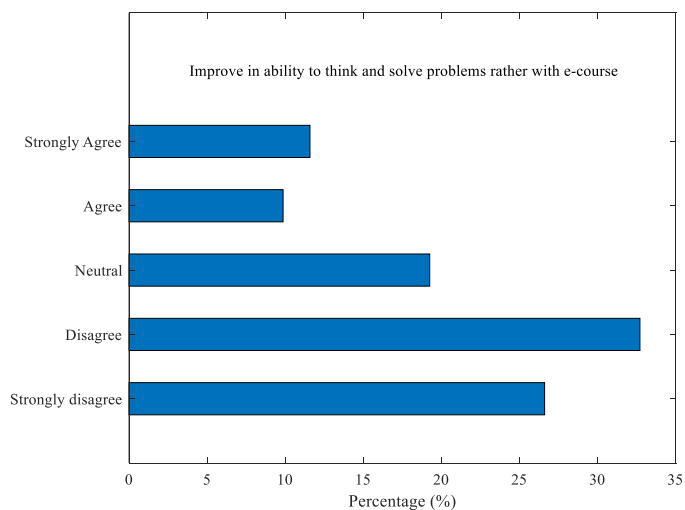Fig. 7.   Faculty Providing Information on Applied Part.

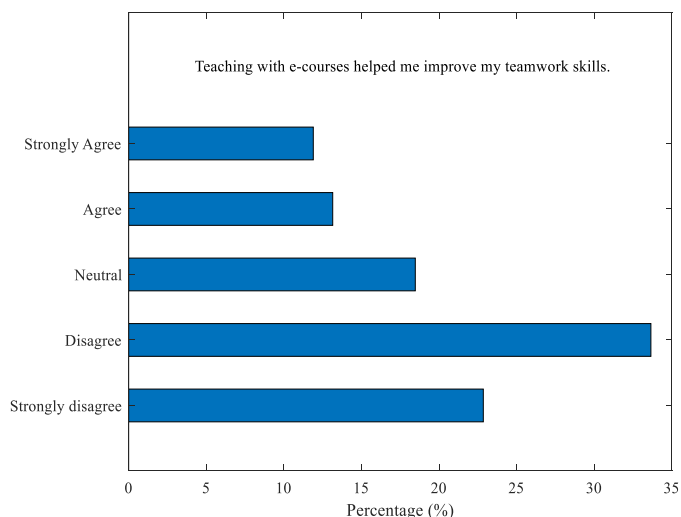Fig. 8.   Improvement to think and Solve the Problem.

Fig. 9.   Quality of the e-course.

Detailed investigations of survey-based student questionnaire responses are listed in Table II. Analysis concludes that the majority of students face a wide range of difficulties with different aspects of the e-course content. Based on the survey feedback, the majority of students suffer from developing knowledge with the applied sections, building teamwork skills, and gaining knowledge regarding problem solving.

TABLE II.   DETAIL INVESTIGATION OF SURVEY BASED ON FACULTY RESPONSE

Questions	Faculty decision (%)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Faculty interest in responding to discussions and inquiries	43.03	34.14	13.61	4.38	4.85
I received a full explanation of the applied parts in the course	27.69	36.61	18.93	8.29	8.45
Improve in ability to think and solve problems rather with e-course	26.60	32.70	19.24	9.58	11.58
Teaching with e-courses helped me improve my teamwork skills.	22.84	33.64	18.46	13.14	11.89

VIII. DISCUSSION

During the COVID-19 pandemic, where the majority of countries worldwide went into a lockdown state, educational institutions are compelled to replace traditional face-to face-teaching with full online courses using LMS such as e-Learning. Different e-learning course systems were implemented based on LMS and visualized for its uses in the educational institutions. Introduction section presents and overview numerous authors studied based on survey regarding the effectiveness of the Blackboard LMS for online courses in

the past years. Here is this paper, with a detailed investigation of difficulties in the new developed full online course system at the western branch colleges of Qassim University in the Kingdom of Saudi-Arabia during COVID-19 where all the classes are shifted to online system. Analysis is carried out based on the survey response from the students and teachers for new online courses and Blackboard system.

Based on the faculty responses, analysis concludes that a total 59.08% of faculty members agree it is hard to facilitate the course objectives by using the online course, while only about 40% think it is achievable. This is because the e-course content differs in online course from the one studied before COVID-19. It also removes teamwork and the ability to practice lab work. Based on the survey response from the faculty members, only 45.46% think that the practical skill is not affected, however the majority believe it is. Since the course objectives are not fulfilled and practical skills are affected, almost 50% of the faculty members are not satisfied with the online courses.

Moreover, a comprehensive overview of student feedback leads to the conclusion that online courses greatly affect teacher-student discussions, since there is no practical lab work and issues arise regarding problem solving. Analysis shows that 77.17% of the students think that it is hard to have discussions in online courses, and to solve the questions that arise in their minds, because online courses lack practical work in the applied parts which are needed to fully understand the phenomena. Furthermore, it is concluded that since the questions remain unanswered, it can't help to develop problem solving capabilities. Finally, since it is online course system, there is no way to collaborate in a team to improve teamwork abilities.

IX. CONCLUSION

In this paper, the author investigates difficulties in Blackboard Learn, an LMS, through a survey from faculty and students in western branch colleges of Qassim University in the Kingdom of Saudi Arabia on full online courses in the global pandemic COVID-19. The main objective was to investigate the influence of online learning e-courses on educational institutes and learning outcomes. This paper is intended to perform surveys on both faculties and students with key focus on the course objectives, practical skills, faculty response to queries and discussion, explanations about applied courses, the ability to solve problems, and the improvement of teamwork skills. Detailed investigation regarding difficulties in the online e-course during the global pandemic COVID-19 reveals that a total of 59.08% of the faculty members think it is hard to facilitate course objectives, compared with using traditional teaching systems, due to the lack of practical lab work and detailed knowledge on applied courses. . Moreover, 77.17% of the students think it is hard to have discussions in online courses to answer questions, which degrades their problem-solving capabilities. The aforesaid short comings are recommended for improvement in the near future in the updated version of the system.

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